# Rich Text Format (RTF) Specification

## Version 1.9.1

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# Rich Text Format (RTF) Specification

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Microsoft Corporation

19 March 2008

**Applies to:** 2007 Microsoft Office Suites, Microsoft Office Word 2007, and programs that read/write RTF in general

**For Microsoft® Windows® and Apple® Macintosh® Applications**

| | | |
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# Contents

**Introduction 7**
Basic Entities 7
Control Word 7
Units 8
Control Symbol 9
Group 9
Destinations 9
Conventions of an RTF Reader 10
Formal Syntax 11
**Contents of an RTF File 12**
Header 12
RTF Version 12
Character Set 12
Unicode RTF 14
Document Text 15
Destination Text 15
Default Fonts and Languages 16
Theme Data 16
Color Scheme Mapping 17
Font Table 17
Font Embedding 20
Code Page Support 20
Theme Font Information 20
File Table 21
Color Table 22
Default Properties 23
Style Sheet 24
Quick Styles 26
Table Styles 26
Style and Formatting Restrictions 28
List Tables 30
List Table 30
List Override Table 34
Paragraph Group Properties 35
Revision Marks 35
RSID 36

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User Protection Information 37
Generator 38
Document Area 38
Information Group 38
Read-Only Password Protection 40
XML Namespace Table 41
Document Formatting Properties 41
Page Information 49
Linked Styles 49
Compatibility Options 49
Mail Merge 63
Mail Merge Field Map Data Type 70
Mail Merge Destination 70
Mail Merge Source Document Types 71
Mail Merge Data Types 71
Section Text 71
Section Formatting Properties 71
Headers and Footers 77
Paragraph Text 77
Paragraph Formatting Properties 78
Tabs 83
Absolute Postion Tabs 83
Bullets and Numbering 84
Revision Marks for Paragraph Numbers and ListNum Fields 87
Paragraph Borders 89
Paragraph Shading 90
Positioned Objects and Frames 91
Table Definitions 93
Mathematics 115
Syntax 116
Math Objects 119
Math Object Arguments 120
Math RTF Control Words 120
Character Text 130
Font (Character) Formatting Properties 130
Character Borders and Shading 139
Character Revision Mark Properties 140
Associated Character Properties 140
Highlighting 142
Special Characters 142


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Hyphenation Information 144
Document Variables 145
Bookmarks 145
Move Bookmarks 145
Protection Exceptions 147
Pictures 148
Custom XML Tags 151
SmartTag Data 153
Custom XML Data Properties 153
Objects 154
Macintosh Edition Manager Publisher Objects 157
Drawing Objects 157
Word 97 Through Word 2007 RTF for Drawing Objects (Shapes) 162
Drawing Object Properties 164
Footnotes 192
Comments (Annotations) 193
Fields 194
EQ field and East Asian Formatting 195
Form Fields 197
Index Entries 198
Table of Contents Entries 199
Bidirectional Language Support 199
**East Asian Support 200**
Escaped Expressions 200
Character Set and Mapping 201
Font Family 201
ShiftJIS Font Without \cpg*N* or \fcharset*N* 201
Composite Fonts (Associated Fonts for International Runs) 201
East Asian Control Words Created by Word 6J 203
East Asian Control Words 205
East Asian Control Words Created by Word 2000 207
**Appendix A: Sample RTF Reader Application 208**
How to Write an RTF Reader 208
A Sample RTF Reader Implementation 209
rtfdecl.h 209
rtftype.h 209
rtfactn.c 212
Notes on Implementing Other RTF Features 213
Tabs and Other Control Sequences Terminating in a Fixed Control 213
Borders and Other Control Sequences Beginning with a Fixed Control 213

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Other Problem Areas in RTF 213
Style Sheets 213
Property Changes 213
Fields 213
Tables 214
Program Listings 214
rtfdecl.h 214
rtftype.h 215
rtfreadr.c 217
rtfactn.c 224
makefile 230
**Appendix B: Index of RTF Control Words 231**
**Appendix C: Control Words Introduced by Specific/Other Microsoft Products 277**
Pocket Word and RichEdit 277
Exchange (Used in RTF ↔ HTML Conversions) 278
Microsoft Office Outlook (Used in RTF E-Mail) 278
**References 278**

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# Introduction

The Rich Text Format (RTF) is a method of encoding formatted text and graphics for use within applications and for transfer between applications. Users often depend on special translation software to move word-processing documents between various applications developed by different companies. RTF serves as both a standard of data transfer between word processing software, document formatting, and a means of migrating content from one operating system to another. RTF allows documents to migrate forward and backward in time: old readers can read the most recent RTF and new readers can read old RTF. The only other widely used rich-text format that has this flexibility is HTML, which is not nearly as rich.

This document specifies the format used by RTF for text and graphics interchange. RTF usually uses ASCII (lower byte range – 7 bits) to represent rich text, with runs of text that include nonASCII characters requiring conversion to appropriate code values. This version of the RTF Specification includes all control words introduced by Microsoft Office Word up through Word 2007. For Microsoft Word for Windows® 95 on, the Index of RTF Control Words in Appendix B reveals the version of Word that added the control words. It also reveals the control words defined in the 1987 Microsoft Systems Journal RTF article. Files created with an earlier version of Word using RTF should be read without problem by newer versions of Word. Older versions of Word ignore control words and groups they don't understand.

Software that can convert rich text to RTF is called an RTF writer. An RTF writer separates the application's control information from the actual text and writes a file containing the text and the RTF command groups associated with that text. Software that reads an RTF file and is capable of interpreting or discarding the formatting commands is called an RTF reader.

A sample RTF parsing reader program is given in Appendix A: Sample RTF Reader Application. This sample RTF reader is designed for use in conjunction with this document to assist those interested in developing their own RTF readers. The sample RTF reader is not a for-sale product, and Microsoft does not provide technical support or any other kind of support for the sample RTF parsing reader code or this document.

## *Basic Entities*

RTF files are usually 7-bit ASCII plain text, consisting of control words, control symbols, and groups. RTF files are easily transmitted between most PC based operating systems because of their 7-bit ASCII characters. However, converters that communicate with Microsoft Word for Windows or Microsoft Word for the Macintosh should expect data transfer as 8-bit characters and binary data (see **\bin*N***) can contain any 8-bit values. Unlike most clear text files, an RTF file does not have to contain any carriage return/line feed pairs (CRLFs) and CRLFs should be ignored by RTF readers except that they can act as control word delimiters. RTF files are more readable when CRLFs occur at major group boundaries.

## Control Word

An RTF *control word* is a specially formatted command used to mark characters for display on a monitor or characters destined for a printer. A control word's name cannot be longer than 32 letters.

A control word is defined by:

\<ASCII Letter Sequence><Delimiter>

where <Delimiter> marks the end of the control word's name. For example:

\par

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A backslash begins each control word and the control word is case sensitive.

The <ASCII Letter Sequence> is made up of ASCII alphabetical characters (a through z and A through Z). Control words (also known as keywords) originally did not contain any uppercase characters, however in recent years uppercase characters appear in some newer control words.

The <Delimiter> can be one of the following:

- A space. This serves only to delimit a control word and is ignored in subsequent processing.
- A numeric digit or an ASCII minus sign (-), which indicates that a numeric parameter is associated with the control word. The subsequent digital sequence is then delimited by any character other than an ASCII digit (commonly another control word that begins with a backslash). The parameter can be a positive or negative decimal number. The range of the values for the number is nominally −32768 through 32767, i.e., a signed 16-bit integer. A small number of control words take values in the range −2,147,483,648 to 2,147,483,647 (32-bit signed integer). These control words include **\bin*N***, **\revdttm*N***, **\rsid*N*** related control words and some picture properties like **\bliptag*N***. Here ***N*** stands for the numeric parameter. An RTF parser must allow for up to 10 digits optionally preceded by a minus sign. If the delimiter is a space, it is discarded, that is, it's not included in subsequent processing.
- Any character other than a letter or a digit. In this case, the delimiting character terminates the control word and is not part of the control word. Such as a backslash "\", which means a new control word or a control symbol follows.

If a single space delimits the control word, the space does not appear in the document (it's ignored). Any characters following the single space delimiter, including any subsequent spaces, will appear as text or spaces in the document. For this reason, you should use spaces only where necessary. It is recommended to avoid spaces as a means of breaking up RTF syntax to make it easier to read. You can use paragraph marks (CR, LF, or CRLF) to break up lines without changing the meaning except in destinations that contain **\bin*N***.

In this document, a control word that takes a numeric parameter ***N*** is written with the ***N***, as shown here for **\bin*N***, unless the control word appears with an explicit value. The only exceptions to this are "toggle" control words like **\b** (bold toggle), which have only two states. When such a control word has no parameter or has a nonzero parameter, the control word turns the property on. When such a control word has a parameter of 0, the control word turns the property off. For example, **\b** turns on bold and **\b0** turns off bold. In the definitions of these toggle control words, the control word names are followed by an asterisk.

## Units

The parameter ***N*** often specifies a dimension. The units used for dimensions in RTF may be points (pts), half pts, twips, Word device-independent units, EMUs, or pixels, depending on the control word. These units are summarized in the table

| Units | Conversions |
|---|---|
| Points (pts) | 72/inch |
| Half points | 144/inch |
| Twips | 1440/inch, 20/pt |
| Device-independent | 294912/inch, 4096/pt |
| EMUs | 914400/inch, 36000/mm, 12700/pt, 635/twip |
| Pixels | typically 96/inch |

EMUs (English-Metric Units) are used for some drawing parameter dimensions (see **\shp**) and pixels are used for some bitmap and metafile dimensions. EMUs are accurate for inches, millimeters, points, and twips. The most commonly used units in RTF are twips.

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## Control Symbol

A *control symbol* consists of a backslash followed by a single, non-alphabetical character. For example, **\~** (backslash tilde) represents a non-breaking space. Control symbols do not have delimiters, i.e., a space following a control symbol is treated as text, not a delimiter.

## Group

A *group* can consist of text, control words, or control symbols enclosed in braces (**{ }**). The opening brace (**{** ) indicates the start of the group and the closing brace ( **}**) indicates the end of the group. Each group specifies the text affected by the group and the different attributes of that text. The RTF file can also include groups for fonts, styles, screen color, pictures, footnotes, comments (annotations), headers and footers, summary information, fields, bookmarks, document-, section-, paragraph- and character-formatting properties, mathematics, images, and objects. If the font, file, style, color, revision mark, and summary-information groups and document-formatting properties are included in the file, they must appear in the RTF header, which precedes the RTF body. If the content of any group is not used, the group can be omitted. The groups are discussed in the following sections. Any group that uses the properties defined in another group must appear after the group that defines those properties. For example, color and font properties must precede the style group.

## Destinations

Certain control words, referred to as *destinations*, mark the beginning of a collection of related text that could appear at another position, or destination, within the document. Destinations may also include text that is used but does not appear within the document at all. An example of a destination is the **\footnote** group, where the footnote text follows the control word. Page breaks cannot occur in destination text. A destination control word and its associated text must be enclosed in braces.

Destinations added after the 1987 RTF Specification may be preceded by the control symbol ***** (backslash asterisk). This control symbol identifies destinations whose related text should be ignored if the RTF reader does not recognize the destination control word. RTF writers should follow the convention of using this control symbol when adding new destinations or groups. Destinations whose related text should be inserted into the document even if the RTF reader does not recognize the destination should not use *****.

Most formatting specified within a group affects only the text within that group (including nested groups within that group). Generally, text within a group inherits the formatting of the text in the outer group. However, Microsoft implementations of RTF assume that the footnote, annotation, header, and footer groups (described later in this specification) do not inherit the formatting of the outer group. Therefore, to ensure that these groups are formatted correctly, you should set the formatting within these groups to the appropriate default with the **\sectd, \pard,** and **\plain** control words, and then add any desired formatting.

The control words, control symbols, and braces constitute control information. All other characters in the file are plain text or data. Here is an example containing plain text that does not exist within an inside group:

```
{\rtf1\ansi\deff0{\fonttbl{\f0\froman Tms Rmn;}{\f1\fdecor Symbol;}{\f2\fswiss Helv;}}
{\colortbl;\red0\green0\blue0;\red0\green0\blue255;\red0\green255\blue255;\red0\green255\blue0;\red25
5\green0\blue255;\red255\green0\blue0;\red255\green255\blue0;\red255\green255\blue255;}
{\stylesheet{\fs20 \snext0 Normal;}}{\info{\author John Doe}{\creatim\yr1990\mo7\dy30\hr10\min48}
{\version1}{\edmins0}{\nofpages1}{\nofwords0}{\nofchars0}{\vern8351}}
\widoctrl\ftnbj \sectd\linex0\endnhere \pard\plain \fs20 This is plain text.\par}
```

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Even though "This is plain text." is not part of an inside group, it is part of the encompassing **{\rtf1…}** group and hence is part of the body of the RTF file. It is subject to the formatting specified by and after the **\pard** command. Specifically, the **\pard** resets any previous paragraph formatting, **\plain** resets any previous character formatting, and **\fs20** sets the font size to 20 half points, i.e., 10 points.

As previously mentioned, the backslash (\) and braces ({ }) have special meaning in RTF. To use these characters as text, precede them with a backslash, as in the control symbols ****, **\{**, and **\}**.

## *Conventions of an RTF Reader*

The reader of an RTF stream is concerned with the following:

- Separating control information from plain text.
- Acting on control information.
- Collecting and properly inserting text into the document, as directed by the current group state.

Acting on control information is designed to be a relatively simple process. Some control information adds special characters to the plain text stream. Other information serves to change the *program state*, which includes properties of the document as a whole, or to change any of a collection of *group states*, which apply to parts of the document.

A group state can specify the following:

- The *destination*, or part of the document that the plain text is constructing.
- Character-formatting properties, such as bold or italic.
- Paragraph-formatting properties, such as justified or centered.
- Section-formatting properties, such as the number of columns.
- Table-formatting properties, which define the number of cells and dimensions of a table row.

In practice, an RTF reader will evaluate each character it reads in sequence as follows:

- If the character is an opening brace ({), the reader stores its current state on the stack. If the character is a closing brace (}), the reader retrieves the current state from the stack.
- If the character is a backslash (\), the reader collects the control word or control symbol and its parameter, if any, and looks up the control word or control symbol in a table that maps control words to actions. It then carries out the action prescribed in the lookup table. (The possible actions are discussed in the following table.) The read pointer is left before or after a control-word delimiter, as appropriate.
- If the character is anything other than an opening brace ({), closing brace (}), backslash (\), or a CRLF (carriage return/line feed), the reader assumes that the character is plain text and writes the character to the current destination using the current formatting properties.

If the RTF reader cannot find a particular control word or control symbol in the lookup table described in the preceding list, the control word or control symbol should be ignored. If the control word or control symbol is preceded by an opening brace ({), it is part of a group. The current state should be saved on the stack, but no state change should occur. When a closing brace (}) is encountered, the current state should be retrieved from the stack, thereby resetting the current state. If an unknown control word is preceded by '{*', then it starts an ignorable destination group. The RTF reader should discard all text up to and including the closing brace (}) that closes this group. All RTF readers must recognize all destinations defined in the 1987 RTF Specification. The reader may skip past the whole ignorable destination group, but it is not allowed to discard the leading control word alone. Ignorable destinations defined since the 1987 RTF Specification are marked with the ***** control symbol, unless they always appear within groups so marked.

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**Note:** All RTF readers must implement the ***** control symbol so that they can read RTF files written by newer RTF writers.

For control words or control symbols that the RTF reader can find in the lookup table, the possible actions are as follows.

| Action | Description |
|---|---|
| Change Destination | The RTF reader changes the destination to the destination described in the table entry. Destination changes are legal only immediately after an opening brace ({). (Other restrictions may also apply; for example, footnotes cannot be nested.) Many destination changes imply that the current property settings will be reset to their default settings. Examples of control words that change destination are **\footnote**, **\header**, **\footer**, **\pict**, **\info**, **\fonttbl**, **\stylesheet**, and **\colortbl**. This specification identifies all destination control words where they appear in control-word tables. |
| Change Formatting Property | The RTF reader changes the property as described in a table entry. If a parameter is required, an *N* appears at the end of the control word name. Appendix B: Index of RTF Control Words at the end of this Specification also specifies which control words require parameters. If a parameter is needed and not specified, then a default value is used. The default value used depends on the control word. If the control word does not specify a default, then RTF readers should assume a default of 0 except for the toggle control words (like **\b**), which have a default of 1. |
| Insert Special Character | The reader inserts into the document the character code or codes described in the table entry. |
| Insert Special Character and Perform Action | The reader inserts into the document the character code or codes described in the table entry. Then the reader performs the action the entry specifies. For example, when Microsoft Word interprets **\par**, a paragraph mark is inserted in the document and special code is run to record the paragraph properties belonging to that paragraph mark. |

## *Formal Syntax*

RTF uses the following syntax, based on Backus-Naur Form.

| Syntax | Meaning |
|---|---|
| #PCDATA | Text (without control words) |
| #SDATA | Hexadecimal data |
| #BDATA | Binary data |
| 'c' | A literal, where c is one or more ASCII characters |
| A? | Item A is optional |
| A+ | One or more repetitions of item A |
| A* | Zero or more repetitions of item A |
| A B | Item A followed by item B |
| A \| B | Item A or item B |
| A & B | Item A or item B, in any order |
| <letter> | a..z \| A..Z |
| <control name> | <letter>+ |
| <digit> | 0..9 |
| <parameter> | '-'? <digit>+ |
| <control word entity> | '\' <control name><parameter>? |

For the sake of readability, when a <control word entity> appears in a definition, it is displayed in boldface without enclosing apostrophes.

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# Contents of an RTF File

An RTF file has the following syntax:

<File> '{' <header> <document> '}'

This syntax is the standard RTF syntax; any RTF reader must be able to interpret RTF written to this syntax correctly. It is worth mentioning again that RTF readers are not required to interpret all control words, but they must be able to harmlessly ignore unknown (or unused) control words, and they must be able to skip over destinations marked with the ***** control symbol. There may be RTF writers that generate RTF that does not conform to this syntax, and as such, RTF readers should be robust enough to handle some minor variations. Nonetheless, if an RTF writer generates RTF conforming to this specification, then any correct RTF reader should be able to interpret it.

**Note:** RTF readers can reject input if strongly illegal data is encountered that is most probably created maliciously. For example, if the table cell width control word **\cellx*N*** is encountered outside of a table, the RTF reader should probably reject the file.

## *Header*

The header has the following syntax:

<header> **\rtf1 \fbidis**? <character set> <from>? <deffont> <deflang> <fonttbl>? <filetbl>? <colortbl>? <stylesheet>? <stylerestrictions>? <listtables>? <revtbl>? <rsidtable>? <mathprops>? <generator>?

Each of the various header tables should appear, if they exist, in this order. Document properties can occur before and between the header tables. A property must be defined before being referenced. Specifically,

- The style sheet must occur before any style usage.
- The font table must precede any reference to a font (except those in <deffont>).
- The default font keyword(s) must precede any text not explicitly formatted by a font, because they specify the fonts to use in such cases.

### RTF Version

An entire RTF file is considered a group and must be enclosed in braces. The **\rtf*N*** control word must follow the opening brace. The numeric parameter ***N*** identifies the major version of the RTF Specification used. The RTF standard described in this specification, although titled as version 1.9.1, continues to correspond syntactically to RTF Specification version 1. Therefore, the numeric parameter ***N*** for the **\rtf*N*** control word should still be emitted as 1.

### Character Set

After specifying the RTF version, you must declare the default character set used in the document unless it is **\ansi** (the default). The control word for the character set must precede any plain text or any table control words. The RTF Specification supports the following document character sets <character set>

<character set> (**\ansi** | **\mac** | **\pc** | **\pca**)? **\ansicpg*N***?

where the control words are defined by

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| Control word | Character set |
|---|---|
| \ansi | ANSI (the default) |
| \mac | Apple Macintosh |
| \pc | IBM PC code page 437 |
| \pca | IBM PC code page 850, used by IBM Personal System/2 (not implemented in version 1 of Microsoft Word for OS/2) |
| \ansicpg*N* | This keyword represents the default ANSI code page used to perform the Unicode to ANSI conversion when writing RTF text. ***N*** represents the code page in decimal. This is typically set to the default ANSI code page of the run-time environment (for example, **\ansicpg1252** for U.S. Windows). The reader can use the same ANSI code page to convert ANSI text back to Unicode. If it appears, this keyword should be emitted in the RTF header section right after the **\ansi**, **\mac**, **\pc** or **\pca** keyword. Possible values include those in the following table. |
| \fbidis | Flag written by RichEdit to indicate a single font is active instead of a set of associated fonts. |

| Code page | Name |
|---|---|
| 437 | United States IBM |
| 708 | Arabic (ASMO 708) |
| 709 | Arabic (ASMO 449+, BCON V4) |
| 710 | Arabic (transparent Arabic) |
| 711 | Arabic (Nafitha Enhanced) |
| 720 | Arabic (transparent ASMO) |
| 819 | Windows 3.1 (United States and Western Europe) |
| 850 | IBM multilingual |
| 852 | Eastern European |
| 860 | Portuguese |
| 862 | Hebrew |
| 863 | French Canadian |
| 864 | Arabic |
| 865 | Norwegian |
| 866 | Soviet Union |
| 874 | Thai |
| 932 | Japanese |
| 936 | Simplified Chinese |
| 949 | Korean |
| 950 | Traditional Chinese |
| 1250 | Eastern European |
| 1251 | Cyrillic |
| 1252 | Western European |
| 1253 | Greek |
| 1254 | Turkish |
| 1255 | Hebrew |
| 1256 | Arabic |
| 1257 | Baltic |
| 1258 | Vietnamese |
| 1361 | Johab |
| 10000 | MAC Roman |
| 10001 | MAC Japan |
| 10004 | MAC Arabic |
| 10005 | MAC Hebrew |
| 10006 | MAC Greek |

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| | |
|---|---|
| 10007 | MAC Cyrillic |
| 10029 | MAC Latin2 |
| 10081 | MAC Turkish |
| 57002 | Devanagari |
| 57003 | Bengali |
| 57004 | Tamil |
| 57005 | Telugu |
| 57006 | Assamese |
| 57007 | Oriya |
| 57008 | Kannada |
| 57009 | Malayalam |
| 57010 | Gujarati |
| 57011 | Punjabi |

Note that runs of text marked with a particular font index (see **\f*N*** in the Font Table section) use the codepage for that font as given by **\cpg*N*** or implied by **\fcharset*N***, unless they use Unicode RTF described in the following section.

## Unicode RTF

From Word 97 onward, Word is based on Unicode. Text characters can be handled using the 16-bit Unicode character-encoding scheme defined in this section. Expressing this text in RTF required a new mechanism, because until Word 97, RTF handled only 7-bit characters directly and 8-bit characters encoded as hexadecimal using \'xx. The Unicode mechanism described here can be applied to any RTF destination or body text.

| Control word | Meaning |
|---|---|
| \uc*N* | This keyword represents the number (count) of bytes that follow a **\u*N*** Unicode character to give the codepage code that best corresponds to the Unicode character. This keyword may be used at any time, and values are scoped like character properties. That is, a **\uc*N*** keyword applies only to text following the keyword, and within the same (or deeper) nested braces. On exiting the group, the previous **\uc*N*** value is restored. The reader must keep a stack of counts seen and use the most recent one to skip the appropriate number of characters when it encounters a **\u*N*** keyword. When leaving an RTF group that specified a **\uc*N*** value, the reader must revert to the previous value. A default of 1 should be assumed if no **\uc*N*** keyword has been seen in the current or outer scopes.<br><br>A common practice is to emit no ANSI representation for Unicode characters within a Unicode destination context (that is, inside a **\ud** destination). Typically, the destination will contain a **\uc0** control sequence. There is no need to reset the count on leaving the **\ud** destination, because the scoping rules will ensure the previous value is restored. |
| \u*N* | This keyword represents a single Unicode character that has no equivalent ANSI representation based on the current ANSI code page. ***N*** represents the Unicode character value expressed as a decimal number.<br><br>This keyword is followed immediately by equivalent character(s) in ANSI representation. In this way, old readers will ignore the **\u*N*** keyword and pick up the ANSI representation properly. When this keyword is encountered, the reader should ignore the next ***N'*** characters, where ***N'*** corresponds to the last **\uc*N'*** value encountered.<br><br>As with all RTF keywords, a keyword-terminating space may be present (before the ANSI characters) that is not counted in the characters to skip. While this is not likely to occur (or recommended), a **\bin*N*** keyword, its argument, and the binary data that follows are considered one character for skipping purposes. If an RTF scope delimiter character (that is, an opening or closing brace) is encountered while scanning skippable data, the skippable data is considered to end before the delimiter. This makes it possible for a reader to perform some rudimentary error recovery. To include an RTF delimiter in skippable data, it must be represented using the appropriate control symbol (that is, escaped with a backslash,) as in plain text. Any RTF control word or symbol is considered a single character for the purposes of counting skippable |

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| Control word | Meaning |
|---|---|
| | characters.<br><br>An RTF writer, when it encounters a Unicode character with no corresponding ANSI character, should output **\u*N*** followed by the best ANSI representation it can manage. Often a question mark is used if no reasonable ANSI character exists. In addition, if the Unicode character translates into an ANSI character stream with a count of bytes differing from the current Unicode Character Byte Count, it should emit the appropriate **\uc*N*** keyword prior to the **\u*N*** keyword to notify the reader of the change.<br><br>Most RTF control words accept signed 16-bit numbers as arguments. For these control words, Unicode values greater than 32767 are expressed as negative numbers. For example, the character code U+F020 is given by \u-4064. To get -4064, convert $F020_{16}$ to decimal (61472) and subtract 65536.<br><br>Occasionally Word writes SYMBOL_CHARSET (nonUnicode) characters in the range U+F020..U+F0FF instead of U+0020..U+00FF. Internally Word uses the values U+F020..U+F0FF for these characters so that plain-text searches don't mistakenly match SYMBOL_CHARSET characters when searching for Unicode characters in the range U+0020..U+00FF. To find out the correct symbol font to use, e.g., Wingdings, Symbol, etc., find the last SYMBOL_CHARSET font control word **\f*N*** used, look up font ***N*** in the font table and find the face name. The charset is specified by the **\fcharset*N*** control word and SYMBOL_CHARSET is for ***N*** = 2. This corresponds to codepage 42. |
| \upr | This keyword represents a destination with two embedded destinations, one represented using Unicode and the other using ANSI. This keyword operates in conjunction with the **\ud** keyword to provide backward compatibility. The general syntax is as follows:<br><br>'{' **\upr** '{' keyword ansi_text '}{*' **\ud** '{' keyword Unicode_text '}}}'<br><br>Notice that the **\upr** keyword destination does not use the ***** keyword; this forces the old RTF readers to pick up the ANSI representation and discard the Unicode one. |
| \ud | This destination is represented in Unicode. The text is represented using a mixture of ANSI translation and **\u*N*** keywords to represent characters that do not have exact ANSI equivalents. |

## Document Text

Document text should be emitted as ANSI characters. If there are Unicode characters that do not have corresponding ANSI characters, they should be output using the **\uc*N*** and **\u*N*** keywords.

For example, the text "LabΓValue" (Unicode characters 0x004c, 0x0061, 0x0062, 0x0393, 0x0056, 0x0061, 0x006c, 0x0075, 0x0065) should be represented as follows (assuming a previous **\uc1**):

Lab\u915GValue

## Destination Text

Destination text is defined as any text represented in an RTF destination. A good example is the bookmark name in the **\bkmkstart** destination.

Any destination containing Unicode characters can be written as a pair of destinations, one within a **\upr** group that ensures old readers can read it properly and the other within a **\ud** group that ensures no Unicode character encoding is lost when read with a new reader.

For example, a bookmark name "LabΓValue" (Unicode characters 0x004c, 0x0061, 0x0062, 0x0393, 0x0056, 0x0061, 0x006c, 0x0075, 0x0065) should be represented as follows (assuming an active **\uc1**):

{\upr{*\bkmkstart LabGValue}{*\ud{*\bkmkstart Lab\u915GValue}}}

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The first sub destination contains only ANSI characters and is the representation that old readers will see. The second sub destination is a ***\ud** destination that contains a second copy of the **\bkmkstart** destination. This copy can contain Unicode characters and is the representation that Unicode-aware readers must pay attention to, ignoring the ANSI-only version.

**Note**: this example could also be expressed as (assuming an active **\uc1**)

{*\bkmkstart Lab\u915GValue}

## Default Fonts and Languages

Default font settings can be used to tell the program what regional settings are appropriate as defaults. For example, having a Japanese font set in **\stshfdbch*N*** would tell Word to enable Japanese formatting options. Here ***N*** refers to an entry in the font table. The syntax for <from>, <deffont> and <deflang> appearing in the RTF Header is

| | |
|---|---|
| <from> | **\fromtext** \| **\fromhtml** |
| <deffont> | **\deff*N*? \adeff*N*?** (**\stshfdbch*N*** **\stshfloch*N*** **\stshfhich*N*** **\stshfbi*N***)? |
| <deflang> | **\deflang*N***? **\deflangfe*N***? **\adeflang*N***? |

| Control word | Meaning |
|---|---|
| \fromtext | Indicates document was originally plain text email. |
| \fromhtml*N* | Indicates document was originally HTML email and may contain encapsulated HTML tags. This keyword may be followed by a version number (currently 1). |
| \deff*N* | Defines default font to be **\f*N*** in case text is encountered before any **\f*N*** control word is active. |
| \adeff*N* | Defines default BiDi font to be **\f*N*** in case BiDi text is encountered before any **\f*N*** control word is active. |
| \stshfdbch*N* | Defines default East Asian font for style sheets. |
| \stshfloch*N* | Defines default ASCII font for style sheets. |
| \stshfhich*N* | Defines default High-ANSI font for style sheets. |
| \stshfbi*N* | Defines default Complex Script (BiDi) font for style sheets. |
| \deflang*N* | Defines default language to be used when the **\plain** control word is encountered. See the standard language table for a list of possible values for ***N***. |
| \deflangfe*N* | Default language ID for East Asian text in Word. |
| \adeflang*N* | Default language ID for South Asian/Middle Eastern text in Word. The default languages are determined by the current primary editing language and the enabled editing languages (can be changed via Microsoft Office Language Settings applet). |

Default font settings can be used to tell the program what regional settings are appropriate as defaults. For example, having a Japanese font set in **\stshfdbch*N*** would tell Word to enable Japanese formatting options. ***N*** refers to an entry in the font table.

## Theme Data

A document's Theme Data contains a hex-encoded representation of a set of styling that can be applied to objects within a document and which affects the look of the document and the information and objects it contains. For example, in a Word 2007 document, shapes can have a

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certain look, text can have certain properties, and headings may be styled, by a single Theme. When a Theme is changed, not only may the font and colors change, but also the effects applied to the shapes and tables within the document.

Theme Data has the following syntax:

<themedata> '{*' **\themedata** #SDATA '}'

The following control word can be used in this destination:

| Control word | Meaning |
|---|---|
| *\themedata | Starts destination containing a hexadecimal representation of the document theme. |

## Color Scheme Mapping

Color Scheme Mapping enables multiple Theme colors to be chained together. Color Scheme Mapping has the following syntax:

<colorschememapping> '{*' **\colorschememapping** #SDATA '}'

The following control word can be used in this destination:

| Control word | Meaning |
|---|---|
| *\colorschememapping | Starts destination containing a hexadecimal representation of the document Color Scheme Mapping. |

For example, the sample RTF representing a hex-encoded color scheme mapping:


```
{\*\colorschememapping
3c3f786d6c2076657273696f6e3d22312e302220656e636f64696e673d225554462d3822207374616e64616c6f6e653d22796
573223f3e0d0a3c613a636c724d
617020786d6c6e733a613d22687474703a2f2f736368656d61732e6f70656e786d6c666f726d6174732e6f72672f647261776
96e676d6c2f323030362f6d6169
6e22206267313d226c743122207478313d22646b3122206267323d226c743222207478323d22646b322220616363656e74313
d22616363656e74312220616363
656e74323d22616363656e74322220616363656e74333d22616363656e74332220616363656e74343d22616363656e7434222
0616363656e74353d22616363656e74352220616363656e74363d22616363656e74362220686c696e6b3d22686c696e6b2220
666f6c486c696e6b3d22666f6c486c696e6b222f3e}
```


For additional information on color scheme mapping, please reference the Office Open XML specification section on the element “clrSchemeMapping”.

## Font Table

The **\fonttbl** control word introduces the font table group. Unique ***\fN*** control words define each font available in the document. These control words refer to that font throughout the document. The font table group has the following syntax.

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| | |
|---|---|
| <fonttbl> | '{' **\fonttbl** (<fontinfo> \| ('{' <fontinfo> '}'))+ '}' |
| <fontinfo> | <themefont>? **\f*N*** <fontfamily> **\fcharset*N***? **\fprq**? <panose>? <nontaggedname>? <fontemb>? **\cpg*N***? <fontname> <fontaltname>? ';' |
| <themefont> | **\flomajor** \| **\fhimajor** \| **\fdbmajor** \| **\fbimajor** \| **\flominor** \| **\fhiminor** \| **\fdbminor** \| **\fbiminor** |
| <fontfamily> | **\fnil** \| **\froman** \| **\fswiss** \| **\fmodern** \| **\fscript** \| **\fdecor** \| **\ftech** \| **\fbidi** |
| <panose> | '{*' **\panose** <data> '}' |
| <nontaggedname> | '{*' **\fname** #PCDATA ';}' |
| <fontname> | #PCDATA |
| <fontaltname> | '{*' **\falt** #PCDATA '}' |
| <fontemb> | '{*' **\fontemb** <fonttype> <fontfname>? <data>? '}' |
| <fonttype> | **\ftnil** \| **\fttruetype** |
| <fontfname> | '{*' **\fontfile \cpg*N***? #PCDATA '}' |

**Note:** For <fontemb>, either <fontfname> or <data> must be present, although both may be present.

**Note:** When <themefont> is present, related font information such as the font name, PANOSE information is still provided so that theme-unaware applications can read what the given font evaluates to while safely ignoring the theme control words new to Word 2007. Only **\fcharset*N*** and **\cpg*N*** provide any additional information to the entry that is not already contained in <themefont>.

All fonts available to the RTF writer can be included in the font table, even if the document does not use all the fonts.

RTF also supports font families so that applications can attempt to intelligently choose fonts if the exact font is not present on the reading system. RTF uses the following control words to describe the various font families.

| Control word | Font family | Examples |
|---|---|---|
| \fnil | Unknown or default fonts (the default) | Not applicable |
| \froman | Roman, proportionally spaced serif fonts | Times New Roman, Palatino |
| \fswiss | Swiss, proportionally spaced sans serif fonts | Arial |
| \fmodern | Fixed-pitch serif and sans serif fonts | Courier New, Pica |
| \fscript | Script fonts | Cursive |
| \fdecor | Decorative fonts | Old English, ITC Zapf Chancery |
| \ftech | Non Unicode, technical and symbol fonts | Symbol, Wingdings |
| \fbidi | Arabic, Hebrew, or other bidirectional font | Miriam |

If an RTF file uses a default font, the default font number is specified with the **\deff*N*** control word, which must precede the font-table group. The RTF writer supplies the default font number used in the creation of the document as the numeric argument ***N***. The RTF reader then translates this number through the font table into the most similar font available from the reader's operating system.

The following control words specify the font character set, alternative font name, pitch of a font in the font table, and non-tagged font name.

| Control word | Meaning |
|---|---|
| \falt | Indicates alternate font name to use if the font specified in the font table is not available. '{*' **\falt** <Alternate Font Name>'}' |

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| Control word | Meaning |
|---|---|
| \fprq*N* | Specifies the pitch of a font in the font table. |

| Pitch | *N* |
|---|---|
| Default pitch | 0 |
| Fixed pitch | 1 |
| Variable pitch | 2 |

| | |
|---|---|
| *\panose | Destination keyword. This destination contains a 10-byte Panose 1 number. Each byte represents a single font property as described by the Panose 1 standard specification. |
| *\fname | Optional font-table control word that defines the nontagged font name, that is, the name without the tag that identifies the character set being used. For example, Arial is a nontagged font name, and Arial (Cyrillic) is a tagged font name. This control word is used by WordPad. Word ignores this control word (and never creates it). |
| \fbias*N* | Used to arbitrate between two fonts when a particular character can exist in either a non-East Asian or an East Asian font. Word 97 through Word 2007 emit the **\fbias*N*** keyword only in the context of bullets or list information (that is, a **\listlevel** destination). The default value of 0 for ***N*** indicates a non-East Asian font. A value of 1 indicates an East Asian font. Additional values may be defined in future releases. |
| \fcharset*N* | Specifies the character set of a font in the font table. If this appears, it implies that bytes in runs tagged with the associated **\f*N*** are character codes in the codepage corresponding to the charset ***N***. Use this codepage to convert the codes to Unicode using a function like the Windows MultiByteToWideChar(). See also the **\cpg*N*** control word, which, if it appears, supersedes the codepage given by **\fcharset*N***. Values for ***N*** are defined, for example, in the Windows header file wingdi.h (e.g., see ANSI_CHARSET) and are repeated here together with the corresponding Windows or Mac codepages for convenience: |

| charset | codepage | Windows/Mac name |
|---|---|---|
| 0 | 1252 | ANSI |
| 1 | 0 | Default |
| 2 | 42 | Symbol |
| 77 | 10000 | Mac Roman |
| 78 | 10001 | Mac Shift Jis |
| 79 | 10003 | Mac Hangul |
| 80 | 10008 | Mac GB2312 |
| 81 | 10002 | Mac Big5 |
| 82 | | Mac Johab (old) |
| 83 | 10005 | Mac Hebrew |
| 84 | 10004 | Mac Arabic |
| 85 | 10006 | Mac Greek |
| 86 | 10081 | Mac Turkish |
| 87 | 10021 | Mac Thai |
| 88 | 10029 | Mac East Europe |
| 89 | 10007 | Mac Russian |
| 128 | 932 | Shift JIS |
| 129 | 949 | Hangul |
| 130 | 1361 | Johab |
| 134 | 936 | GB2312 |
| 136 | 950 | Big5 |
| 161 | 1253 | Greek |
| 162 | 1254 | Turkish |
| 163 | 1258 | Vietnamese |

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| Control word | Meaning | | |
|---|---|---|---|
| | 177 | 1255 | Hebrew |
| | 178 | 1256 | Arabic |
| | 179 | | Arabic Traditional (old) |
| | 180 | | Arabic user (old) |
| | 181 | | Hebrew user (old) |
| | 186 | 1257 | Baltic |
| | 204 | 1251 | Russian |
| | 222 | 874 | Thai |
| | 238 | 1250 | Eastern European |
| | 254 | 437 | PC 437 |
| | 255 | 850 | OEM |

## Font Embedding

RTF supports embedded fonts with the **\fontemb** group located inside a font definition. An embedded font can be specified by a file name, or the actual font data may be located inside the group. If a file name is specified, it is contained in the **\fontfile** group. The **\cpg*N*** control word can be used to specify the character set for the file name.

RTF supports TrueType® and other embedded fonts. The type of the embedded font is described by the following control words.

| Control word | Embedded font type |
|---|---|
| \ftnil | Unknown or default font type (the default) |
| \fttruetype | TrueType font |

## Code Page Support

A font may have a different character set from the character set of the document. For example, the Symbol font has the same characters in the same code positions both on the Macintosh and in Windows. Typically, RTF fonts use the code page corresponding to the **\fcharset*N*** control word in their **\fonttbl** description. If the charset doesn't exist, the codepage may be given by the **\cpg*N*** control word, for which the code page is ***N***. If the **\cpg*N*** does appear, it supersedes the code page corresponding to the **\fcharset*N***. For such cases, codepage conversions can be avoided altogether by using the Unicode **\u*N*** notation for characters. In addition, file names (used in field instructions and in embedded fonts) may not necessarily be the same as the character set of the document; the **\cpg*N*** control word can change the character set for these file names as well. However, all RTF documents must still declare a character set (that is, **\ansi**, **\mac**, **\pc**, or **\pca**) to maintain backward compatibility with earlier RTF readers.

The valid values for **\cpg*N*** are given in the **\ansicpg*N*** table.

## Theme Font Information

The following control words may be emitted along with a particular font entry in the RTF font table and specify the entry's relation to the document's theme.

> **Note:** When one of these control words is present, related font information such as the font name, PANOSE information is still provided so that theme-unaware applications can read what the given font evaluates to while safely ignoring the theme control words new to Microsoft Office Word 2007.

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| Control word | Meaning |
|---|---|
| \flomajor | Specifies font entry uses ASCII variation of the "Headings" theme font. |
| \fhimajor | Specifies font entry uses default (non East Asian, non-ASCII) variation of "Headings" theme font. |
| \fdbmajor | Specifies font entry uses East Asian variation of the "Headings" theme font. |
| \fbimajor | Specifies font entry uses complex scripts variation of the "Headings" theme font. |
| \flominor | Specifies font entry uses ASCII variation of the "Body" theme font. |
| \fhiminor | Specifies font entry uses default (non East Asian, non-ASCII) variation of the "Body" theme font. |
| \fdbminor | Specifies font entry uses East Asian variation of the "Body" theme font. |
| \fbiminor | Specifies font entry uses complex scripts variation of the "Body" theme font. |

## File Table

The **\filetbl** control word introduces the file table destination. The only time a file table is created in RTF is when the document contains subdocuments. The file table group defines the files referenced in the document and has the following syntax:

| | |
|---|---|
| <filetbl> | '{*' **\filetbl** ('{' <fileinfo> '}')+ '}' |
| <fileinfo> | **file** **\fid*N*** **\frelative*N***? **\fosnum*N***? <filesource>+ <file name> |
| <filesource> | **\fvalidmac** \| **\fvaliddos** \| **\fvalidntfs** \| **\fvalidhpfs** \| **\fnetwork** \| **\fnonfilesys** |
| <file name> | #PCDATA |

**Note:** The file name can be any valid alphanumeric string for the named file system, indicating the complete path and file name.

| Control word | Meaning |
|---|---|
| \filetbl | A list of documents referenced by the current document. The file table has a structure analogous to the style or font table. This is a destination control word that is output as part of the document header. |
| \file | Marks the beginning of a file group, which lists relevant information about the referenced file. This is a destination control word. |
| \fid*N* | File ID number. Files are referenced later in the document using this number. |
| \frelative*N* | The character position within the path (starting at 0) where the referenced file's path starts to be relative to the path of the owning document. For example, if a document is saved to the path C:\Private\Resume\File1.doc and its file table contains the path C:\Private\Resume\Edu\File2.doc, then that entry in the file table will be **\frelative18**, to point at the character "E" in "Edu". This allows preservation of relative paths. |
| \fosnum*N* | Currently only filled in for paths from the Macintosh file system. It is an operating system–specific number for identifying the file, which may be used to speed up access to the file or find the file if it was moved to another folder or disk. The Macintosh operating system name for this number is the "file id." Additional meanings of the **\fosnum*N*** control word may be defined for other file systems in the future. |
| \fvalidmac | Macintosh file system. |
| \fvaliddos | MS-DOS file system. |
| \fvalidntfs | NTFS file system. |
| \fvalidhpfs | HPFS file system. |
| \fnetwork | Network file system. This control word may be used in conjunction with any of the previous file source control words. |
| \fnonfilesys | Indicates http/odma. |

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## Color Table

The **\colortbl** control word introduces the color table group, which defines screen colors, character colors, and other color information. The color table group has the following syntax:

| | |
|---|---|
| <colortbl> | '{' **\colortbl** <colordef>+ '}' |
| <colordef> | <themecolor>? & **\ctint*N***? & **\cshade*N***? **\red*N***? & **\green*N***? & **\blue*N***? ';' |
| <themecolor> | **\cmaindarkone** \| **\cmainlightone** \| **\cmaindarktwo** \| **\cmainlighttwo** \| **\caccentone** \| **\caccenttwo** \| **\caccentthree** \| **\caccentfour** \| **\caccentfive** \| **\caccentsix** \| **\chyperlink** \| **\cfollowedhyperlink** \| **\cbackgroundone** \| **\ctextone** \| **\cbackgroundtwo** \| **\ctexttwo** |

**Note:** When <themecolor> is used, the red/green/blue values are still provided so that theme-unaware applications can read what the given color evaluates to while safely ignoring the theme control words introduced by Word 2007.

For example, consider the following sample RTF code of a color table group:

```
{\colortbl;\red0\green0\blue0;\red0\green0\blue255;\red0\green255\blue255;\red0\green255\blue0;
\red255\green0\blue255;\red255\green0\blue0;\red255\green255\blue0;\red255\green255\blue255;
\red0\green0\blue128;\red0\green128\blue128;\red0\green128\blue0;\red128\green0\blue128;
\red128\green0\blue0;\red128\green128\blue0;\red128\green128\blue128;\red192\green192\blue192;
\caccentone\ctint255\cshade191\red174\green150\blue56;}
```

The following are valid control words for this group. For the <themecolor> control words, a **\ctint*N*** and **\cshade*N*** can be specified if the color entry describes a tint or a shade of the theme color.

| Control word | Meaning |
|---|---|
| \colortbl | Destination for color table definitions |
| \red*N* | Red intensity, such that 0 ≤ ***N*** ≤ 255, i.e., 8 bits per RGB color component |
| \green*N* | Green intensity, such that 0 ≤ ***N*** ≤ 255. |
| \blue*N* | Blue intensity, such that 0 ≤ ***N*** ≤ 255. |
| \ctint*N* | Specifies the tint of the given theme when specifying a theme color. If the entry references a theme color, **\ctint*N*** specifies its shade. If not, **\ctint*N*** is ignored.<br>Here 0 ≤ ***N*** ≤ 255, where 255 means no tint, and 0 means full tint (resulting in white color). If this control word is not specified, a value of 255 is implied.<br>**Note:** If the parameter of this control word is less than 255, the parameter of the \cshade control word must be equal to 255. A tint or a shade may be specified, but not both. |
| \cshade*N* | Specifies the shade of the given theme when specifying a theme color. If the entry references a theme color, **\cshade*N*** specifies its shade. If not, **\cshade*N*** is ignored.<br>Here 0 ≤ ***N*** ≤ 255, where 255 means no shade, and 0 means full shade (resulting in black color). If this control word is not specified, a value of 255 is implied.<br>**Note:** If the parameter of this control word is less than 255, the parameter of the **\ctint*N*** control word must be equal to 255. A tint or a shade may be specified, but not both. |
| \cmaindarkone | Color entry references "Main Dark 1" theme color. |
| \cmainlightone | Color entry references "Main Light 1" theme color. |
| \cmaindarktwo | Color entry references "Main Dark 2" theme color |
| \cmainlighttwo | Color entry references "Main Light 2" theme color. |
| \caccentone | Color entry references "Accent 1" theme color. |
| \caccenttwo | Color entry references "Accent 2" theme color |

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| Control word | Meaning |
|---|---|
| \caccentthree | Color entry references "Accent 3" theme color. |
| \caccentfour | Color entry references "Accent 4" theme color. |
| \caccentfive | Color entry references "Accent 5" theme color. |
| \caccentsix | Color entry references "Accent 6" theme color |
| \chyperlink | Color entry references "Hyperlink" theme color |
| \cfollowedhyperlink | Color entry references "Followed Hyperlink" theme color. |
| \cbackgroundone | Color entry references "Background 1" theme color. |
| \ctextone | Color entry references "Text 1" theme color. |
| \cbackgroundtwo | Color entry references "Background 2" theme color. |
| \ctexttwo | Color entry references "Text 2" theme color. |

Each definition must be delimited by a semicolon, even if the definition is omitted. If a color definition is omitted, the RTF reader uses its default color. The following example defines the default color table used by Word. The first color is omitted, as shown by the semicolon following the **\colortbl** control word. The missing definition indicates that color 0 is the "auto" color.

```
{\colortbl;\red0\green0\blue0;\red0\green0\blue255;\red0\green255\blue255;\red0\green255\blue0;
\red255\green0\blue255;\red255\green0\blue0;\red255\green255\blue0;\red255\green255\blue255;
\red0\green0\blue128;\red0\green128\blue128;\red0\green128\blue0;\red128\green0\blue128;
\red128\green0\blue0;\red128\green128\blue0;\red128\green128\blue128;\red192\green192\blue192;}
```

The foreground and background colors use indexes into the color table to define a color. The following example defines a block of text in color (where supported). Note that the **\cf*N*** or **\cb*N*** index (color foreground or color background) is the index of an entry in the color table, which represents a red/green/blue (RGB) color combination.

```
{\f1\cb1\cf2 This is colored text. The background is color 1 and the foreground is color 2.}
```

If the file is read by software that does not display color, the reader should ignore the color table group.

> **Note:** Windows versions of Word have never supported **\cb*N***, but it can be emulated by the control word sequence **\chshdng0\chcbpat*N***.

## Default Properties

The following control words correspond to the default properties for the given RTF document.

| Control word | Meaning |
|---|---|
| *\defchp | Specifies default character level properties (see Font (Character) Formatting Properties). |
| *\defpap | Specifies default paragraph level properties (see Paragraph Formatting Properties). |

For example, the following RTF fragment specifyies the default paragraph level properties for a given RTF file:

```
{\*\defpap\ql\li0\ri0\widctlpar\wrapdefault\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0}
```

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## Style Sheet

The **\stylesheet** control word introduces the style sheet group, which contains definitions and descriptions of the various styles used in the document. All styles in the document's style sheet can be included, even if not all the styles are used. In RTF, a style is a form of shorthand used to specify a set of character, paragraph, or section formatting.

The style sheet group has the following syntax:

| | |
|---|---|
| <stylesheet> | '{' **\stylesheet** <style>+ '}' |
| <style> | '{' <styledef>? <keycode>? <formatting> **\additive**? **\sbasedon*N***? **\snext*N***? **\sautoupd**? **\slink*N***? **\sqformat**? **\spriority*N***? **\sunhideused*N***? **\slocked**? **\shidden**? **\ssemihidden*N***? **\spersonal**? **\scompose**? **\sreply**? **\styrsid*N***? <stylename>? ';}' |
| <styledef> | **\s*N*** \| *****\cs*N*** \| *****\ds*N*** \| *****\ts*N*** **\tsrowd** |
| <keycode> | '{' **\keycode** <keys> '}' |
| <keys> | (**\shift**? & **\ctrl**? & **\alt**?) <key> |
| <key> | **\fn*N*** \| #PCDATA |
| <formatting> | (<brdrdef> \| <parfmt> \| <apoctl> \| <tabdef> \| <shading> \| <chrfmt>)+ |
| <stylename> | #PCDATA |

For <style>, both <styledef> and <stylename> are optional; the default is paragraph style 0. Note for <stylename> Microsoft Word for the Macintosh interprets commas in #PCDATA as separating style synonyms. In addition, for <key>, the data must be exactly one character.

| Control word | Meaning |
|---|---|
| \s*N* | Designates paragraph style with the style handle ***N***, which can be any 16-bit integer. |
| *\cs*N* | Designates character style with a style handle ***N***. Like **\s*N***, **\cs*N*** is not a destination control word. However, it is important to treat it like one inside the style sheet; that is, **\cs*N*** must be prefixed with * and must appear as the first item inside a group. Doing so ensures that readers that do not understand character styles will skip the character style information correctly. When used in body text to indicate that a character style was applied, do not include the ***** prefix. |
| *\ds*N* | Designates section style with style handle ***N***. |
| *\ts*N* | Designates table style, in the same style as **\cs*N*** for placement and prefixes. |
| \tsrowd | Like **\trowd** but for table style definitions. |
| \additive | Used in a character style definition ('{*' **\cs*N***...'}'). Indicates that character style attributes are to be added to the current paragraph style attributes, rather than setting the paragraph attributes to only those defined in the character style definition. |
| \sbasedon*N* | Defines the style handle of the style the current style is based on (default is 222—no style). |
| \snext*N* | Defines the style to be used in the next paragraph after the paragraph marked by this style. If it is omitted, the next style is the current style. |
| \sautoupd | Automatically update styles. |
| \shidden | Style does not appear in the Styles drop-down list in the Style dialog box[1] (on the Format menu, click Styles). |
| \slink*N* | The style is linked to the style whose style sheet index is denoted by ***N***. A paragraph style is linked to a character style when they share the same font properties and the character style is updated when the paragraph style changes. Normally Word will suppress the display of the linked character style in most style lists. |
| \slocked | The style is locked. It cannot be used in the current document if protection is on. |
| \spersonal | Style is a personal e-mail style. |

[1] The hidden style property can only be accessed using Microsoft® Visual Basic® for Applications.

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| Control word | Meaning |
|---|---|
| \scompose | Style is the e-mail compose style. |
| \sreply | Style is the e-mail reply style. |
| \styrsid*N* | Tied to the rsid table, ***N*** is the rsid of the author who implemented the style. |
| \ssemihidden*N* | ***N*** nonzero or ***N*** missing: style does not appear in drop-down menus. If control word is missing or ***N*** = 0, style may appear in drop-down menus. |
| \keycode | This group is specified within the description of a style in the style sheet in the RTF header. The syntax for this group is '{*' **\keycode** <keys> '}' where <keys> are the characters used in the key code. For example, a style, Normal, may be defined {\s0 {*\keycode \shift\ctrl n}Normal;} within the RTF style sheet. See the Special Character control words for the characters outside the alphanumeric range that may be used. |
| \alt | The ALT modifier key. Used to describe shortcut key codes for styles. |
| \shift | The SHIFT modifier key. Used to describe shortcut key codes for styles. |
| \ctrl | The CTRL modifier key. Used to describe shortcut key codes for styles. |
| \fn*N* | Specifies a function key where ***N*** is the function key number. Used to describe shortcut-key codes for styles. |
| \sqformat | This control word specifies whether this style shall be treated as a primary style when this document is loaded by an application. If this control word is present, then this style has been designated as being particularly important for the current document, and this information may be used by an application in any means desired.<br><br>**Note:** This setting does not imply any behavior for the style, only that the style is of particular significance for this document.<br><br>If this element is omitted, then the style shall not be considered a primary style for this document. |
| \spriority*N* | This control word specifies a number that may be used to sort the set of style definitions in a user interface when this document is loaded by an application and the recommended setting is specified in the **\stylesortmethod*N*** control word.<br><br>If ***N*** = 1, then this priority shall be used to sort all available styles in ascending value order.<br><br>If this control word is omitted, then the style shall not have an associated priority value and shall be sorted to the end of the list of style definitions (equivalent to a priority value of infinity) when the recommended sort order setting is specified. |
| \sunhideused*N* | This control word specifies whether this style shall be hidden from the main user interface until it is used.<br><br>If ***N*** = 1, then this style may be used to format content (that is any content which references this style shall have its properties as normal), but the style shall be hidden from the main user interface associated with that application.<br><br>**Note:** The interpretation of a "main" user interface shall not be dictated by this spec, and may be defined by an application as appropriate. This setting is intended to define a style property that allows styles to be seen and modified in an advanced user interface, without exposing the style in a less advanced setting. For example, the style that is used to format the contents of a comment should typically not be shown in a simple user interface, as it is uncommon to want to modify it.<br><br>If this control word is omitted or ***N*** = 0, then the style shall not be required to be hidden from the main user interface. |

The following is an example of an RTF style sheet:

```
{\stylesheet{\ql \li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 \snext0 Normal;}
{\*\cs10 \additive Default Paragraph Font;}{\*\cs15 \additive \b\ul\cf6 \sbasedon10 UNDERLINE;}
{\*\ts11\tsrowd\trftsWidthB3\trpaddl108\trpaddr108\trpaddfl3
\trpaddft3\trpaddfb3\trpaddfr3\tscellwidthfts0\tsvertalt\tsbrdrt\tsbrdrl\tsbrdrb\tsbrdrr\tsbrdrdgl\ts
brdrdgr\tsbrdrh\tsbrdrv \ql \li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0 \lin0\itap0
```

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```
\fs20\lang1024\langfe1024\cgrid\langnp1024 \langfenp1024 \snext11 \ssemihidden Normal Table;
}{\s16\qc \li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\b\fs24\cf2\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 \sbasedon0 \snext16 \sautoupd CENTER;}}
```

An example of the usage of these styles in an RTF paragraph:

```
\pard\plain \ql \li0\ri0\widctlpar\aspalpha\aspnum\faauto\outlinelevel0\adjustright\rin0\lin0\itap0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {This is the Normal Style
\par }\pard \ql \li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0 {\par
}\pard\plain \s16\qc \li0\ri0\widctlpar\aspalpha\aspnum\faauto\outlinelevel0\adjustright
\rin0\lin0\itap0 \b\fs24\cf2\lang1033\langfe1033\cgrid\langnp1033\langfenp1033
{This is a centered paragraph with blue, bold font. I call the style CENTER.\par }
\pard\plain \ql \li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\par The word \'93}{\cs15\b\ul\cf6
style}{\'94 is red and underlined. I used a style I called UNDERLINE.\par }
```

Some of the control words used in this example are discussed in later sections. Note that the properties of the style were emitted following the application of the style. This was done for two reasons: (1) to allow RTF readers that do not support styles to continue to display formatting correctly; and (2) to reveal the additive model for styles, where additional property changes are "added" on top of the defined style. Some RTF readers may not "apply" a style when only the style number is used, unless the accompanying formatting information is provided as well.

## Quick Styles

Quick Styles are a set of styles that should be readily available for a user via the hosting application's user interface. The **\noqfpromote** control word specifies that a hosting application should not automatically display the following styles as Quick Styles.

| | | | |
|---|---|---|---|
| Book Title | Caption | Emphasis | Heading1 |
| Heading2 | Heading3 | Heading4 | Heading5 |
| Heading6 | Heading7 | Heading8 | Heading9 |
| Intense Emphasis | Intense Quote | Intense Reference | List Paragraph |
| No Spacing | Normal | Quote | Strong |
| Subtitle | Subtle Emphasis | Subtle Reference | Table of Contents Heading |
| Title | | | |

**Note:** This control word is usually used in conjunction with **\sqformat** to customize the list of Quick Styles displayed by a hosting application when it loads an RTF file.

## Table Styles

Word 2002 introduced table styles. Table styles are like other styles in that they contain properties to be shared by many tables. Unlike the other styles though, table styles allow for conditional formatting, such as specifically coloring the first row.

To address the issue of older readers opening newer RTF files, raw properties were implemented. Older readers can still see the regular properties and edit them, but newer

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readers should be able to read the RTF back in and not lose any style functionality. This leaves two types of properties: those applied by older writers that are readable by older readers, and those the user applied directly to override aspects of the style. The user-applied changes are referred to as "raw" and have a higher priority than their non-raw counterparts have.

The following table describes keywords available for style definitions. Any older table formatting properties may be used as well.

| Control word | Meaning |
|---|---|
| \tscellwidth*N* | Currently emitted but has no effect. |
| \tscellwidthfts*N* | Currently emitted but has no effect. |
| \tscellpaddt*N* | Top padding value. |
| \tscellpaddl*N* | Left padding value. |
| \tscellpaddr*N* | Right padding value |
| \tscellpaddb*N* | Bottom padding value |
| \tscellpaddft*N* | Units for **\tscellpaddt*N*** |
| | 0 Auto |
| | 3 Twips |
| \tscellpaddfl*N* | Units for **\tscellpaddl*N*** |
| | 0 Auto |
| | 3 Twips |
| \tscellpaddfr*N* | Units for **\tscellpaddr*N*** |
| | 0 Auto |
| | 3 Twips |
| \tscellpaddfb*N* | Units for **\tscellpaddb*N*** |
| | 0 Auto |
| | 3 Twips |
| \tsvertalt | Top vertical alignment of cell |
| \tsvertalc | Center vertical alignment of cell |
| \tsvertalb | Bottom vertical alignment of cell |
| \tsnowrap | No cell wrapping |
| \tscellcfpat*N* | Foreground cell shading color |
| \tscellcbpat*N* | Background cell shading color |
| \tscellpct*N* | Cell shading percentage – *N* is the shading of a table cell in hundredths of a percent |
| \tsbgbdiag | Cell shading pattern – backward diagonal (////) |
| \tsbgfdiag | Cell shading pattern – forward diagonal (\\\\) |
| \tsbgdkbdiag | Cell shading pattern – dark backward diagonal (////) |
| \tsbgdkfdiag | Cell shading pattern – dark forward diagonal (\\\\) |
| \tsbgcross | Cell shading pattern – cross |
| \tsbgdcross | Cell shading pattern – diagonal cross |
| \tsbgdkcross | Cell shading pattern – dark cross |
| \tsbgdkdcross | Cell shading pattern – dark diagonal cross |
| \tsbghoriz | Cell shading pattern – horizontal |
| \tsbgvert | Cell shading pattern – vertical |
| \tsbgdkhor | Cell shading pattern – dark horizontal |

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| Control word | Meaning |
|---|---|
| \tsbgdkvert | Cell shading pattern – dark vertical |
| \tsbrdrt | Top border for cell |
| \tsbrdrb | Bottom border for cell |
| \tsbrdrl | Left border for cell |
| \tsbrdrr | Right border for cell |
| \tsbrdrh | Horizontal (inside) border for cell |
| \tsbrdrv | Vertical (inside) border for cell |
| \tsbrdrdgl | Diagonal (upper left to lower right) border for cell |
| \tsbrdrdgr | Diagonal (lower left to upper right) border for cell |
| \tscbandsh*N* | Count of rows in a row band |
| \tscbandsv*N* | Count of cells in a cell band |

## Style and Formatting Restrictions

The style restrictions group has the following syntax:

| | |
|---|---|
| <stylerestrictions> | '{*' **\latentstyles \lsdstimax*N* \lsdlockeddef*N* \lsdsemihiddendef*N* \lsdunhideuseddef*N* \lsdqformatdef*N* \lsdprioritydef*N*** <exceptions>? '}' |
| <exceptions> | '{' **\lsdlockedexcept** <stylenames>+ '}' |
| <stylenames> | <stylename> ';' |
| <stylename> | **\lsdpriority*N*** ? **\lsdunhideused*N*** ? **\lsdsemihidden*N*** ? **\lsdqformat*N*** ? **\lsdlocked*N*** ? #PCDATA |

where the control words are defined by

| Control word | Meaning |
|---|---|
| \latentstyles | Indicates that there are style and formatting usage restrictions in the document. |
| \lsdstimax*N* | Indicates how many styles will get the default value specified by \lsdlockeddef*N*. The number will be the same for all files emitted by a given Word version. |
| \lsdlockeddef*N* | Indicates that no direct formatting can be applied to the document and styles are allowed or disallowed according to *N*:<br>0 Assume all styles are allowed except for those specified by \lsdlockedexcept.<br>1 Assume all styles are disallowed except those specified by \lsdlockedexcept.<br>Note that the \autofmtoverride document property can allow AutoFormat to apply direct formatting. |
| \lsdlockedexcept | Exceptions to the lockdown mode specified by \lsdlockeddef*N*. It is followed by a semicolon-separated list of allowed styles (by name) that are not covered by the protection. |
| \lsdsemihiddendef*N* | Specifies the default setting for the **\ssemihidden*N*** control word that shall be applied to any style made available by the hosting application that is not explicitly defined in the current document. This setting shall be overridden for every style for which a latent style exception exists (**\lsdsemihidden*N***).<br>If this element is omitted, the default **\ssemihidden*N*** state for all latent styles in the current document shall be "0". |

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| Control word | Meaning |
|---|---|
| \lsdunhideuseddef*N* | Specifies the default setting for the **\sunhideused*N*** control word that shall be applied to any style made available by the hosting application that is not explicitly defined in the current document. This setting shall be overridden for every style for which a latent style exception exists (**\lsdunhideusedN**)<br><br>If this element is omitted, the default **\sunhideused*N*** state for all latent styles in the current document shall be "0". |
| \lsdqformatdef*N* | Specifies the default setting for the **\sqformat** control word that shall be applied to any style made available by the hosting application that is not explicitly defined in the current document. This setting shall be overridden for every style for which a latent style exception exists (**\lsdqformat*N***).<br><br>If this element is omitted, the default **\sqformat** state for all latent styles in the current document shall be "0". |
| \lsdprioritydef*N* | Specifies the default setting for the **\spriority*N*** control word that shall be applied to any style made available by the hosting application that is not explicitly defined in the current document. This setting shall be overridden for every style for which a latent style exception exists. (**\lsdpriority*N***)<br><br>If this element is omitted, the default **\spriority*N*** state for all latent styles in the current document shall be "99". |
| \lsdpriority*N* | Specifies the default setting for the **\spriority*N*** control word that shall be applied to the latent style with the matching style name value.<br><br>If this element is omitted, the default **\spriority*N*** state for this latent style shall be determined the **\lsdpriorityde*f N*** control word. |
| \lsdunhideused*N* | Specifies the default setting for the **\sunhideused*N*** control word that shall be applied to the latent style with the matching style name value.<br><br>If this element is omitted, the default **\sunhideused*N*** state for this latent style shall be determined by the **\lsdunhideuseddef*N*** control word. |
| \lsdsemihidden*N* | Specifies the default setting for the **\ssemihidden*N*** control word that shall be applied to the latent style with the matching style name value.<br><br>If this element is omitted, the default **\ssemihidden*N*** state for this latent style shall be determined by the **\lsdsemihiddendef*N*** control word. |
| \lsdqformat*N* | Specifies the default setting for the **\sqformat** control word that shall be applied to the latent style with the matching style name value.<br><br>If this control word is omitted, the default **\sqformat** state for this latent style shall be determined by the **\lsdqformatdef*N*** control word. |
| \lsdlocked*N* | Specifies the default setting for the **\slocked** control word that shall be applied to the latent style with the matching style name value.<br><br>If this element is omitted, the default **\slocked** state for this latent style shall be determined by the **\lsdlockeddef*N*** control word |

The following is an example illustrating the style restrictions that disallow all styles except Normal, Heading 1, heading 2, heading 3, Default Paragraph Font, HTML Top of Form, HTML Bottom of Form, Normal Table, and No List:

```
{\*\latentstyles\lsdstimax156\lsdlockeddef1{\lsdlockedexcept Normal;heading 1;heading 2;heading
3;Default Paragraph Font;HTML Top of Form;HTML Bottom of Form;Normal Table;No List;}}
```

**Note:** \annotprot is emitted when locking styles for backward compatibility purposes, but it is ignored by Word 2003 and Word 2007 when reading in documents with style protection.

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# List Tables

Word 97, Word 2000, Word 2002, Word 2003, and Word 2007 store bullets and numbering information very differently from earlier versions of Word. In Word 6.0, for example, number-formatting data is stored individually with each paragraph. In Word 97 and later versions, however, all of the formatting information is stored in a pair of document-wide list tables that act as a style sheet, and each individual paragraph stores only an index to one of the tables, like a style index.

There are two list tables in Word: the List table (destination **\listtable**), and the List Override table (destination **\listoverridetable).**

## List Table

The first table Word stores is the List table. A List table is a list of lists (destination **\list**). Each list contains a number of list properties that pertain to the entire list, and a list of levels (destination **\listlevel)**, each of which contains properties that pertain only to that level. The **\listpicture** destination contains all the picture bullets used in the document, with a **\shppict** headed list of **\pict** entries. These are referenced within the list by the **\levelpicture*N*** keyword, with ***N*** referring to an element in the list, starting at 0.

The syntax for the List table is as follows:

| | |
|---|---|
| <listtable> | '{*' **\listtable** <listpicture>? <list>+ '}' |
| <listpicture> | '{*' **\listpicture** <shppictlist> '}' |
| <list> | **list** **listemplateid** & (**\listsimple** \| **\listhybrid**)? & <listlevel>+ & **\listrestarthdn** & **\listid*N*** & (**listname** #PCDATA ';') **\liststyleid*N***? **\liststylename**? |
| <listlevel> | '{' **\listlevel** <number> <justification> & **\levelfollow*N*** & **\levelstartat*N*** & **\lvltentative**? (**\levelold*N*** & **\levelprev*N***? & **\levelprevspace*N***? & **\levelspace*N***? & **\levelindent*N***?)? & <leveltext> & <levelnumbers> & **\levellegal*N***? & **\levelnorestart*N***? & **<chrfmt>**? & **\levelpicture*N*** & **\li*N***? & **\fi*N***? & (**\jclisttab** **tx*N***)? & **\lin*N***? '}' |
| <number> | **\levelnfc*N*** \| **\levelnfcn*N*** \| (**\levelnfc*N*** & **\levelnfcn*N***) |
| <justification> | **\leveljc*N*** \| **\leveljcn*N*** \| (**leveljc*N*** & **\leveljcn*N***) |
| <leveltext> | '{' **\leveltext \leveltemplateid**? #SDATA ';}' |
| <levelnumbers> | '{' **\levelnumbers** #SDATA ';}' |

### *Top-Level List Properties*

| Control word | Meaning |
|---|---|
| \listid*N* | Each list must have a unique list ID that should be randomly generated. ***N*** is a long integer. The list ID cannot be between –1 and –5. |
| \listtemplateid*N* | Each list should have a unique template ID as well, which also should be randomly generated. The template ID –1 means the template ID is undefined. ***N*** is a long integer. |
| \listsimple*N* | 1 if the list has one level; 0 (default) if the list has nine levels. |
| \listhybrid | Present if the list has 9 levels, each of which is the equivalent of a simple list. Only one of **\listsimple*N*** and **\listhybrid** should be present. Word 2000 and newer versions will write lists with the **\listhybrid** property. |
| \listrestarthdn*N* | 1 if the list restarts at each section; 0 if not. Used for Word 95 compatibility only. |
| \listname | The argument for **\listname** is a string that is the name of this list. Names allow ListNum fields to specify the list to which they belong. This is a destination control word. |

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| Control word | Meaning |
|---|---|
| \liststyleid*N* | This identifies the style of this list from the list style definition that has this ID as its **\listid*N***. There can be more than one list style reference to a list style definition. This keyword follows the same numbering convention as **\listid*N***.<br><br>**\liststyleid*N*** and **\liststylename** are exclusive; either zero or one of each can exist per **\list** definition, but never both. |
| \liststylename | Identifies this list as a list style definition. This creates a new list style with the given name and the properties of the current list.<br><br>**\liststyleid*N*** and **\liststylename** are exclusive; either zero or one of each can exist per **\list** definition, but never both. |

While Word 97 emitted simple or multilevel (not simple) lists, Word 2000, Word 2002, Word 2003, and Word 2007 emit hybrid lists, which are essentially collections of simple lists. The main difference between Word 2000, Word 2002, Word 2003, and Word 2007 hybrid lists and Word 97 multilevel lists is that each level of a hybrid list has a unique identifier.

## *List Levels*

Each list consists of either one or nine list levels depending upon whether the **\listsimple** flag is set. Each list level contains a number of properties that specify the formatting for that level, such as the start-at value, the text string surrounding the number, its justification and indents.

| Control word | Meaning |
|---|---|
| \levelstartat*N* | ***N*** specifies the start-at value for the level. |
| \lvltentative | Specifies that a given numbering level was been saved by a producer but was not used in the parent document. This means that this numbering level may be redefined by a future consumer without changing the actual content of the document.<br><br>If this control word is present, the RTF for a given document will contain the numbering level information associated with this numbering level, but the 'tentative' numbering level(s) shall not be represented in any of the hosting application's user interface pertaining to numbering levels. |
| \levelnfc*N* | Specifies the number type for the level<br>0 Arabic (1, 2, 3)<br>1 Uppercase Roman numeral (I, II, III)<br>2 Lowercase Roman numeral (i, ii, iii)<br>3 Uppercase letter (A, B, C)<br>4 Lowercase letter (a, b, c)<br>5 Ordinal number (1st, 2nd, 3rd)<br>6 Cardinal text number (One, Two Three)<br>7 Ordinal text number (First, Second, Third)<br>10 Kanji numbering without the digit character (DBNUM1)<br>11 Kanji numbering with the digit character (DBNUM2)<br>12 46 phonetic katakana characters in "aiueo" order (AIUEO) (newer form – "あいうえお。。。" based on phonem matrix)<br>13 46 phonetic katakana characters in "iroha" order (IROHA) (old form - "いろはにほへとちりぬるお。。。" based on haiku from long ago)<br>14 Double-byte character<br>15 Single-byte character<br>16 Kanji numbering 3 (DBNUM3) |

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| Control word | Meaning | |
|---|---|---|
| | 17 | Kanji numbering 4 (DBNUM4) |
| | 18 | Circle numbering (CIRCLENUM) |
| | 19 | Double-byte Arabic numbering |
| | 20 | 46 phonetic double-byte katakana characters (AIUEO DBCHAR) |
| | 21 | 46 phonetic double-byte katakana characters (IROHA DBCHAR) |
| | 22 | Arabic with leading zero (01, 02, 03, ..., 10, 11) |
| | 23 | Bullet (no number at all) |
| | 24 | Korean numbering 2 (GANADA) |
| | 25 | Korean numbering 1 (CHOSUNG) |
| | 26 | Chinese numbering 1 (GB1) |
| | 27 | Chinese numbering 2 (GB2) |
| | 28 | Chinese numbering 3 (GB3) |
| | 29 | Chinese numbering 4 (GB4) |
| | 30 | Chinese Zodiac numbering 1 (ZODIAC1) |
| | 31 | Chinese Zodiac numbering 2 (ZODIAC2) |
| | 32 | Chinese Zodiac numbering 3 (ZODIAC3) |
| | 33 | Taiwanese double-byte numbering 1 |
| | 34 | Taiwanese double-byte numbering 2 |
| | 35 | Taiwanese double-byte numbering 3 |
| | 36 | Taiwanese double-byte numbering 4 |
| | 37 | Chinese double-byte numbering 1 |
| | 38 | Chinese double-byte numbering 2 |
| | 39 | Chinese double-byte numbering 3 |
| | 40 | Chinese double-byte numbering 4 |
| | 41 | Korean double-byte numbering 1 |
| | 42 | Korean double-byte numbering 2 |
| | 43 | Korean double-byte numbering 3 |
| | 44 | Korean double-byte numbering 4 |
| | 45 | Hebrew non-standard decimal |
| | 46 | Arabic Alif Ba Tah |
| | 47 | Hebrew Biblical standard |
| | 48 | Arabic Abjad style |
| | 49 | Hindi vowels |
| | 50 | Hindi consonants |
| | 51 | Hindi numbers |
| | 52 | Hindi descriptive (cardinals) |
| | 53 | Thai letters |
| | 54 | Thai numbers |
| | 55 | Thai descriptive (cardinals) |
| | 56 | Vietnamese descriptive (cardinals) |
| | 57 | Page number format - # - |

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| Control word | Meaning | |
|---|---|---|
| | 58 | Lower case Russian alphabet |
| | 59 | Upper case Russian alphabet |
| | 60 | Lower case Greek numerals (alphabet based) |
| | 61 | Upper case Greek numerals (alphabet based) |
| | 62 | 2 leading zeros: 001, 002, ..., 100, ... |
| | 63 | 3 leading zeros: 0001, 0002, ..., 1000, ... |
| | 64 | 4 leading zeros: 00001, 00002, ..., 10000, ... |
| | 65 | Lower case Turkish alphabet |
| | 66 | Upper case Turkish alphabet |
| | 67 | Lower case Bulgarian alphabet |
| | 68 | Upper case Bulgarian alphabet |
| | 255 | No number |
| \leveljc*N* | 0 | Left justified |
| | 1 | Center justified |
| | 2 | Right justified |
| \levelnfcn*N* | Same arguments as **\levelnfc*N***. Takes priority over **\levelnfc*N*** if both are present. In Word 97 **\levelnfc*N*** was interpreted differently by the Hebrew/Arabic versions. **\levelnfcn*N*** in Word 2000, Word 2002, Word 2003, and Word 2007 eliminates dual interpretation, while **\levelnfc*N*** is still needed for backward compatibility. | |
| \leveljcn*N* | 0 | Left justified for left-to-right paragraphs and right justified for right-to-left paragraphs |
| | 1 | Center justified |
| | 2 | Right justified for left-to-right paragraphs and left justified for right-to-left paragraphs |
| | Word 2000, Word 2002, Word 2003, and Word 2007 prefer **\leveljcn*N*** to **\leveljc*N*** if both are present, but it will be written for backward compatibility with older readers. | |
| \levelold*N* | 1 if this level was converted from Word 6.0 or Word 95; 0 if it is a native Word 97 through Word 2007 level. | |
| \levelprev*N* | 1 if this level includes the text from the previous level (used for Word 95 compatibility only); otherwise, the value is 0. This keyword will only be valid if the **\levelold*N*** keyword is emitted. | |
| \levelprevspace*N* | 1 if this level includes the indentation from the previous level (used for Word 95 compatibility only); otherwise, the value is 0. This keyword will only be valid if the **\levelold*N*** keyword is emitted. | |
| \levelindent*N* | Minimum distance from the left indent to the start of the paragraph text (used for Word 95 compatibility only). This keyword will only be valid if the **\levelold*N*** keyword is emitted. | |
| \levelspace*N* | Minimum distance from the right edge of the number to the start of the paragraph text (used for Word 95 compatibility only). This keyword will only be valid if the **\levelold*N*** keyword is emitted. | |
| \leveltext | If the list is hybrid, as indicated by **\listhybrid**, the **\leveltemplateid*N*** keyword will be included, whose argument is a unique level ID that should be randomly generated. The value ***N*** is a long integer. The level ID cannot be between (–1) and (–5). | |
| | The second argument for this destination should be the number format string for this level. The first character is the length of the string, and any numbers within the level should be replaced by the index of the level they represent. For example, a level three number such as "1.1.1." would generate the following RTF: "**{\leveltext \leveltemplateid*N* \'06\'00.\'01.\'02.}**" where the '06 is the string length, the \'00, \'01, and \'02 are the level placeholders, and the periods are the surrounding text. This is a destination control word. | |

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| Control word | Meaning |
|---|---|
| \levelnumbers | The argument for this destination should be a string that gives the offsets into the **\leveltext** of the level placeholders. In the preceding example, "1.1.1.", the **\levelnumbers** RTF should be<br>{\levelnumbers \'01\'03\'05}<br>because the level placeholders have indices 1, 3, and 5. This is a destination control word. |
| \levelfollow*N* | Specifies which character follows the level text:<br>0 Tab<br>1 Space<br>2 Nothing |
| \levellegal*N* | 1 if any list numbers from previous levels should be converted to Arabic numbers; 0 if they should be left with the format specified by their own level's definition. |
| \levelnorestart*N* | 1 if this level does not restart its count each time a super ordinate level is incremented; 0 if this level does restart its count each time a super ordinate level is incremented. |
| \levelpicture*N* | Determines which picture bullet from the **\listpicture** destination should be applied. |
| \levelpicturenosize | If present, do not resize the picture bullet if the size of the **\par** marker is changed. |

In addition to all of these properties, each list level can contain any character properties (all of which affect all text for that level) and any combination of three paragraph properties: left indents, first line left indents, and tabs—each of which must be of a special type: **\jclisttab**. These paragraph properties will be automatically applied to any paragraph in the list.

## List Override Table

The List Override table is a list of list overrides (destination **\listoverride**). Each list override contains the **\listid*N*** of one of the lists in the List table, and a list of any properties it chooses to override. Each paragraph will contain a list override index (keyword **\ls*N***), which is a 1-based index into this table. Most list overrides do not override any properties—instead, they provide a level of indirection to a list. There are generally two types of list overrides:

(1) Formatting overrides. Allows a paragraph to be part of a list and to be numbered along with the other members of the list, but have different formatting properties

(2) Start-at overrides. Allows a paragraph to share the formatting properties of a list, but have different start-at values. The first element in the document with each list override index takes the start-at value that the list override specifies as its value, while each subsequent element is assigned the number succeeding the previous element of the list.

List overrides have a few top-level keywords, including a **\listoverridecount*N***, which contains a count of the number of levels whose format is overridden. This **\listoverridecount*N*** should always be either 0, 1 or 9, depending upon whether the list to be overridden is simple (0 or 1) or hybrid/multilevel (9). All of the actual override information is stored within a list of list override levels (destination **\lfolevel**).

The syntax for the List Override table is as follows:

| | |
|---|---|
| <listoverridetable> | '{*' **\listoverridetable** <listoverride>+ '}' |
| <listoverride> | '{' **\listoverride** & **\listid*N*** & **\listoverridecount*N*** & **\ls*N*** <lfolevel>? '}' |
| <lfolevel> | '{' **\lfolevel \listoverrideformat*N*** ? **\listoverridestartat** ? <listlevel> '}' |

where the control words are defined by

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| Control word | Meaning |
|---|---|
| \listid*N* | Should exactly match the \listid of one of the lists in the List table. The value ***N*** is a long integer. |
| \listoverridecount*N* | Number of list override levels within this list override (0, 1 or 9). |
| \ls*N* | The (1-based) index of this **\listoverride** in the **\listoverride** table. This value should never be zero inside a **\listoverride** and must be unique for all **\listoverride**'s within a document. The valid values are from 1 to 2000. The value 0 means no list. |
| \listoverridestartat | Indicates an override of the start-at value. |
| \listoverrideformat*N* | Number of list format override levels within this list override (should be either 1, 9, or missing, which means 0). |

Each list override level contains flags to specify whether the formatting or start-at values are being overridden for each level. If the format flag (**\listoverrideformat*N***) is given, the **\lfolevel** should also contain a list level (<listlevel>). If the start-at flag (**\listoverridestartat**) is given, a start-at value must be provided. If the start-at is overridden but the format is not, then a **\levelstartat*N*** should be provided in the <lfolevel> itself. If both the start-at and the format are overridden, put the **\levelstartat*N*** inside the <listlevel> contained in the <lfolevel>.

## Paragraph Group Properties

Word 2002 introduced paragraph group properties, similar to style sheets. A document using paragraph group properties places a **\pgptbl** entry in the header. Elements in the Paragraph Group Properties (PGP) table are entered as they are created in the document and are identified with an **\ipgp*N*** value. The formatting options are taken from the regular paragraph formatting options. PGP table entries may exist with different **\ipgp*N*** values but with the same properties. Any paragraph that references an entry in the PGP table does so by emitting **\ipgp*N***, which sets paragraph formatting options according to the entry in the PGP table. Additional formatting options may also be employed.

The PGP syntax is as follows:

| | |
|---|---|
| <pgptbl> | '{*' **\pgptbl** <entry>+ '}' |
| <entry> | '{' **\pgp** <value> '}' |
| <value> | **\ipgp*N*** <parfmt>+ |

The following is a sample PGP table with two entries:

```
{\*\pgptbl {\pgp\ipgp13\itap0\li0\ri0\sb0\sa0}{\pgp\ipgp80\itap0\li720\ri0\sb100\sa100}}
```

## Revision Marks

This table allows tracking of multiple authors and reviewers of a document, and is used in conjunction with the character properties for tracking changes (using revision marks).

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| Control word | Meaning |
|---|---|
| *\revtbl | This group consists of subgroups that each identify the author of a revision in the document, as in {Author1;}. This is a destination control word.<br>Revision conflicts, such as those that result when one author deletes another's additions, are stored as one group, in the following form:<br>CurrentAuthor\'00\'<length of previous author's name>PreviousAuthor\'00 PreviousRevisionTime<br>The 4 bytes of the Date/Time (DTTM) structure are emitted as ASCII characters, so values greater than 127 should be emitted as quoted hexadecimal values. |

All time references for revision marks use the following bit field structure, DTTM.

| Bit numbers | Information | Range |
|---|---|---|
| 0–5 | Minute | 0–59 |
| 6–10 | Hour | 0–23 |
| 11–15 | Day of month | 1–31 |
| 16–19 | Month | 1–12 |
| 20–28 | Year | = Year – 1900 |
| 29–31 | Day of week | 0 (Sun)–6 (Sat) |

## RSID

In Word 2002, a new style of revision tracking was established. RSIDs (Revision Save IDs) indicate when text or a property was changed. Whenever text is added or deleted or properties are changed, that text or property is tagged with the current "Save ID," which is a random number that changes each time the document is saved. They are primarily used when merging or comparing two documents with a common history but no revision marks. By reviewing the RSID we can tell which of the two authors made the change. Without the RSID we can only tell that there is a difference, but we do not know if (for example) it was an addition by author A or a deletion by author B. An RSID table is placed after all other style definitions and before the <generator> and <info> groups. Changed text and properties is contained in groups with an appropriate control word (like **\insrsid*N*** for insertions) that identifies the editing session.

The syntax for an RSID table is as follows:

<rsidtable> '{*' **\rsidtbl \rsid*N***+ '}'

| Control word | Meaning |
|---|---|
| *\rsidtbl | Destination for the revision save ID table. |
| \rsid*N* | Each time a document is saved a new entry is added to this table, with ***N*** being the random long integer number assigned to represent the unique session. |
| \insrsid*N* | An RSID is inserted where an insertion is made to denote the session in which particular text was inserted. Example: if "This is text." is inserted, it will be written in RTF as<br>{\insrsid8282541 This is text.}<br>For use in lists:<br>{\insrsid8282541 Item in List \par{\listtext\pard\plain\f3\insrsid8282541 \loch\af3\dbch\af0 \hich\f3 \'b7\tab}} |

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| | |
|---|---|
| \rsidroot*N* | Designates the start of the document's history (first save). |
| \delrsid*N* | RSID value identifying when text was marked as deleted. |
| \charrsid*N* | RSID value identifying when character formatting was changed. |
| \sectrsid*N* | RSID identifying when section formatting was changed. |
| \pararsid*N* | RSID identifying when paragraph formatting was changed. |
| \tblrsid*N* | RSID identifying when table formatting was changed. |

### *Old Properties*

With tracking enabled, you can document changes to formatting. To keep track of the property before the changes were made, Old Properties were created. This tracking uses the following syntax:

| | |
|---|---|
| <oldprop> | '{*' <oldproptype> <oldproperties>+ <trackinginfo> ';}' |
| <oldproptype> | \oldcprops \| \oldpprops \| \oldtprops \| \oldsprops |
| <oldproperties> | This section includes any of the relevant format tags that would have to be put in place to revert the document to its pre-edit form. For example, this would be **\b0** if the user had chosen to make the selection bold. |
| <trackinginfo> | This can be any tag used to track the author, revision ID, and date. |

| Control word | Meaning |
|---|---|
| \oldcprops | Old character formatting properties. |
| \oldpprops | Old paragraph formatting properties. |
| \oldtprops | Old table formatting properties. |
| \oldsprops | Old section formatting properties. |

The following is an example of the correct use of the Old Properties when bold and italic are applied to a section of existing text. If the original text "This is a test." is changed to "This ***is a*** test.", the following code example will be formed, which would tell an RTF reader that to undo the change to the character property bold and italic would have to be disabled:

```
{\rtlch\fcs1 \af0 \ltrch\fcs0 \insrsid2778197 \hich\af0\dbch\af13\loch\f0 This }{\rtlch\fcs1 \ab\af0
\ltrch\fcs0 \b\i\crauth1\crdate1717000906\insrsid2778197\charrsid2778197 {\*\oldcprops
\b0\i0\crauth1\crdate1717000906\insrsid2778197\charrsid2778197 }\hich\af0\dbch\af13\loch\f0 is
a}{\rtlch\fcs1 \af0 \ltrch\fcs0 \insrsid2778197 \hich\af0\dbch\af13\loch\f0  test.}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid15803535
```

## User Protection Information

The following is the syntax for the user protection information group, which lists the specific users granted exceptions to the document protection.

| | |
|---|---|
| <userprotection> | '{*' **\protusertbl** <user>+ '}' |
| <user> | '{' #PCDATA '}' |
| | A user name is enclosed by braces. |

| Control word | Meaning |
|---|---|
| \protusertbl | Table of users referenced during document protection. |

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Example of user protection information:

```
{\*\protusertbl{DOMAIN\'5cuserone}{DOMAIN\'5cusertwo}{DOMAIN\'5cuserthree}}
```

## Generator

Word 2002, Word 2003, and Word 2007 allow the RTF emitter application to stamp the document with its name, version, and build number. The generator area has the following syntax:

| | |
|---|---|
| <generator> | '{*' **\generator** <name> ';}' |
| <name> | #PCDATA, the name of the program, the version, the build, and any other information about the emitting program can be listed here. Word 2002 lists {*\generator Microsoft Word 10.0.XXXX} – Word 2003 lists {*\generator Microsoft Word 11.0.XXXX} – Word 2007 lists {*\generator Microsoft Word 12.0.XXXX} in which XXXX is replaced by the build number. Only ASCII text is allowed in this field. |

# *Document Area*

Once the RTF header is defined, the RTF reader has enough information to correctly read the actual document text. The <document> contains document information followed by one or more sections. It has the following syntax:

| | |
|---|---|
| <document> | <info>? <xmlnstbl>? <docfmt>* <section>+ |

## Information Group

The **\info** control word introduces the information group, which contains information about the document. This can include the title, author, keywords, comments, and other information specific to the file. This information is for use by a document-management tool, if available.

The information group has the following syntax:

| | |
|---|---|
| <info> | '{' **\info** <title>? & <subject>? & <author>? & <manager>? & <company>? <operator>? & <category>? & <keywords>? & <comment>? & **\version*N***? & <doccomm>? & **\vern*N***? & <creatim>? & <revtim>? & <printim>? & <buptim>? & **\edmins*N***? & **\nofpages*N***? & **\nofwords*N***? **\nofchars*N***? & **\id*N***? '}' |
| <title> | '{' **\title** #PCDATA '}' |
| <subject> | '{' **\subject** #PCDATA '}' |
| <author> | '{' **\author** #PCDATA '}' |
| <manager> | '{' **\manager** #PCDATA '}' |
| <company> | '{' **\company** #PCDATA '}' |
| <operator> | '{' **\operator** #PCDATA '}' |
| <category> | '{' **\category** #PCDATA '}' |
| <keywords> | '{' **\keywords** #PCDATA '}' |
| <comment> | '{' **\comment** #PCDATA '}' |
| <doccomm> | '{' **\doccomm** #PCDATA '}' |
| <hlinkbase> | '{' **\hlinkbase** #PCDATA '}' |
| <creatim> | '{' **\creatim** <time> '}' |
| <revtim> | '{' **\revtim** <time> '}' |
| <printim> | '{' **\printim** <time> '}' |
| <buptim> | '{' **\buptim** <time> '}' |

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| | |
|---|---|
| <time> | **\yr*N*** ? **\mo*N*** ? **\dy*N*** ? **\hr*N*** ? **\min*N*** ? **\sec*N*** ? |

Some applications, such as Word, ask the user to type this information when saving the document in its native format. If the document is then saved as an RTF file or translated into RTF, the RTF writer specifies this information using control words in the following table. These control words are destinations, and both the control words and the text should be enclosed in braces ({ }).

| Control word | Meaning |
|---|---|
| \info | Destination for document information group. |
| \title | Title of the document. This is a destination control word. |
| \subject | Subject of the document. This is a destination control word. |
| \author | Author of the document. This is a destination control word. |
| \manager | Manager of the author. This is a destination control word. |
| \company | Company of the author. This is a destination control word. |
| \operator | Person who last made changes to the document. This is a destination control word. |
| \category | Category of the document. This is a destination control word. |
| \keywords | Selected keywords for the document. This is a destination control word. |
| \comment | Comments; text is ignored. This is a destination control word. |
| \version*N* | Version number of the document. |
| \doccomm | Comments displayed in the **Summary Info** or **Properties** dialog box in Word. This is a destination control word. |
| \hlinkbase | The base address that is used for the path of all relative hyperlinks inserted in the document. This can be a path or an Internet address (URL). This is a destination control word. |

The **\userprops** control word introduces the user-defined document properties. Unique **\propname** control words define each user-defined property in the document. This group has the following syntax:

| | |
|---|---|
| <userprops> | '{*' **\userprops** <propinfo>* '}' |
| <propinfo> | '{' <propname> **\proptype*N*** <staticval> <linkval>? '}' |
| <propname> | '{' **\propname** #PCDATA '}' |
| <staticval> | '{' **\staticval** #PCDATA '}' |
| <linkval> | '{' **\linkval** #PCDATA '}' |

| Control word | Meaning |
|---|---|
| \userprops | Destination for user-defined properties. |
| \propname | Name of a user-defined property. |
| \staticval | Destination for property value. |
| \linkval | Name of bookmark that contains text to display as the value of the property. |

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| | | |
|---|---|---|
| \proptype*N* | Specifies property type: | |
| | 3 | Integer |
| | 5 | Real number |
| | 64 | Date |
| | 11 | Boolean |
| | 30 | Text |

The RTF writer may automatically enter other control words, including those in the following table.

| Control word | Meaning |
|---|---|
| \vern*N* | Internal version number |
| \creatim | Creation time |
| \revtim | Revision time |
| \printim | Last print time |
| \buptim | Backup time |
| \edmins*N* | Total editing time (in minutes) |
| \yr*N* | Year |
| \mo*N* | Month |
| \dy*N* | Day |
| \hr*N* | Hour |
| \min*N* | Minute |
| \sec*N* | Seconds |
| \nofpages*N* | Number of pages |
| \nofwords*N* | Number of words |
| \nofchars*N* | Number of characters including spaces |
| \nofcharsws*N* | Number of characters not including spaces |
| \id*N* | Internal ID number |

Any control word described in the previous table that does not have a numeric parameter specifies a date; all dates are specified with the **\yr*N* \mo*N* \dy*N* \hr*N* \min*N* \sec*N*** control words. An example of an information group follows:

```
{\info{\title Template}{\author John Doe}{\operator JOHN
DOE}{\creatim\yr1999\mo4\dy27\min1}{\revtim\yr1999\mo4\dy27\min1}{\printim\yr1999\mo3\dy17\hr23\min5}
{\version2}{\edmins2}{\nofpages183}{\nofwords53170}{\nofchars303071}{\*\company
Microsoft}{\nofcharsws372192}{\vern8247}}
```

## Read-Only Password Protection

This control word contains hex-encoded encrypted data representing the password needed to edit the given RTF document. For more information on the encryption algorithm used, please see the WordprocessingML element documentProtection discussed in Office Open XML.

Read-Only Password Protection consists of a single control word with the following syntax:

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<passwordhash> '{*' **\passwordhash** #SDATA '}'

For example:

```
{\*\passwordhash
010000004c00000001000000048000005 0c300001400000010000000f89c360d0c9d360d000000008bc29e2f78a2144122ed6
8a1701e2ea50bbbbeaf7333c40dfe048ccf55f709b8cc7e8b49}
```

**Note:** the control word **\password** was supported by Word 2003, but has been deprecated because it is not as secure (uses weak encryption).

## XML Namespace Table

XML Namespace tables contain the namespaces for XML and SmartTags that are used in an RTF-formatted document.

SmartTags and custom XML markup each provide a facility for embedding customer-defined semantics into the document as follows:

- SmartTags use the ability to provide a basic namespace or name for a run or set of runs in a document (see Custom XML Tags).
- Custom XML markup uses the ability to tag the document that uses XML elements and attributes that are specified by any valid XML Schema file.

The XML Namespace table has the following syntax:

<xmlnstbl> '{*' **\xmlnstbl** <xmlnsdecl>* '}'

<xmlnsdecl> '{' **\xmlns*N*** #PCDATA '}'

For example:

```
{\*\xmlnstbl{\xmlns1 {HYPERLINK "http://exampleuri.org"}}}
```

The following table lists the Namespace Table control words:

| Control word | Meaning |
|---|---|
| *\xmlnstbl | XML namespace table |
| \xmlns*N* | XML namespace table entry. This control word is also used in the body text to identify data belonging to the corresponding namespace (see Custom XML Tags). |

## Document Formatting Properties

After the information group and XML namespace table (if they are present), there may be some document formatting control words (referred to as <docfmt> in the document area syntax description). These control words are listed in the following table and specify document attributes, such as margins and footnote placement. These attributes must precede the first plain-text character in the document. Measurements are in twips, one-twentieth of a point. For omitted control words, RTF uses the default values.

Note that three of the document-protection control words (**\formprot**, **\revprot**, and **\annotprot**) are mutually exclusive; only one of the three can apply to any given document.

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On the other hand, **\readprot** indicates that the document is set to Read-Only protection, but allows exceptions, and can appear with **\annotprot** control words for backward compatibility.

| Control word | Meaning |
|---|---|
| \deftab*N* | Default tab width in twips (default is 720, i.e., 0.5"). |
| \hyphhotz*N* | Hyphenation hot zone in twips (amount of space at right margin in which words are hyphenated). |
| \hyphconsec*N* | ***N*** is maximum number of consecutive lines that are allowed to end in a hyphen. 0 means no limit. |
| \hyphcaps* | Switches hyphenation of capitalized words (default is on). Append 1 or leave control word by itself to toggle property on; append 0 to turn it off. |
| \hyphauto* | Switches automatic hyphenation (default is off). Append 1 or leave control word by itself to toggle property on; append 0 to turn it off. |
| \linestart*N* | Beginning line number (default is 1). |
| \fracwidth | Uses fractional character widths when printing (QuickDraw only). |
| *\nextfile | The argument is the name of the next file to print or index; it must be enclosed in braces. This is a destination control word. |
| *\template | The argument is the name of a related template file; it must be enclosed in braces. This is a destination control word. |
| \makebackup | Backup copy is made automatically when the document is saved. |
| \muser | Flag written if Word 97 compatibility mode is active; ignored when read. |
| \defformat | Tells the RTF reader that the document should be saved in RTF format. |
| \psover | Prints PostScript over the text. |
| \doctemp | Document is a boiler plate document. For Word for Windows, this is a template; for Word for the Macintosh, this is a stationery file. |
| \windowcaption | Sets the caption text for the document window. This is a string value. |
| \doctype*N* | An integer (0–2) that describes the document type for AutoFormat.<br>0 General document (for formatting most documents, the default)<br>1 Letter (for formatting letters, and used by Letter Wizard)<br>2 E-mail (for formatting e-mail, and used by WordMail) |
| \ilfomacatclnup*N* | If ***N*** = 1, this control word specifies that the last attempt made by the application to remove unused abstract numbering definitions from the document was incomplete. If a legacy document is opened by a consumer, it may choose to remove abstract numbering definitions that are 'orphaned' (have no associated numbering definition instances). This control word is used by those consumers to indicate their progress (if incomplete) in reviewing existing abstract numbering definitions.<br>**Note:** Removing unused abstract numbering definition from a document will reduce the file size, but is not required.<br>If omitted or ***N*** = 0, then all abstract numbering definitions shall be considered reviewed. |
| \horzdoc | Horizontal rendering. |
| \vertdoc | Vertical rendering. |
| \jcompress | Compressing justification (default). |
| \jexpand | Expanding justification. |
| \lnongrid | Define line based on the grid. |

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| Control word | Meaning |
|---|---|
| \grfdocevents*N* | Event bit mask for the Word object model Document event methods used to ensure the instantiation of a Visual Basic project that depends on the events corresponding to nonzero bits of ***N***. With no nonzero bits, Word doesn't instantiate VB projects until the user manually looks at them or at the macro list.<br><br>**Bit** — **Object model Document event method**<br>0 — New<br>1 — Open<br>2 — Close<br>3 — Sync<br>4 — XMLAfterInsert<br>5 — XMLBeforeDelete<br>6 — (reserved for internal use)<br>7 — (reserved for internal use)<br>8 — ContentControlAfterAdd<br>9 — ContentControlBeforeDelete<br>10 — ContentControlOnExit<br>11 — ContentControlOnEnter<br>12 — ContentControlBeforeStoreUpdate<br>13 — ContentControlBeforeContentUpdate<br>14 — BuildingBlockInsert |
| \themelang*N* | Specifies the language (via the language IDs defined in the standard language table) that the given document's Theme is using for font resolution. |
| \themelangfe*N* | Specifies the language (via language IDs) that the given document's Theme is using for font resolution of the FE font variation |
| \themelangcs*N* | Specifies the language (via language IDs) that the given document's Theme is using for font resolution of the complex scripts font variation. |
| \relyonvml*N* | If ***N*** = 1, applications may utilize the Vector Mark-up Language (VML) when saving the content of this RTF document as a Web page, when graphical elements that can use this format are present in the document.<br><br>If this control word is omitted or ***N*** = 0, then a graphic image format should be used either in place of or in concert with the VML output to specify the formatting and positioning for objects that are part of the resulting Web page.<br><br>**Note:** This setting is intended for applications to save Web pages that can be supported by legacy Web browsers that do not support VML when attempting to read and display the resulting Web page. |
| \validatexml*N* | If ***N*** = 1, applications should validate the custom XML markup in this document against the applicable custom XML schema(s), when those schemas are available. If ***N*** = 0, the application should silently behave as if it was unable to provide this functionality.<br><br>If this control word is omitted, then applications that support this functionality should attempt to validate the custom XML contents against any available related custom XML schema(s). |

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| Control word | Meaning |
|---|---|
| *\xform | This destination control word specifies the location of a custom XSL transform that shall be used when this document is saved as a single XML file.<br><br>**Note:** Because this setting specifies behavior when saving to an alternative file format not defined by Office Open XML, this behavior is optional.<br><br>If this element is omitted, then no custom XSL transform shall be used when saving this file as a single XML file. If the **\usexform** control word is omitted, then this transform shall not be applied when the document is saved as a single XML file.<br><br>For example, consider the RTF specifying to save through the XSL transform located at c:\temp\myxslt.xsl:<br><br>`{\*\xform c:\\temp\\myxslt.xsl}` |
| \donotembedsysfont*N* | If ***N*** = 0, applications should embed common system fonts when they are in use and font embedding is enabled for this document. *Common system fonts* refer to a set of fonts that are typically always present on a computer, and are not defined by this spec.<br><br>If this control word is omitted or ***N*** = 1, then the set of fonts defined as common system fonts should not be embedded in the current document when font embedding is turned on. |
| \donotembedlingdata*N* | Speech, handwriting and controls text service data received from devices connected to Microsoft Office using the Windows Text Service Framework Application Programming Interface should (***N*** = 0) or should not (***N*** = 1) be embedded in the given RTF document. |
| \showplaceholdtext*N* | If ***N*** = 1, each custom XML control word within this document should always show some form of in-document placeholder text representation when it contains no run content. If placeholder text is not specified, then the application shall use the name of the control word to generate default placeholder text in its place.<br><br>If this control word is omitted or ***N*** = 0, then custom XML markup that does not have placeholder text specified within its properties should not display any placeholder text. |
| \trackmoves*N* | If ***N*** = 1, applications should track moves when the **\revisions** control word is present. If move tracking is not enabled (**\revisions** control word is not present, or is inactive) what would otherwise be considered moves are tracked as deletions (**\deleted**) and insertions (**\revised**). If ***N*** = 0, moves should not be tracked. |
| \trackformatting*N* | If ***N*** = 1, applications should track revisions made to the formatting of this RTF document when the **\revisions** control word is present. If ***N*** = 0, formatting should not be tracked. |
| \ignoremixedcontent*N* | If ***N*** = 1, applications should ignore all text content that is not contained within a leaf custom XML markup control word when validating the contents of the custom XML markup in this document against one or more attached custom XML schema(s).<br><br>A *leaf control word* is a custom XML control word that has no child custom XML control words (it is a leaf in the custom XML tree).<br><br>If this control word is omitted or ***N*** = 0, then text content in leaf control words should not be ignored when validating the custom XML markup against one or more custom XML schema(s). |
| \saveinvalidxml*N* | If ***N*** = 1, this document should be capable of being saved into a format consisting of a single XML file when its contents are not valid based on the custom XML markup contained in the document. This setting has no effect on documents that do not contain custom XML markup, or that do contain custom XML markup but do not have a schema attached.<br><br>**Note:** Because this setting specifies behavior when saving to an alternative file format not defined by this spec, this behavior is optional.<br><br>If this control word is omitted or ***N*** = 0, then applications should not allow this document to be saved into a single XML file when its contents are not valid based on the custom XML markup contained in the document.<br><br>If the **\validatexml*N*** control word is present, then the XML is never invalid and this property is ignored. |

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| Control word | Meaning |
|---|---|
| \showxmlerrors*N* | If ***N*** = 1, a visual cue should be displayed on content contained in custom XML markup in an RTF document that is considered to be invalid based on the associated XML schema(s).<br><br>If this control word is not present in an RTF document or ***N*** = 0, visual cues should be not displayed. |
| \stylelocktheme | This control word specifies whether applications shall prevent the modification of the document's theme information when editing this document. This setting should not preclude the use of the theme information; instead, it should only prevent the modification of the theme part in a single operation (either through a user interface or a programmatic operation).<br><br>If this control word is omitted, then applications may allow the replacement or modification of the theme part in this document. |
| \stylelockqfset | This control word specifies whether applications shall prevent the replacement of the complete set of styles when editing this document. This setting should not preclude the editing or removal of individual styles; instead, it should only prevent the removal and replacement of the entire styles part in a single operation (either through a user interface or a programmatic operation).<br><br>If this control word is omitted, then applications may allow the replacement of the entire styles part in this document. |
| \usenormstyforlist | This control word specifies whether applications shall automatically apply their list paragraph style when numbering is applied to a paragraph currently formatted using the default paragraph style.<br><br>Typically, when a paragraph is formatted using the default paragraph style, and numbering is subsequently applied, the list paragraph style is applied to ensure that paragraph properties are appropriate for a numbered paragraph.<br><br>This control word specifies that no alternate paragraph style shall ever be applied. |
| *\wgrffmtfilter | This control word is followed by a four-digit hexadecimal string that specifies a set of suggested filters that should be applied to the list of document styles in the application if the styles are displayed in a user interface. The is any combination of the following filtering hexadecimal values OR'd together:<br><br>**Value** — **Description**<br>0001 — Specifies that all styles present should be displayed in the list of document styles.<br>0002 — Specifies that only custom styles should be displayed in the list of document styles.<br>0004 — Specifies that all latent styles should be displayed in the list of document styles.<br>0008 — Specifies that only styles used in the document should be displayed in the list of document styles.<br>0010 — Undefined. Shall not be used.<br>0020 — Specifies that heading styles should be displayed in the list of document styles when the previous style is used in the document or is present in the styles part.<br>0040 — Specifies that numbering styles should be displayed in the list of document styles.<br>0080 — Specifies that table styles should be displayed in the list of document styles.<br>0100 — Specifies that all unique forms of run-level direct formatting should be displayed in the list of document styles as though they were each a unique style.<br>0200 — Specifies that all unique forms of paragraph-level direct formatting should be displayed in the list of document styles as though they were each a unique style.<br>0400 — Specifies that all unique forms of direct formatting of numbering data should be displayed in the list of document styles as though they were each a unique style.<br>0800 — Specifies that all unique forms of direct formatting of tables should be displayed in the list of document styles as though they were each a unique style. |

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| Control word | Meaning |
|---|---|
| | 1000 — Specifies that a style should be present that removes all formatting and styles from text.<br>2000 — Specifies that the first three heading styles should always be displayed in the list of document styles.<br>4000 — Specifies that styles should only be shown if the **\ssemihidden*N*** control word is 0 and the **\shidden** control word isn't present.<br>8000 — Specifies that primary names for styles should not be shown if an alternate name using the name control word exists.<br>Any other value — Undefined. Shall not be used.<br><br>If this control word is omitted, then all settings defined by this control word are turned off.<br>Example: Consider an RTF document containing the following:<br>`{\*\wgrffmtfilter 2002}`<br>This specifies two suggested filter options for the list of document styles:<br>1) Only custom styles should be shown (0002)<br>2) Heading styles with a style ID of Heading1 to Heading3 should always be displayed in the list (2000) |
| \readonlyrecommended | Specifies that this document is recommended to be read-only. |
| \stylesortmethod*N* | This control word specifies a suggested sorting that should be applied to the list of document styles in this application if the styles are displayed in a user interface.<br>If this control word is omitted styles should be sorted as if this control word was present with ***N*** = 1.<br>**Value** — **Description**<br>0 — Specifies that visible styles should be sorted by their names.<br>1 — Specifies that visible styles should be sorted by the default sorting of the host application.<br>**Note:** In Microsoft Office Word 2007 the default sorting order is specified by the **\spriority*N*** control word.<br>2 — Specifies that visible styles should be sorted by the font for which they apply.<br>3 — Specifies that visible styles should be sorted by the style on which they are based.<br>4 — Specifies that visible styles should be sorted by their style types (e.g., character, linked, paragraph).<br>Any other value — Undefined. Shall not be used. |
| *\writereservhash | This control word contains hex-encoded encrypted data representing the password needed to edit the given RTF document. For more information on the encryption algorithm used please see the WordprocessingML element documentProtection discussed in Office Open XML. This is a destination control word. |
| *\writereservation | This destination control word was used in Word 2003 but has been deprecated in favor of **\writereservhash** since **\writereservation** uses weak encryption. |
| \saveprevpict | This control word specifies if a document's thumbnail should be generated for the contents of the first page of this document when saved by an application that supports document thumbnail generation.<br>If this control word is omitted, then applications may choose to save a thumbnail; however, that behavior is not required. If this control word is specified, a thumbnail must be produced if that functionality is supported. |

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| Control word | Meaning |
|---|---|
| **Document Views and Zoom Level** | |
| \viewkind*N* | An integer (0 through 5) that represents the view mode of the document.<br>0 None<br>1 Page Layout view<br>2 Outline view<br>3 Master Document view<br>4 Draft view<br>5 Online Layout view |
| \viewscale*N* | Zoom level of the document; the ***N*** argument is a value representing a percentage (default is 100). |
| \viewzk*N* | An integer (0 through 3) that represents the zoom kind of the document.<br>0 None<br>1 Full page<br>2 Best fit<br>3 Text width |
| \viewbksp*N* | Boolean:<br>0 Background shapes will not show in Page Layout View (default if omitted).<br>1 Background shapes will show in Page Layout View. |
| \private | Obsolete destination. It has no leading *. It should be skipped. |
| **Footnotes and Endnotes** | |
| \fet*N* | Footnote/endnote type. This indicates the types of notes that are present in the document.<br>0 Footnotes only or nothing at all (the default)<br>1 Endnotes only<br>2 Both footnotes and endnotes<br>For backward compatibility, if **\fet1** is emitted, **\endnotes** or **\enddoc** will be emitted along with **\aendnotes** or **\aenddoc**. RTF readers that understand **\fet** will need to ignore the footnote-positioning control words and use the endnote control words instead. |
| \ftnsep | Text argument separates footnotes from the document. This is a destination control word. |
| \ftnsepc | Text argument separates continued footnotes from the document. This is a destination control word. |
| \ftncn | Text argument is a notice for continued footnotes. This is a destination control word. |
| \aftnsep | Text argument separates endnotes from the document. This is a destination control word. |
| \aftnsepc | Text argument separates continued endnotes from the document. This is a destination control word. |
| \aftncn | Text argument is a notice for continued endnotes. This is a destination control word. |
| \endnotes | Footnotes at the end of the section (the default). |
| \enddoc | Footnotes at the end of the document. |
| \ftntj | Footnotes beneath text (top justified). |
| \ftnbj | Footnotes at the bottom of the page (bottom justified). |
| \aendnotes | Endnotes at end of section (the default). |
| \aenddoc | Endnotes at end of document. |
| \aftnbj | Endnotes at bottom of page (bottom justified). |
| \aftntj | Endnotes beneath text (top justified). |

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| Control word | Meaning |
|---|---|
| \ftnstart*N* | Beginning footnote number (default is 1). |
| \aftnstart*N* | Beginning endnote number (default is 1). |
| \ftnrstpg | Restart footnote numbering each page. |
| \ftnrestart | Footnote numbers restart at each section. Microsoft Word for the Macintosh uses this control to restart footnote numbering at each page. |
| \ftnrstcont | Continuous footnote numbering (the default). |
| \aftnrestart | Restart endnote numbering each section. |
| \aftnrstcont | Continuous endnote numbering (the default). |
| \ftnnar | Footnote numbering—Arabic numbering (1, 2, 3, …). |
| \ftnnalc | Footnote numbering—Alphabetical lowercase (a, b, c, …). |
| \ftnnauc | Footnote numbering—Alphabetical uppercase (A, B, C, …). |
| \ftnnrlc | Footnote numbering—Roman lowercase (i, ii, iii, …). |
| \ftnnruc | Footnote numbering—Roman uppercase (I, II, III, …). |
| \ftnnchi | Footnote numbering—Chicago Manual of Style (*, †, ‡, §). |
| \ftnnchosung | Footnote Korean numbering 1 (CHOSUNG). |
| \ftnncnum | Footnote Circle numbering (CIRCLENUM). |
| \ftnndbnum | Footnote kanji numbering without the digit character (DBNUM1). |
| \ftnndbnumd | Footnote kanji numbering with the digit character (DBNUM2). |
| \ftnndbnumt | Footnote kanji numbering 3 (DBNUM3). |
| \ftnndbnumk | Footnote kanji numbering 4 (DBNUM4). |
| \ftnndbar | Footnote double-byte numbering (DBCHAR). |
| \ftnnganada | Footnote Korean numbering 2 (GANADA). |
| \ftnngbnum | Footnote Chinese numbering 1 (GB1). |
| \ftnngbnumd | Footnote Chinese numbering 2 (GB2). |
| \ftnngbnuml | Footnote Chinese numbering 3 (GB3). |
| \ftnngbnumk | Footnote Chinese numbering 4 (GB4). |
| \ftnnzodiac | Footnote numbering—Chinese Zodiac numbering 1 (ZODIAC1). 甲、乙、丙… |
| \ftnnzodiacd | Footnote numbering—Chinese Zodiac numbering 2 (ZODIAC2). 子、丑、寅… |
| \ftnnzodiacl | Footnote numbering—Chinese Zodiac numbering 3 (ZODIAC3). |
| \aftnnar | Endnote numbering—Arabic numbering (1, 2, 3, …). |
| \aftnnalc | Endnote numbering—Alphabetical lowercase (a, b, c, …). |
| \aftnnauc | Endnote numbering—Alphabetical uppercase (A, B, C, …). |
| \aftnnrlc | Endnote numbering—Roman lowercase (i, ii, iii, …). |
| \aftnnruc | Endnote numbering—Roman uppercase (I, II, III, …). |
| \aftnnchi | Endnote numbering—Chicago Manual of Style (*, †, ‡, §). |
| \aftnnchosung | Endnote Korean numbering 1 (CHOSUNG). |
| \aftnncnum | Endnote Circle numbering (CIRCLENUM). |
| \aftnndbnum | Endnote kanji numbering without the digit character (DBNUM1). |
| \aftnndbnumd | Endnote kanji numbering with the digit character (DBNUM2). |
| \aftnndbnumt | Endnote kanji numbering 3 (DBNUM3). |
| \aftnndbnumk | Endnote kanji numbering 4 (DBNUM4). |
| \aftnndbar | Endnote double-byte numbering (DBCHAR). |

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| Control word | Meaning |
|---|---|
| \aftnnganada | Endnote Korean numbering 2 (GANADA). |
| \aftnngbnum | Endnote Chinese numbering 1 (GB1). |
| \aftnngbnumd | Endnote Chinese numbering 2 (GB2). |
| \aftnngbnuml | Endnote Chinese numbering 3 (GB3). |
| \aftnngbnumk | Endnote Chinese numbering 4 (GB4). |
| \aftnnzodiac | Endnote numbering—Chinese Zodiac numbering 1 (ZODIAC1). 甲、乙、丙… |
| \aftnnzodiacd | Endnote numbering—Chinese Zodiac numbering 2 (ZODIAC2). 子、丑、寅… |
| \aftnnzodiacl | Endnote numbering—Chinese Zodiac numbering 3 (ZODIAC3). |

| **Page Information** | |
|---|---|
| \paperw*N* | Paper width in twips (default is 12,240). |
| \paperh*N* | Paper height in twips (default is 15,840). |
| \psz*N* | Used to differentiate between paper sizes with identical dimensions in Microsoft Windows. Values 1 through 41 correspond to paper sizes defined in DRIVINI.H in the Windows SDK (DMPAPER_ values). Values greater than or equal to 42 correspond to user-defined forms in Windows. |
| \margl*N* | Left margin in twips (default is 1800). |
| \margr*N* | Right margin in twips (default is 1800). |
| \margt*N* | Top margin in twips (default is 1440). |
| \margb*N* | Bottom margin in twips (default is 1440). |
| \facingp | Facing pages (activates odd/even headers and gutters). |
| \gutter*N* | Gutter width in twips (default is 0). |
| \ogutter*N* | Outside gutter width (default is 0; not used by Word, but in 1987 RTF Spec) |
| \rtlgutter | Gutter is positioned on the right. |
| \gutterprl | Parallel gutter. |
| \margmirror | Switches margin definitions on left and right pages. Used in conjunction with **\facingp**. |
| \landscape | Landscape format. |
| \pgnstart*N* | Beginning page number (default is 1). |
| \widowctrl | Enable widow and orphan control. |
| \twoonone | Print two logical pages on one physical page. |
| \bookfold | Book fold printing. Allows for printing documents that can easily be made into pamphlets. This will print two pages side by side in landscape mode, and will print to the back of the sheet if the printer supports duplex printing. |
| \bookfoldrev | Reverse book fold printing for bidirectional languages. |
| \bookfoldsheets*N* | Sheets per booklet; this should be a multiple of four. |

| **Linked Styles** | |
|---|---|
| \linkstyles | Update document styles automatically based on template. |

| **Compatibility Options** | |
|---|---|
| \notabind | Do not add automatic tab stop for hanging indent. |
| \wraptrsp | Wrap trailing spaces onto the next line. |
| \prcolbl | Print all colors as black. |
| \noextrasprl | Do not add extra space to line height for showing raised/lowered characters. |

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| Control word | Meaning |
|---|---|
| \nocolbal | Do not balance columns. |
| \cvmme | Treat old-style escaped quotation marks (\") as current style ("") in mail merge data documents. |
| \sprstsp | Suppress extra line spacing at top of page. Basically, this means to ignore any line spacing larger than Auto at the top of a page. |
| \sprsspbf | Suppress space before paragraph property after hard page or column break. |
| \otblrul | Combine table borders as done in Word 5.*x* for the Macintosh. Contradictory table border information is resolved in favor of the first cell. |
| \transmf | Metafiles are considered transparent; do not blank the area behind metafiles. |
| \swpbdr | If a paragraph has a left border (not a box) and the **\facingp** is active (different odd and even page headings/footings) or **\margmirror** is active, Word will print the border on the right for odd-numbered pages. |
| \brkfrm | Show hard (manual) page breaks and column breaks in frames. |
| \sprslnsp | Suppress extra line spacing like WordPerfect version 5.*x*. |
| \subfontbysize | Substitute fonts based on size first. |
| \truncatefontheight | Round down to the nearest font size instead of rounding up. |
| \truncex | Do not add leading (extra space) between rows of text. |
| \bdbfhdr | Print body before header/footer. Option for compatibility with Word 5.*x* for the Macintosh. |
| \dntblnsbdb | Do not balance SBCS/DBCS characters. Option for compatibility with Word 6.0 (Japanese). |
| \expshrtn | Expand character spaces on line-ending with SHIFT+RETURN. Option for compatibility with Word 6.0 (Japanese). |
| \lytexcttp | Do not center exact line height lines. |
| \lytprtmet | Use printer metrics to lay out document. |
| \msmcap | Small caps like Word 5.*x* for the Macintosh. |
| \nolead | No external leading. Option for compatibility with Word 5.*x* for the Macintosh. |
| \nospaceforul | Do not add space for underline. Option for compatibility with Word 6.0 (Japanese). |
| \noultrlspc | Do not underline trailing spaces. Option for compatibility with Word 6.0 (Japanese). |
| \noxlattoyen | Do not translate backslash to Yen sign. Option for compatibility with Word 6.0 (Japanese). |
| \oldlinewrap | Lines wrap like Word 6.0. |
| \sprsbsp | Suppress extra line spacing at bottom of page. |
| \sprstsm | Does nothing. This keyword should be ignored. |
| \wpjst | Do full justification like WordPerfect 6.*x* for Windows. |
| \wpsp | Set the width of a space like WordPerfect 5.*x*. |
| \wptab | Advance to next tab stop like WordPerfect 6.*x*. |
| \splytwnine | Do not lay out AutoShapes like Word 97. |
| \ftnlytwnine | Do not lay out footnotes like Word 6.0, Word 95, and Word 97. |
| \htmautsp | Use HTML paragraph auto spacing. |
| \useltbaln | Do not forget last tab alignment. |
| \alntblind | Do not align table rows independently. |
| \lytcalctblwd | Do not lay out tables with raw width. |
| \lyttblrtgr | Do not allow table rows to lay out apart. |
| \oldas | Use Word 95 Auto spacing. |
| \lnbrkrule | Do not use Word 97 line breaking rules for Asian text. |

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| Control word | Meaning |
|---|---|
| \bdrrlswsix | Use Word 6.0/Word 95 borders rules. |
| \nolnhtadjtbl | Do not adjust line height in table. |
| \ApplyBrkRules | Use line breaking rules compatible with Thai text. |
| \rempersonalinfo | Instructs emitting program to remove personal information such as the author's name as a document property or in a comment. |
| \remdttm | Instructs emitting program to remove date/time as a document property or in a comment. |
| \snaptogridincell | Snap text to grid inside table with inline objects. |
| \wrppunct | Allow hanging punctuation in character grid. |
| \asianbrkrule | Use Asian rules for line breaks with character grid. |
| \nobrkwrptbl | Do not break wrapped tables across pages. |
| \toplinepunct | Enables punctuation at the start of a line to compress. |
| \viewnobound | Hide white space between pages. |
| \donotshowmarkup | Do not show markup while reviewing. |
| \donotshowcomments | Do not show comments while reviewing. |
| \donotshowinsdel | Do not show insertions and deletions while reviewing. |
| \donotshowprops | Do not show formatting while reviewing. |
| \allowfieldendsel | Enables selecting the entire field with the first or last character. |
| \nocompatoptions | Specifies that all compatibility options should be set to default. |
| \nogrowautofit | Do not allow tables set to "autofit to contents" to extend into the margins when in Print Layout. This is the default behavior for Word 2003, which keeps tables within the margins. |
| \newtblstyruls | Use the table style rules new to Word 2003. Applies the top border of a column in a more intuitive place when there is a header row in the table. Word 2002 places the top border of a column under the heading row, rather than above it as Word 2003 does. |
| *\background | Destination specifying the document background. This is a destination control word. It contains the **\shp** keyword and relevant shape properties. |
| \nouicompat | Equivalent to **\nofeaturethrottle1**. If both this control word and **\nofeaturethrottle*N*** are present, the last one read determines the result. |
| \nofeaturethrottle*N* | If ***N*** = 1, UI functionality that is not compatible with Word 97-2003 shall not be disabled when the given RTF file is opened. In addition, at the time of Microsoft Office Word 2007 release, this control word specifies that all compatibility options in the document that maintain compatibility with previous word processing applications shall be removed from the file or set to "0" with the exception of:<br>• **\nospaceforul**<br>• **\lnbrkrule**<br>• **\noxlattoyen**<br>• **\expshrtn**<br>• **\dntultrlspc**<br>• **\dntblnsbdbwid**<br>• **\dontadjustlineheightintable**<br>If both **\nouicompat** and **\nofeaturethrottle*N*** are missing or ***N*** = 0, UI functionality that is not compatible with Word 97-2003 shall be disabled when the given RTF file is opened, and existing compatibility options shall be unaffected.<br>If both this control word and **\nouicompat** are present, the last one read determines the result. |

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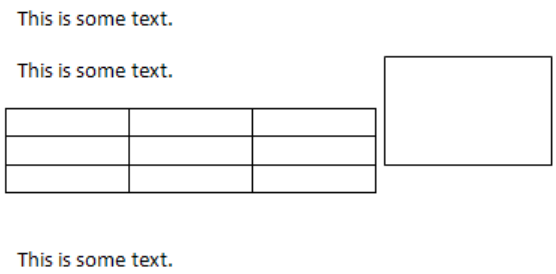
| Control word | Meaning |
|---|---|
| \forceupgrade | This control word specifies that the contents of the document may be upgraded and that the resulting document shall not have its functionality limited to only those functions compatible with earlier word processing applications. The only action required as part of upgrading the document is the instantiation of the **\nofeaturethrottle1** and/or **\nouicompat** control words.<br><br>**Note:** At the time of Microsoft Office Word 2007 release, respecting this control word means that all compatibility options in the document that maintain compatibility with previous word processing applications shall be removed from the file or set to "0" with the exception of:<br>• **\nospaceforul**<br>• **\lnbrkrule**<br>• **\noxlattoyen**<br>• **\expshrtn**<br>• **\dntultrlspc**<br>• **\dntblnsbdbwid**<br>• **\dontadjustlineheightintable**<br><br>If an application does not know how to upgrade a document, this control word and the **\nofeaturethrottle*N*** and **\nouicompat** control words should be ignored and persisted.<br><br>**Note:** The remaining operations that shall be performed as part of upgrading the document are application-defined and outside the scope of this specification. |
| \noafcnsttbl | This control word specifies whether applications shall allow tables to be resized to the remaining available line width when they are using the AutoFit algorithm, and part of that line is filled by a shape with a wrapping type of square or tight.<br><br>Typically, a table that is AutoFit and has a preferred width shall have its width reduced to allow a floating shape to wrap around its contents within the document, as that shape reduces the width of the line and the AutoFit algorithm applies to the remaining line width.<br><br>This control word specifies that tables shall never have any preferred width overridden to allow them to wrap around that floating object, and shall instead be pushed to the next full width line in the document to be displayed.<br><br>Example: Consider an RTF document with a floating shape centered in the document, followed by a table with preferred cell widths of 2.22", as follows:<br><br>  <br><br><br>The default presentation of this document overrides the preferred cell widths to force the table to fit on the line next to the floating shape with tight wrapping.<br><br>However, if this compatibility setting's parameter is "1" then that table is not resized, so it cannot fit and must be pushed to the next full width line, resulting in the following output: |

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| Control word | Meaning |
|---|---|
| | This is some text.<br>This is some text.<br>[illustration]<br>This is some text. |
| \noindnmbrts | Use hanging indent (if any) as tab stop for bullets and numbering. |
| \felnbrelev | This control word specifies an alternate set of characters that may be used to determine that characters can begin or end a line when kinsoku line breaking rules are enabled.<br>Specifically, the following settings shall be used instead (for brevity, only those settings that are different than the default behavior of Microsoft Office Word 2007 are listed below):<br>Chinese (Simplified)<br>Cannot start a line:<br>!),.:;?]}¨·ˇ¯―‖’”…:、。〃々〉》」』】〕〗！＂’），．：；？］｀｜｝～¢<br>Cannot end a line:<br>([{·‘“〈《「『【〔〖（．［｛￡￥<br>Chinese (Traditional)<br>Cannot start a line:<br>!),.:;?]}¢·––’”•‥…·′–、。〉》」』】〕″：｜‖｝〜︴︵︷︹︻︽︿﹁﹃﹄﹂﹀︾︼︸，、．：；？！）｝〕〗！）），．：；？｜｝、<br>Korean<br>Cannot end a line:<br>([\{£¥‘“〈《「『【〔$（［｛₩<br>Example: Consider a line of text in a WordprocessingML document within a paragraph marked as Chinese (Simplified) that begins with a % symbol, as follows:<br>%...<br>Typically, the kinsoku settings for Chinese (Simplified) do not allow this character to begin a line, so the character before that symbol would be moved down onto this line:<br>〖%...<br>However, if this compatibility setting is present, then the alternate kinsoku rules are in place, which do not prevent the % character from beginning the new line, resulting in the following output:<br>%...<br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003 |
| \indrlsweleven | This control word specifies whether applications should ignore the presence of floating objects when calculating the starting position of paragraphs that are wrapped around floating objects defined using the Vector Mark-up Language (VML) syntax.<br>Typically a floating object on the same line or lines as a paragraph only affects the text when the floating object occurs where that text would normally be presented.<br>Example: Text at a 1" indentation would only be displaced by a floating object that appears at that position and not one that appears from 0" to 0.5" on the same line.<br>This control word specifies that floating objects shall always impact paragraphs on the same |

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| Control word | Meaning |
|---|---|
| | line in two ways:<br>1. If the paragraph is not numbered, then it shall tightly wrap any floating object that precedes it on the same line, ignoring its own indentation settings.<br>Example: A paragraph with a 1" left indent shall tightly wrap a floating object that appears at only 0.25" on the same line.<br>2. If the paragraph is numbered, then it shall calculate and use its full indent relative to the edge of the floating object, not relative to the edge of the page.<br>Example: A numbered paragraph with a 1" left indent shall appear 1.5" into the page if it is preceded by a floating object that appears at 0.5" on the same line.<br>Example: Consider an RTF document with a narrow floating object at 0.5" on the page, surrounded by both numbered and unnumbered paragraphs. The default presentation would have no impact on the paragraphs based on that floating object, since the two do not intersect:<br>One<br>Two<br>Three<br>Four<br>Five<br>1. One<br>2. Two<br>3. Three<br>4. Four<br>5. Five<br>However if this control word is present, the two alternate rules defined above apply, resulting in the following output:<br>One<br>Two<br>Three<br>Four<br>Five<br>1. One<br>2. Two<br>3. Three<br>4. Four<br>5. Five<br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \nocxsptable | This control word specifies whether the suppression of additional space (contextual spacing) shall be applied to paragraphs contained within tables.<br>Typically, the rules for the removal of additional paragraph spacing are applied to all paragraphs in an RTF document. This control word specifies that this setting shall always be ignored for paragraphs in table cells (and additional spacing shall be allowed).<br>Example: Consider an RTF document with a default paragraph style with additional spacing after and contextual spacing set:<br>The default presentation would have the spacing suppressed between all paragraphs, since |

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| Control word | Meaning |
|---|---|
| | they are all of the default paragraph style:<br><br>On the Insert tab, the galleries include items that are designed to coordinate with the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look.<br>On the Insert tab, the galleries include items that are designed to coordinate with the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look.<br>You can easily change the formatting of selected text in the document text by choosing a look for the selected text from the Quick Styles gallery on the Home tab. You can also format text directly by using the other controls on the Home tab. Most controls offer a choice of using the look from the current theme or using a format that you specify directly.<br>On the Insert tab, the galleries include items that are designed to coordinate with the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look.<br><br>However, if this control word was present, then the paragraphs in the table will never have their spacing suppressed, resulting in the following output:<br><br>On the Insert tab, the galleries include items that are designed to coordinate with the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look.<br>On the Insert tab, the galleries include items that are designed to coordinate with the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look.<br>You can easily change the formatting of selected text in the document text by choosing a look for the selected text from the Quick Styles gallery on the Home tab. You can also format text directly by using the other controls on the Home tab. Most controls offer a choice of using the look from the current theme or using a format that you specify directly.<br><br>On the Insert tab, the galleries include items that are designed to coordinate with the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look.<br><br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \notcvasp | This control word specifies whether applications shall vertically align the contents of a table cell, even when the contents of that table cell include one or more floating objects defined using the Vector Mark-up Language syntax. Note that the floating object must be part of the cell, and not displayed over the cell due to its anchoring relative to another part of the document.<br><br>Typically, if the alignment of a table cell in an RTF document is specified, then the entire contents of that cell are aligned as specified [*Example*: The entire contents of the cell are centered vertically and moved right-aligned horizontally at that point. *End example*].<br><br>This control word specifies that whenever a floating object defined using VML is present in a table cell that no vertical alignment shall be applied to the contents of that cell, and the contents of the cell shall instead always be top aligned to the cell's contents.<br><br>Example: Consider an RTF table with two cells, each containing some text and a single shape defined using the Vector Mark-up Language syntax. The first cell is vertically aligned to the bottom of the cell, and the second cell is vertically aligned to the center of the cell. |

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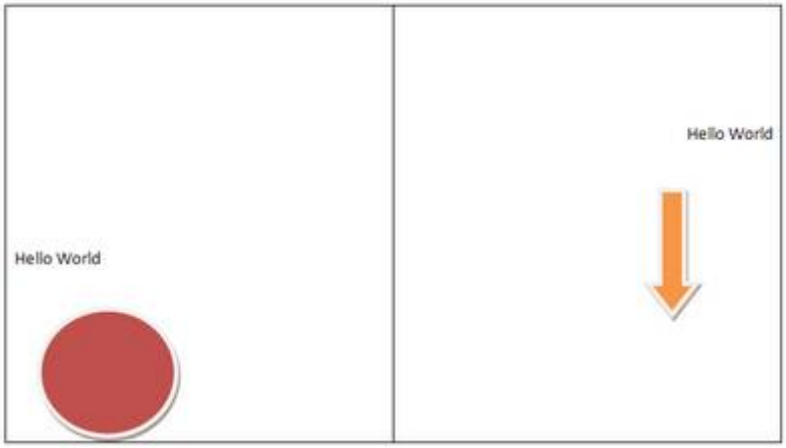
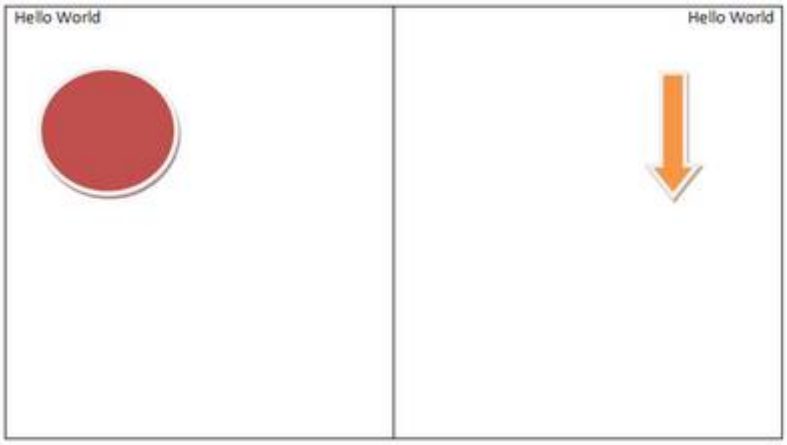
| Control word | Meaning |
|---|---|
| | The default presentation of this document results in each cell (including the extents of the floating objects) being vertically aligned as specified, as follows: |




However, if this control word is present, then the presence of a floating object in each cell shall result in the vertical alignment setting being ignored (each vertical alignment shall be top-aligned relative to the cell), resulting in the following output:




**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003.

| | |
|---|---|
| \notvatxbx | This control word specifies that vertical alignment within textboxes shall be ignored and instead the contents of the textbox shall always be top-aligned. |

Example: Consider an RTF document with a single center-aligned text box:

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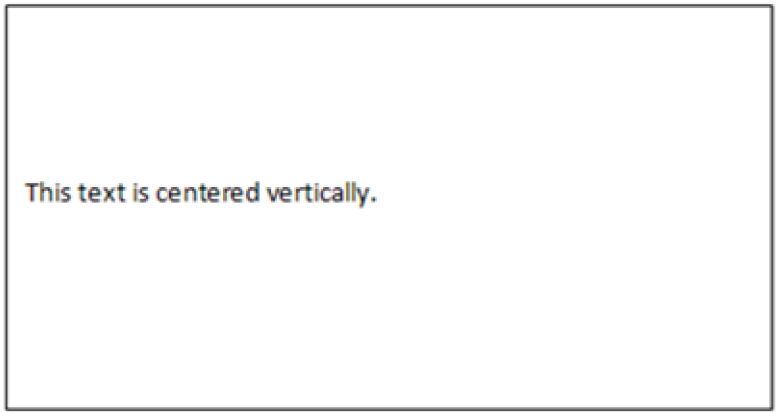
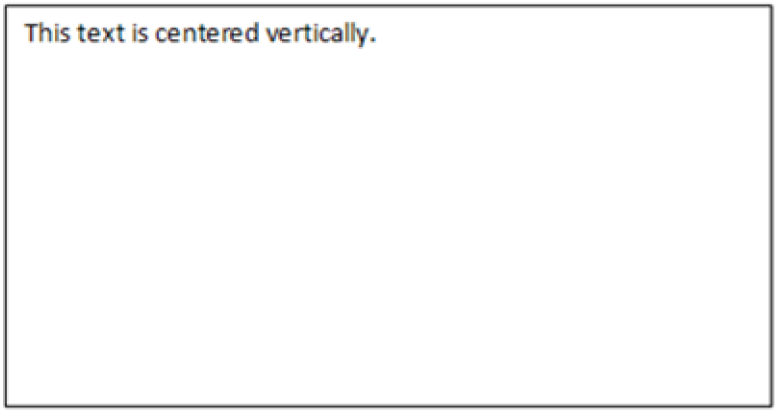
| Control word | Meaning |
|---|---|
| |  <br>If this control word is present, then the text shall always be top aligned, resulting in the following output:<br>  <br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \spltpgpar | This control word specifies whether a page break shall automatically complete the line on which it appears, moving the end of the paragraph to a new line on the next page, or if it shall behave as true run-level content within its current paragraph.<br>Typically, a page break is treated as run-level content, which means that although it delimits the end of the page, if there is no content after it within the current paragraph that the paragraph shall also end on that page.<br>This control word specifies that a page break shall always immediately end the current page, moving the paragraph mark that delimits the end of its parent paragraph to a new line on the next page.<br>Note that this setting only affects the case where there is no run-level content after the page break within the paragraph – if any further run content appears in the paragraph it shall appear on subsequent lines on the next page.<br>Example: Consider an RTF document with two paragraphs of content – the first ending with a page break as rendered by Microsoft Office Word 2007. |

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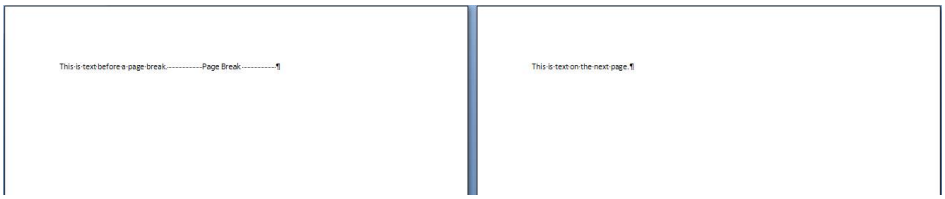
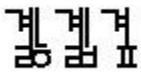
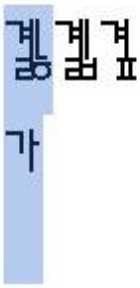
| Control word | Meaning |
|---|---|
| |  <br>If this control word is present, then even though it is followed by no additional content, the page break shall immediately end the first page, pushing the end of the first paragraph onto the first line of the second page, resulting in the following output:<br> <br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \hwelev | This control word specifies whether applications should assume that all characters in the Hangul Syllables Unicode sub range (character values between 0xAC00 and 0xD7FF) are of a single fixed width or shall use the characters' widths defined by the font in use (typical for a proportional width font).<br>Typically, applications shall retrieve the character width for any character in a document from the associated font, allowing each character to be of its own width (a proportional width character).<br>This control word specifies that applications shall instead assume a single fixed width for all characters in the Hangul Syllables sub range, by reading the width of Unicode character 0x4E00 from the associated font and using that width for all Hangul characters (or, if that character is not present, the next available character in the font).<br>Example: Consider an RTF document with three Hangul characters:<br>  <br>The default presentation would have each of those characters using the widths defined by the font (the highlighting indicates that each character has its own width):<br>  <br>However, if this control word is present, then all three characters are forced to the fixed width of character 0x4E00 from the font (or, in this case, the next available character), resulting in the characters in the font being forced to that fixed width, which results in the following output: |

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| Control word | Meaning |
|---|---|
| | <br><br>Notice from the highlighting that the characters have been compressed to the width of the single character and displayed at that fixed width.<br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \afelev | This control word specifies that when performing an AutoFit on a table in an RTF document to display it, applications shall alter that logic slightly to mimic the behavior of a previous word processing application. Specifically, if the width of a grid column in a table has been set by a preferred table cell width, then that column's width may be enlarged by the content of cells which themselves do not have a preferred width (in contrast, the normal logic never allows the content of cells to override a preferred width on a grid column). |
| \cachedcolbal | This control word specifies that cached paragraph information shall be used for column balancing. Specifically, this control word specifies that when a paragraph's lines have differing heights, an application shall treat this paragraph as though it had only one line equaling the full paragraph height, regardless of the actual number of lines in the paragraph.<br>**Note:** It is recommended that applications not intentionally replicate this behavior as it was deprecated due to issues with its output and is maintained only for compatibility with existing documents from a legacy application.<br>Typically, lines are correctly measured for their height when balancing columns as part of an RTF document. This control word specifies that applications shall perform the incorrect calculation in the conditions described above.<br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \utinl | This control word specifies whether applications shall underline the character following the numbering defined when both the numbering itself and the first letter of the corresponding numbered paragraph are underlined.<br>Typically, the tab or space character generated between numbering and the corresponding paragraph of text is never formatted, since it is automatically generated. This control word specifies that the tab or space shall be underlined the same way as the numbering symbol itself in the following conditions:<br>The numbering is underlined<br>The first character of the paragraph is underlined<br>Example: Consider an RTF document with two numbered paragraphs: one with underlined text and the other without. The default presentation would have the tab characters free of underlining in both cases:<br>1. Example Text<br>2. Example Text<br>However, if this control word is present, then the second paragraph meets the criteria defined above for having the suffix character underlined, resulting in the following output: |

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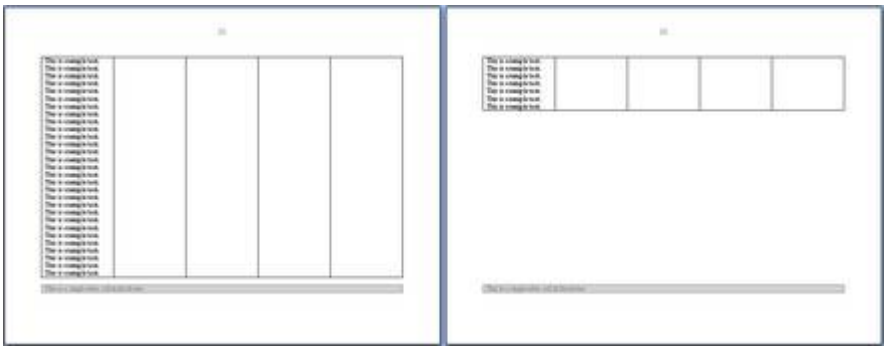
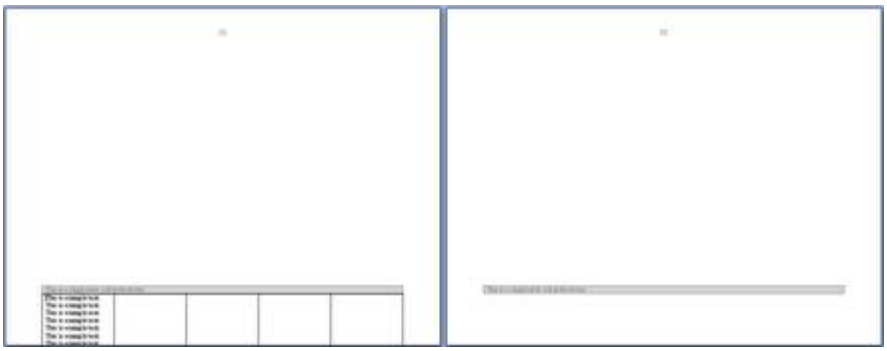
| Control word | Meaning |
|---|---|
| | 1. Example Text<br>2. Example Text<br><br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |
| \notbrkcnstfrctbl | This control word specifies whether applications shall allow a table row to be split in two when its contents are displayed under the following circumstances:<br>The table row exceeds one page in height (it must be split across two pages)<br>The table row would need to be split to accommodate a floating table also on the page<br>This control word, when present, specifies that table rows that exceed one page in height shall never be split around floating tables in the document, and shall instead be displayed on the first page below the floating table, even if that means that part of the table row is clipped by the edge of the page.<br>Example: Consider an RTF document with a long single table row that must be split across two separate pages in the document, to accommodate a floating table anchored in the footer, as follows:<br>  <br>The default presentation of this document forces that row to be split as needed around that floating table.<br>However, if this control word is present, then that table row is never split around the floating table, so it is always placed below that floating table on the page, and allowed to flow off the page as needed, resulting in the following output:<br>  <br>This example, while extreme, shows how the row is placed below the floating table, rather than breaking around it.<br>**Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003. |

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| Control word | Meaning |
|---|---|
| \krnprsnet | This control word specifies whether applications shall use the ANSI or Unicode kerning pair information from fonts stored in the document when displaying those characters within the document's contents.<br><br>Typically, applications shall use the Unicode kerning pair information to determine all possible kerning pairs in the fonts in use. This control word, when present specifies that the ANSI kerning information shall be used instead. |
| \usexform | This control word specifies that this document should be saved through the custom XSLT transform defined by the **\xform** control word in this document when it is saved as a single XML file (not defined by this specification).<br><br>**Note:** Because this setting specifies behavior when saving to an alternative file format not defined by this spec, this behavior is optional.<br><br>If this element is omitted, then this document should not be saved through a custom XSL transform when it is saved as a single XML file. |
| **Forms** | |
| \formprot | This document is protected for forms. |
| \allprot | This document has no unprotected areas. |
| \formshade | This document has form field shading on. |
| \formdisp | This document currently has a forms drop-down box or check box selected. |
| \printdata | This document has print form data only on. |
| **Revision Marks** | |
| \revprot | This document is protected for revisions. The user can edit the document, but revision marking cannot be disabled. |
| \revisions | Turns on revision marking. |
| \revprop*N* | Argument indicates how revised text will be displayed:<br>0 No properties shown<br>1 Bold<br>2 Italic<br>3 Underline (default)<br>4 Double underline |
| \revbar*N* | Vertical lines mark altered text, based on the argument:<br>0 No marking<br>1 Left margin<br>2 Right margin<br>3 Outside (the default: left on left pages, right on right pages) |
| **Write Protection (Document is Read-only)** | |
| \readprot | This document is protected for editing, except in areas marked as exceptions by **\protstart** and **\protend**. This was introduced in Word 2003 and **\annotprot** is emitted with it for backward compatibility. |
| **Comment Protection (Only Annotations are Editable)** | |
| \annotprot | This document is protected for comments (annotations). The user cannot edit the document but can insert comments (annotations). |
| **Style and Formatting Protection** | |
| \stylelock | The document contains styles and formatting restrictions. |
| \stylelockenforced | The styles and formatting restrictions are being enforced. |

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| Control word | Meaning |
|---|---|
| \stylelockbackcomp | Style lockdown backward compatibility flag, indicating we emitted protection keywords to get documents with styles and formatting restrictions to behave in a reasonable way when opened by older versions. |
| \autofmtoverride | Allow AutoFormat to override styles and formatting restrictions. When style protection is on, the user cannot add direct formatting. This setting allows AutoFormat actions to apply direct formatting when needed. |
| **Style and Formatting Protection** | |
| \enforceprot*N* | Enforce protection. Assumes that a protection was specified (**\annotprot**, **\readprot**, **\formprot**, **\revprot**) |
| \protlevel*N* | Level of protection<br>0 Track Changes (**\revprot** is also emitted)<br>1 Comments (**\annotprot** also emitted)<br>2 Forms (**\formprot** also emitted)<br>3 Read-only (**\readprot** also emitted) |
| **Tables** | |
| \tsd*N* | Sets the default table style for this document. ***N*** references an entry in the table styles list. |
| **Bidirectional Controls** | |
| \rtldoc | This document will be formatted to have Arabic-style pagination. |
| \ltrdoc | This document will have English-style pagination (the default). |
| **Click-and-Type** | |
| \cts*N* | Index to the style to be used for Click-and-Type (0 is the default). |
| **Kinsoku Characters (Asia)** | |
| \jsksu | Indicates that the strict Kinsoku set must be used for Japanese; **\jsksu** should not be present if **\ksulang*N*** is present *and* the language ***N*** is Japanese. |
| \ksulang*N* | ***N*** **i**ndicates the language the customized Kinsoku characters defined in the **\fchars** and **\lchars** destinations belong to. |
| *\fchars | List of following Kinsoku characters. This is a destination control word. |
| *\lchars | List of leading Kinsoku characters. This is a destination control word. |
| \nojkernpunct | Kerning for Latin text only, as opposed to Latin text and punctuation (Asian Typography option). |
| **Drawing Grid** | |
| \dghspace*N* | Drawing grid horizontal spacing in twips (default is 120). |
| \dgvspace*N* | Drawing grid vertical spacing in twips (default is 120). |
| \dghorigin*N* | Drawing grid horizontal origin in twips (default is 1701). |
| \dgvorigin*N* | Drawing grid vertical origin in twips (default is 1984). |
| \dghshow*N* | Show ***N***th horizontal gridline (default is 3). |
| \dgvshow*N* | Show ***N***th vertical gridline (default is 0). |
| \dgsnap | Snap to drawing grid. |
| \dgmargin | Drawing grid to follow margins. |
| **Page Borders** | |
| \pgbrdrhead | Page border surrounds header. |
| \pgbrdrfoot | Page border surrounds footer. |

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| | |
|---|---|
| \pgbrdrt | Page border top. |
| \pgbrdrb | Page border bottom. |
| \pgbrdrl | Page border left. |
| \pgbrdrr | Page border right. |
| \brdrart*N* | Page border art; the ***N*** argument is a value from 1 to 165 representing the number of the border. |
| \pgbrdropt*N* | ***N*** has the bit fields:<br>bits 0-2 Apply to all pages in section (0), first page in section (1), all but first page in section (2), whole document (3).<br>bit 3 Display in front (0), in back (1)<br>bit 5 Offset from text (0), from edge of page (1).<br>Examples:<br>8 Page border for all pages in section measures from text. **Always display in front** option is set to **off**.<br>32 Page border for all pages in section measures from edge of page. **Always display in front** option is set to **on**.<br>40 Page border for all pages in section measures from edge of page. **Always display in front** option is set to **off**. |
| \pgbrdrsnap | Align paragraph borders and table edges with page border. |

The color, width, border style, and border spacing keywords for page borders are the same as the keywords defined for paragraph borders.

## Mail Merge

Mail merge refers to an operation by which RTF documents work together with data from an external data source, importing the data into a document according to a set of codes that are contained in RTF tags that are also known as fields (\field).

An RTF document that contains the *\mailmerge control word is connected to an external data source. This document is known as a source document. In addition to being connected to an external data source and containing fields, a source document may contain any regular RTF constructs. These include the following:

- Character text
- Paragraphs
- Images
- Tables
- Lists

The two key parts of the mail merge data that are stored in an RTF document:

- The information that connects the document to the external data source
- The information that populates the fields in the document with external data

Once the fields in a mail merge document have been populated with external data, the mail merge process is complete. The resulting files are known as mail merged documents or merged documents.

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The mail merge data contained within an RTF file has the following syntax:

| | |
|---|---|
| <mailmerge> | '{*' **\mailmerge** <mmmaintype> **\mmlinktoquery**? <mmdatatype> **\mmdefaultsql**? (<mmconnectstrdata> \| <mmconnectstr>)? <mmquery>? <mmdatasource>? **\mmblanklinks**? <mmheadersource> <mmdest> <mmaddfieldname>? <mmmailsubject>? **\mmattach**? **\mmshowdata**? **\mmreccur*N*** **\mmerrors*N*** <mmodso>* **\mmodsocoldelim*N*** **\mmjdsotype*N*** **\mmodsofhdr*N*** <mmodsorecipdata>+ '}' |
| <mmmaintype> | **\mmmaintypecatalog** \| **\mmmaintypeenvelopes** \| **\mmmaintypelabels** \| **\mmmaintypeletters** \| **\mmmaintypeemail** \| **\mmmaintypefax** |
| <mmdatatype> | **\mmdatatypeaccess** \| **\mmdatatypeexcel** \| **\mmdatatypeqt** \| **\mmdatatypeodbc** \| **\mmdatatypeodso** \| **\mmdatatypefile** |
| <mmconnectstrdata> | '{' **\mmconnectstrdata** #SDATA '}' |
| <mmconnectstr> | '{' **\mmconnectstr** #PCDATA '}' |
| <mmquery> | '{' **\mmquery** #PCDATA '}' |
| <mmdatasource> | '{' **\mmdatasource** #PCDATA '}' |
| <mmheadersource> | '{' **\mmheadersource** #PCDATA '}' |
| <mmdest> | **\mmdestnewdoc** \| **\mmdestprinter** \| **\mmdestemail** \| **\mmdestfax** |
| <mmaddfieldname> | '{' **\mmaddfieldname** #PCDATA '}' |
| <mmmailsubject> | '{' **\mmmailsubject** #PCDATA '}' |
| <mmodso> | '{*' **\mmodso** (<mmodsoudldata> \| <mmodsoudl>)? <mmodsotable>? <mmodsosrc>? <mmodsofilter>? <mmodsosort>? <fldmpdata>? '}' |
| <mmodsoudl> | '{' **\mmodsoudl** #PCDATA '}' |
| <mmodsoudldata> | '{' **\mmodsoudldata** #SDATA '}' |
| <mmodsotable> | '{' **\mmodsotable** #PCDATA '}' |
| <mmodsosrc> | '{' **\mmodsosrc** #PCDATA '}' |
| <mmodsofilter> | '{' **\mmodsofilter** #SDATA '}' |
| <mmodsosort> | '{' **\mmodsofilter** #SDATA '}' |
| <fldmpdata> | '{*' **\mmodsofldmpdata** <mmfttype>? <mmodsoname>? <mmodsomappedname>? **\mmodsofmcolumn*N*** **\mmodsodynaddr*N*** **\mmodsolid*N*** '}' |
| <mmfttype> | **\mmfttypenull** \| **\mmfttypedbcolumn** \| **\mmfttypeaddress** \| **\mmfttypesalutation** \| **\mmfttypemapped** \| **\mmfttypebarcode** |
| <mmodsoname> | '{' **\mmodsoname** #PCDATA '}' |
| <mmodsomappedname> | '{' **\mmodsomappedname** #PCDATA '}' |
| <mmodsorecipdata> | '{*' **\mmodsorecipdata** **\mmodsoactive*N*** <uniqueid> '}' |
| <uniqueid> | '{' **\mmodsohash*N*** \| **\mmodsocolumn*N*** & <mmodsouniquetag> '}' |
| <mmodsouniquetag> | '{' **\mmodsouniquetag** #PCDATA ' }' |

For example, consider the mail merge scenario in which an RTF document is connected to an external data source that is named "ExampleExternalDataSource.xls" and that is located on the user's desktop.

```
{\*\mailmerge\mmmaintypeletters\mmlinktoquery\mmdatatypeodso{\*\mmconnectstrdata #SDATA}{\mmquery
SELECT * FROM `Sheet1$`}{\mmdatasource C:\\Documents and
Settings\\Desktop\\ExampleExternalDataSource.xls}\mmdestnewdoc\mmreccur1\mmerrors2{\*\mmodso{\*\mmods
```

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oudldata #SDATA}{\mmodsotable Sheet1$}{\mmodsosrc C:\\Documents and
Settings\\Desktop\\ExampleExternalDataSource.xls}{*\mmodsofilter }{*\mmodsosort
}{*\mmodsofldmpdata\mmodsofmcolumn-1\mmodsolid1033} {*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname
Title}{\mmodsomappedname Courtesy
Title}\mmodsofmcolumn0\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname First
Name}{\mmodsomappedname First Name}\mmodsofmcolumn1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname Last Name}{\mmodsomappedname Last
Name}\mmodsofmcolumn2\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-1\mmodsolid1033}
{*\mmodsofldmpdata\mmodsofmcolumn-1\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname
Company Name}{\mmodsomappedname
Company}\mmodsofmcolumn3\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname Address Line
1}{\mmodsomappedname
Address 1}\mmodsofmcolumn4\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname Address
Line 2}{\mmodsomappedname Address
2}\mmodsofmcolumn5\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname
City}{\mmodsomappedname City}
\mmodsofmcolumn6\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname
State}{\mmodsomappedname
State}\mmodsofmcolumn7\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname ZIP
Code}{\mmodsomappedname Postal Code}
\mmodsofmcolumn8\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname
Country}{\mmodsomappedname Country or
Region}\mmodsofmcolumn9\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname Work
Phone}{\mmodsomappedname Business Phone}
\mmodsofmcolumn11\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname Home Phone}{\mmodsomappedname Home
Phone}\mmodsofmcolumn10\mmodsolid1033}
{*\mmodsofldmpdata\mmodsofmcolumn-1\mmodsolid1033}{*\mmodsofldmpdata\mmfttypedbcolumn{\mmodsoname
E-mail Address}{\mmodsomappedname E-mail
Address}\mmodsofmcolumn12\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-1\mmodsolid1033}
{*\mmodsofldmpdata\mmodsofmcolumn-1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}{*\mmodsofldmpdata\mmodsofmcolumn-
1\mmodsolid1033}\mmodsocoldelim9\mmjdsotype1\mmodsofhdr1}}

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These control words are described in the following table.

| Control word | Meaning |
|---|---|
| *\mailmerge | Specifies all the mail merge information for a document that has been connected to an external data source as part of a mail merge operation. |
| \mmlinktoquery | Specifies that the current RTF document's query string, stored in the <mmquery> control word and used to specify the data to be imported from the external data source, actually contains a reference to an external query file that contains the actual query data to be used against the specified external data source for the mail merge. This query shall mimic a STRUCTURED QUERY LANGUAGE query and be of the following form: SELECT * FROM <query file path>.<br><br>If this element is omitted, the query specified for the data source that is attached to the current document shall be assumed to not be a query that contains a link to an external file. |
| \mmdefaultsql | Specifies if a given merged RTF document shall prompt its conforming hosting application to use the default STRUCTURED QUERY LANGUAGE query string. The default STRUCTURED QUERY LANGUAGE query string for merged RTF documents is "SELECT * FROM <datasource>". |
| *\mmconnectstrdata | Specifies the hexadecimal-encoded connection string used to reconnect to an external data source. |
| *\mmconnectstr | Destination taking #PCDATA which has been replaced by **\mmconnectstrdata** because the connect string is very long and may be truncated. |
| \mmquery | Specifies the Structured Query Language string that shall be run against the specified external data source to return the set of records from the external data that shall be imported into merged RTF documents when the mail merge operation is performed. If this control word is omitted, no query shall be associated with the current data source. |
| \mmdatasource | Specifies the location of the external data source to be connected to a given RTF document. |
| \mmheadersource | Specifies the location of a file that contains the column header information that shall be used when connecting to an external data source that does not have column header data specified. Specifically, this control word specifies a file that corresponds with the external data source specified by the <mmdatasource> control word.<br><br>**Note:** Column headers are needed to enable a hosting application to associate an external data source's columns to fields via the <mmodsofldmpdata> control word. |
| \mmblanklinks | Specifies how an application performing the mail merge shall handle blank lines in the merged documents resulting from the mail merge. Typically, when a mail merge is performed, any blank lines that result from lines whose sole contents are merge fields with no content are removed from the merged document to prevent extraneous blank lines from appearing in the merged documents. When this control word is present, the merged documents that are generated from the mail merge shall not have any blank lines removed before they are sent to their destination format.<br><br>If this control word is omitted, the merged documents that are generated from this mail merge shall have all blank lines suppressed if they consist of only merge fields with values that consist of empty strings. |
| \mmaddfieldname | Specifies the column within a given external data source that contains e-mail addresses. This control word is specified independently of the field mappings specified for a given merged document via the <mmodsofldmpdata> control word.<br><br>If this control word is omitted, or if no column exists in the data source with this column name, the source document specifies that no e-mail address data shall be associated with this mail merge.<br><br>**Note:** This control word is generally used to allow you to send in e-mail merged documents resulting from populating the fields within a merged document with external data.<br><br>This control word is independent of the field mapping that is specified for a given merged document via the <mmodsofldmpdata> control word. This separation enables applications to e-mail the documents resulting from the population of RTF fields with external data |

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| Control word | Meaning |
|---|---|
| | regardless of the presence or absence of a field mapped to external data specifying e-mail addresses. |
| \mmmailsubject | Specifies the text that shall appear in the subject line of the e-mail messages or faxes that result after the actions of a mail merge have imported external data into fields within a merged RTF document whose destination is e-mail or fax as specified by the <mmdestemail> or <mmdestfax> control words.<br><br>If this control word is omitted, no subject line text shall be associated with each merged document produced via a mail merge using the specified mail merge data. If the <mmdestemail> or <mmdestfax> control words are not used, this control word shall be ignored. |
| \mmattach | Specifies that, after importing external data into fields to generate a series of destination RTF documents as e-mail messages, the resulting documents should be sent in e-mailed as an attachment rather than the body of the actual e-mail message.<br><br>If the <mmdestemail> control word is not present, this control word shall be ignored. |
| \mmshowdata | Specifies that a specific merged document shall display the data from the specified external data source where merge fields have been inserted. The <mmreccur> control word is used to specify the record within the external data source that is to have its applicable data displayed where applicable within the RTF merged document.<br><br>If the <mmreccur> control word is not present in the RTF for the document leveraging this control word, the hosting application may behave as if the <mmreccur> control word's parameter was equal to 1. |
| \mmreccur*N* | Specifies that the hosting application shall display the given record from the specified external data source in place of the fields to which its data is mapped via the <mmodsofldmpdata> control word in a merged document. When this control word is present, the parameter shall specify the one-based index of the record from that data source that shall be used to populate this document.<br><br>If the <mmreccur> control word is omitted with the <mmshowdata> control word present, the hosting application shall behave as if the <mmreccur> control word's parameter was equal to 1. If the <mmshowdata> control word is omitted, this control word shall be ignored. If the <mmreccur> control word's parameter is less than 1 or greater than the number of records in the specified external data source, the hosting application shall treat this parameter as if it were equal to 1. |
| \mmerrors*N* | Specifies the type of error reporting that shall be conducted by an application when performing a mail merge against the specified source data.<br><br>The type of error reporting implied by this control word shall be defined as follows:<br><br>• Simulate the population of fields with mapped external data, and report errors in a new document if the parameter is equal to 1.<br><br>• While populating fields with mapped external data pause to report each error as it occurs if the parameter is equal to 2.<br><br>• Populate fields with mapped external data, and report errors in a new document if the parameter is equal to 3.<br><br>• If this control word is omitted, or if its parameter is set to a parameter outside those specified above, its parameter shall be assumed to be 2. |

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| Control word | Meaning |
|---|---|
| *\mmodso | Specifies a group of additional settings for the mail merge information included as part of the current document, the sum total of which is referred to as the Office Data Source Object (ODSO) settings for the mail merge.<br><br>If the <mmdatatypeodso> control word is not used, the settings that are specified within this control word may be ignored in favor of their non-ODSO equivalents. |
| *\mmodsoudldata | Specifies the Universal Data Link (UDL) connection string used to reconnect to an external data source. The destination specified by this control word shall contain the hexadecimal encoding of the connection string that the hosting application shall pass to a external data source access application to enable the RTF document to be reconnected to the specified external data source.<br><br>If this destination is omitted, no UDL connection string shall be associated with the ODSO data for this mail merge.<br><br>This connection string is only used under the following conditions:<br><br>• The <mmdatatypeodso> control word is used in the given RTF file.<br><br>• The current application is able to use the ODSO information to access the data source. |
| *\mmodsoudl | Destination for #PCDATA replaced by **\mmodsoudldata** because Universal Data Link (UDL) string is very long and suffers truncation |
| \mmodsotable | Specifies the particular set of data that a source or merged RTF document shall be connected to within an external data source that contains multiple data sets. In other words, when connecting an RTF document to an external data source that may have more than one repository of data within it, such as a database that has multiple tables or a spreadsheet that has multiple worksheets, this control word is used to distinguish the specific table or spreadsheet from which data will be imported from within the external data source. |
| \mmodsosrc | Specifies the location of the external data source to be connected to a given RTF document to perform the mail merge.<br><br>This control word is used to specify the location of the external data source only under the following conditions:<br><br>• The <mmdatatypeodso> control word is used in the given RTF file.<br><br>• The current application is able to use the ODSO information to access the data source. |
| *\mmodsofilter | Specifies the data records within the external data source that are to be included within the mail merge.<br><br>If the destination of this control word conflicts with the <mmodsoudldata> control word, the <mmodsoudldata> control word shall take precedence. |
| *\mmodsosort | Specifies the order in which the data records within the external data source are to be included within the mail merge.<br><br>If the destination of this control word conflicts with the <mmodsoudldata> control word, the <mmodsoudldata> control word shall take precedence. |
| *\mmodsofldmpdata | Specifies how a column specified in the external data source that has been connected to an RTF document shall be mapped to the fields (**field**) within the given merged document's contents. Each instance of an <mmodsofldmpdata> control word contains the information that is needed to map one column in the external data source to a single type of field for the purposes of the mail merge in the current document. |

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| Control word | Meaning |
|---|---|
| \mmodsoname | Specifies the column name within a given external data source for the column whose index is specified via the <mmodsofmcolumn> control word. This data source name provides a column name that shall be used to map a specific field in the document, as specified by the <mmodsofldmpdata> control word. The parameter of this control word specifies the name of this column in the data source when the connection is initially established that is then used permanently to link columns in the database to fields in the document.<br><br>If this control word is omitted, no data source name is provided for the current column. |
| \mmodsomappedname | Specifies the predefined RTF field name that shall be mapped to the column number specified by the <mmodsofmcolumn> control word within an instance of the <mmodsofldmpdata>.<br><br>If the application does not have a predefined merge field whose name matches the name specified using the destination of this control word, this control word may be ignored. |
| \mmodsofmcolumn*N* | Specifies the zero-based index of the column within a given external data source that shall be mapped to the local name of a specific MERGEFIELD field specified by the parent field mapping data. The parameter specifies this index value, which is used to look up the appropriate column in the data source.<br><br>If this control word is omitted, or if its value exceeds the number of columns in the associated data source, the index of the referenced column shall be assumed to be 0. |
| \mmodsodynaddr*N* | Specifies that the contents of the AddressBlock field shall be dynamically ordered based on the country associated with the current record or if the country-invariant version of the address field shall be used in its place.<br><br>If this control word is omitted, the form of the address shall be dynamically determined based on the country specified in the current record. |
| \mmodsolid*N* | Specifies the language ID (see standard language table) for the language that was used to generate the merge field name that was associated with a given column in the data source. This control word specifies that when this field mapping is processed by an application, it shall interpret the merge field name as the name for the specified language.<br><br>If this control word is omitted, the mapped field names specified in the current document may be interpreted using any method desired by the consuming application. In other words, no language data is included with the field mapping information. |
| \mmodsocoldelim*N* | Specifies the character that shall be interpreted as the column delimiter used to separate columns within external data sources. The character representing the specific delimiter used for the external data source referenced by a source or merged RTF document is specified via a decimal number representing the decimal number for the Unicode character representation within this control word's parameter.<br><br>If this control word is omitted, no column delimiter shall be specified for the data source in this mail merge. |
| \mmjdsotype*N* | Specifies the type of external data source to be connected to as part of the ODSO connection information for this mail merge. This setting is purely a suggestion of the data source type that is being used for this mail merge. This setting may be ignored in favor of an alternative mechanism if one is present. |
| \mmodsofhdr*N* | Specifies that a hosting application shall treat the first row of data in the specified external data source as a header row containing the names of each column in the data source, rather than data to populate mapped fields in a merged document.<br><br>If this control word is omitted, the first row of the data source shall not be considered a header row when a mail merge is performed. |
| *\mmodsorecipdata | Specifies all of the inclusion/exclusion data for the contents of the specified mail merge data source. |

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| Control word | Meaning |
|---|---|
| \mmodsoactive*N* | Specifies whether a specific record from the specified external data source shall be imported into a merged RTF document when the mail merge defined for a source document is performed. If this control word's parameter is set to 0, the record specified by the parent control word shall not be used to create a merged document.<br><br>If this control word is omitted for a given record, the data record associated with it shall be imported into a merged RTF document when the mail merge is performed. |
| \mmodsohash*N* | Specifies a unique hash value used to maintain a relationship between a specific record within an external data source and a given source or merged document. |
| \mmodsocolumn*N* | Specifies the column within the specified external data source that contains unique data for the current record within that data source. This control word shall be used in conjunction with the **\mmodsouniquetag** control word to maintain a relationship between a specific record within an external data source and a given source or merged document. The parameter of this control word shall be interpreted as a zero-based index into the columns specified by the data source, specifying the resulting column as the column in which the <mmodsouniquetag> control word shall be looked up.<br><br>If this control word specifies a column number that exceeds the number of columns in the specified external data source, its value shall be ignored. |
| \mmodsouniquetag | Destination for unique tag as described in the previous entry. |

## Mail Merge Field Map Data Type

The control words in the following table specify the data type of the mapped mail merge field.

| Control word | Meaning |
|---|---|
| \mmfttypenull | Mail merge field map data type is null. |
| \mmfttypedbcolumn | Mail merge field map data type is database column. |
| \mmfttypeaddress | Mail merge field map data type is address block. |
| \mmfttypesalutation | Mail merge field map data type is salutation. |
| \mmfttypemapped | Mail merge field map data type is mapped. |
| \mmfttypebarcode | Mail merge field map data type is barcode. |

## Mail Merge Destination

This specifies the possible results that may be generated when a mail merge is carried out on a given RTF source document. In other words, this control word is used to specify what is to be done with the merged documents that result from populating the fields in a given merged RTF document with data from the specified external data source.

| Control word | Meaning |
|---|---|
| \mmdestnewdoc | Specifies that conforming hosting applications shall generate new documents by populating the fields within a given merged RTF document with data from the specified external data source. |
| \mmdestprinter | Specifies that conforming hosting applications shall print the documents that result from populating the fields within a given merged RTF document with data from the specified external data source. |
| \mmdestemail | Specifies that conforming hosting applications shall generate emails using the documents that result from populating the fields within a given merged RTF document with data from the specified external data source. |

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| Control word | Meaning |
|---|---|
| \mmdestfax | Specifies that conforming hosting applications shall generate faxes using the documents that result from populating the fields within a given merged RTF document with data from the specified external data source. |

## Mail Merge Source Document Types

This specifies the mail merge main document "document type."

| Control word | Meaning |
|---|---|
| \mmmaintypecatalog | Specifies mail merge source document is of the catalog type. |
| \mmmaintypeenvelopes | Specifies mail merge source document is of the envelope type. |
| \mmmaintypelabels | Specifies mail merge source document is of the label type. |
| \mmmaintypeletters | Specifies mail merge source document is of the letter type. |
| \mmmaintypeemail | Specifies mail merge source document is of the e-mail message type. |
| \mmmaintypefax | Specifies mail merge source document is of the fax type. |

## Mail Merge Data Types

This specifies the possible values for the types of external data sources to be connected to via the Dynamic Data Exchange (DDE) system (such as a spreadsheet or a database) or the alternative method of data access if the Dynamic Data Exchange system is not used.

| Control word | Meaning |
|---|---|
| \mmdatatypeaccess | Specifies that a given merged RTF document has been connected to a database via the Dynamic Data Exchange (DDE) system. |
| \mmdatatypeexcel | Specifies that a given merged RTF document has been connected to a database via the Dynamic Data Exchange (DDE) system. |
| \mmdatatypeqt | Specifies that a given merged RTF document has been connected to an external data source by using an external query tool. |
| \mmdatatypeodbc | Specifies that a given merged RTF document has been connected to an external data source via the Open Database Connectivity interface. |
| \mmdatatypeodso | Specifies that a given merged RTF document has been connected to an external data source via the Office Data Source Object (ODSO) interface. |
| \mmdatatypefile | Specifies that a given merged RTF document has been connected to a text file via the Dynamic Data Exchange (DDE) system. |

## Section Text

Each section in the RTF file has the following syntax:

<section> <secfmt>* <hdrftr>? <para>+ (**\sect** <section>)?

## Section Formatting Properties

At the beginning of each section, there may be section-formatting control words (described as <secfmt> in the section text syntax description). These control words specify section-formatting properties, which apply to the text *following* the control word, with the exception of the section-

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break control words (those beginning with **\sbk**). Section-break control words describe the break *preceding* the text. These control words can appear anywhere in the section, not just at the start.

Note that if the **\sectd** control word is not present, the current section inherits all section properties defined in the previous section.

The section-formatting control words are listed in the following table.

| Control word | Meaning |
|---|---|
| \sect | New section. |
| \sectd | Reset to default section properties. |
| \endnhere | Endnotes included in the section. |
| \binfsxn*N* | ***N*** is the printer bin used for the first page of the section. If this control is not defined, then the first page uses the same printer bin as defined by the **\binsxn*N*** control. |
| \binsxn*N* | ***N*** is the printer bin used for the pages of the section. |
| \ds*N* | Designates section style. If a section style is specified, style properties must be specified with the section. |
| \pnseclvl*N* | Used for multilevel lists. This property sets the default numbering style for each corresponding **\pnlvl*N*** control word (bullets and numbering property for paragraphs) within that section. This is a destination control word. |
| \sectunlocked | This section is unlocked for forms. |
| **Section Break** | |
| \sbknone | No section break. |
| \sbkcol | Section break starts a new column. |
| \sbkpage | Section break starts a new page (the default). |
| \sbkeven | Section break starts at an even page. |
| \sbkodd | Section break starts at an odd page. |
| **Columns** | |
| \cols*N* | Number of columns for "snaking" (default is 1). |
| \colsx*N* | Space between columns in twips (default is 720). |
| \colno*N* | Column number to be formatted; used to specify formatting for variable-width columns. |
| \colsr*N* | Space to right of column in twips; used to specify formatting for variable-width columns. |
| \colw*N* | Width of column in twips; used to override the default constant width setting for variable-width columns. |
| \linebetcol | Line between columns. |
| **Footnotes and Endnotes** | |
| \sftntj | Footnotes beneath text (top justified). |
| \sftnbj | Footnotes at the bottom of the page (bottom justified). |
| \sftnstart*N* | Beginning footnote number (default is 1). |
| \saftnstart*N* | Beginning endnote number (default is 1). |
| \sftnrstpg | Restart footnote numbering each page. |
| \sftnrestart | Footnote numbers restart at each section. Microsoft Word for the Macintosh uses this control to restart footnote numbering at each page. |
| \sftnrstcont | Continuous footnote numbering (the default). |
| \saftnrestart | Restart endnote numbering each section. |
| \saftnrstcont | Continuous endnote numbering (the default). |

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| Control word | Meaning |
|---|---|
| \sftnnar | Footnote numbering—Arabic numbering (1, 2, 3, …). |
| \sftnnalc | Footnote numbering—Alphabetical lowercase (a, b, c, …). |
| \sftnnauc | Footnote numbering—Alphabetical uppercase (A, B, C, …). |
| \sftnnrlc | Footnote numbering—Roman lowercase (i, ii, iii, …). |
| \sftnnruc | Footnote numbering—Roman uppercase (I, II, III, …). |
| \sftnnchi | Footnote numbering—Chicago Manual of Style (*, †, ‡, §). |
| \sftnnchosung | Footnote Korean numbering 1 (CHOSUNG). |
| \sftnncnum | Footnote Circle numbering (CIRCLENUM). |
| \sftnndbnum | Footnote kanji numbering without the digit character (DBNUM1). |
| \sftnndbnumd | Footnote kanji numbering with the digit character (DBNUM2). |
| \sftnndbnumt | Footnote kanji numbering 3 (DBNUM3). |
| \sftnndbnumk | Footnote kanji numbering 4 (DBNUM4). |
| \sftnndbar | Footnote double-byte numbering (DBCHAR). |
| \sftnnganada | Footnote Korean numbering 2 (GANADA). |
| \sftnngbnum | Footnote Chinese numbering 1 (GB1). |
| \sftnngbnumd | Footnote Chinese numbering 2 (GB2). |
| \sftnngbnuml | Footnote Chinese numbering 3 (GB3). |
| \sftnngbnumk | Footnote Chinese numbering 4 (GB4). |
| \sftnnzodiac | Footnote numbering—Chinese Zodiac numbering 1 (ZODIAC1). 甲、乙、丙… |
| \sftnnzodiacd | Footnote numbering—Chinese Zodiac numbering 2 (ZODIAC2). 子、丑、寅… |
| \sftnnzodiacl | Footnote numbering—Chinese Zodiac numbering 3 (ZODIAC3). |
| \saftnnar | Endnote numbering—Arabic numbering (1, 2, 3, …). |
| \saftnnalc | Endnote numbering—Alphabetical lowercase (a, b, c, …). |
| \saftnnauc | Endnote numbering—Alphabetical uppercase (A, B, C, …). |
| \saftnnrlc | Endnote numbering—Roman lowercase (i, ii, iii, …). |
| \saftnnruc | Endnote numbering—Roman uppercase (I, II, III, …). |
| \saftnnchi | Endnote numbering—Chicago Manual of Style (*, †, ‡, §). |
| \saftnnchosung | Endnote Korean numbering 1 (CHOSUNG). |
| \saftnncnum | Endnote Circle numbering (CIRCLENUM). |
| \saftnndbnum | Endnote kanji numbering without the digit character (DBNUM1). |
| \saftnndbnumd | Endnote kanji numbering with the digit character (DBNUM2). |
| \saftnndbnumt | Endnote kanji numbering 3 (DBNUM3). |
| \saftnndbnumk | Endnote kanji numbering 4 (DBNUM4). |
| \saftnndbar | Endnote double-byte numbering (DBCHAR). |
| \saftnnganada | Endnote Korean numbering 2 (GANADA). |
| \saftnngbnum | Endnote Chinese numbering 1 (GB1). |
| \saftnngbnumd | Endnote Chinese numbering 2 (GB2). |
| \saftnngbnuml | Endnote Chinese numbering 3 (GB3). |
| \saftnngbnumk | Endnote Chinese numbering 4 (GB4). |
| \saftnnzodiac | Endnote numbering—Chinese Zodiac numbering 1 (ZODIAC1). 甲、乙、丙… |
| \saftnnzodiacd | Endnote numbering—Chinese Zodiac numbering 2 (ZODIAC2). 子、丑、寅… |

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| Control word | Meaning |
|---|---|
| \saftnnzodiacl | Endnote numbering—Chinese Zodiac numbering 3 (ZODIAC3). |
| **Line Numbering** | |
| \linemod*N* | Line-number modulus amount to increase each line number (default is 1). |
| \linex*N* | Distance from the line number to the left text margin in twips (default is 360). The automatic distance is 0. |
| \linestarts*N* | Beginning line number (default is 1). |
| \linerestart | Line numbers restart at **\linestarts*N*** value. |
| \lineppage | Line numbers restart on each page. |
| \linecont | Line numbers continue from the preceding section. |
| **Page Information** | |
| \pgwsxn*N* | ***N*** is the page width in twips. A **\sectd** resets the value to that specified by **\paperw*N*** in the document properties. |
| \pghsxn*N* | ***N*** is the page height in twips. A **\sectd** resets the value to that specified by **\paperh*N*** in the document properties. |
| \marglsxn*N* | ***N*** is the left margin of the page in twips. A **\sectd** resets the value to that specified by **\margl*N*** in the document properties. |
| \margrsxn*N* | ***N*** is the right margin of the page in twips. A **\sectd** resets the value to that specified by **\margr*N*** in the document properties. |
| \margtsxn*N* | ***N*** is the top margin of the page in twips. A **\sectd** resets the value to that specified by **\margt*N*** in the document properties. |
| \margbsxn*N* | ***N*** is the bottom margin of the page in twips. A **\sectd** resets the value to that specified by **\margb*N*** in the document properties. |
| \guttersxn*N* | ***N*** is the width of the gutter margin for the section in twips. A **\sectd** resets the value to that specified by **\gutter*N*** from the document properties. If **Facing Pages** is turned **off,** the gutter is added to the left margin of all pages. If **Facing Pages** is turned **on,** the gutter is added to the left side of odd-numbered pages and the right side of even-numbered pages. |
| \margmirsxn | Switches margin definitions on left and right pages. Used in conjunction with **\facingp**. |
| \lndscpsxn | Page orientation is in landscape format. To mix portrait and landscape sections within a document, the **\landscape** control should not be used so that the default for a section is portrait, which may be overridden by the **\lndscpsxn** control. |
| \titlepg | First page has a special format. |
| \header*N* | Header is ***N*** twips from the top of the page (default is 720). |
| \footery*N* | Footer is ***N*** twips from the bottom of the page (default is 720). |
| **Page Numbers** | |
| \pgnstarts*N* | Beginning page number (default is 1). |
| \pgncont | Continuous page numbering (the default). |
| \pgnrestart | Page numbers restart at **\pgnstarts** value. |
| \pgnx*N* | Page number is ***N*** twips from the right margin (default is 720). This control word is understood but not used by current versions (6.0 or later) of Word. |
| \pgny*N* | Page number is ***N*** twips from the top margin (default is 720). This control word is understood but not used by current versions (6.0 or later) of Word. |
| \pgndec | Page-number format is decimal. |
| \pgnucrm | Page-number format is uppercase Roman numeral. |
| \pgnlcrm | Page-number format is lowercase Roman numeral. |
| \pgnucltr | Page-number format is uppercase letter (A, B, C, …) |
| \pgnlcltr | Page-number format is lowercase letter (a, b, c, …) |

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| Control word | Meaning |
|---|---|
| \pgnbidia | Page-number format is Abjad Jawaz if language is Arabic and Biblical Standard if language is Hebrew. |
| \pgnbidib | Page-number format is Alif Ba Tah if language is Arabic and Non-standard Decimal if language is Hebrew. |
| \pgnchosung | Korean numbering 1 (CHOSUNG). |
| \pgncnum | Circle numbering (CIRCLENUM). |
| \pgndbnum | Kanji numbering without the digit character. |
| \pgndbnumd | Kanji numbering with the digit character. |
| \pgndbnumt | Kanji numbering 3 (DBNUM3). |
| \pgndbnumk | Kanji numbering 4 (DBNUM4). |
| \pgndecd | Double-byte decimal numbering. |
| \pgnganada | Korean numbering 2 (GANADA). |
| \pgngbnum | Chinese numbering 1 (GB1). |
| \pgngbnumd | Chinese numbering 2 (GB2). |
| \pgngbnuml | Chinese numbering 3 (GB3). |
| \pgngbnumk | Chinese numbering 4 (GB4). |
| \pgnzodiac | Chinese Zodiac numbering 1 (ZODIAC1). |
| \pgnzodiacd | Chinese Zodiac numbering 2 (ZODIAC2). |
| \pgnzodiacl | Chinese Zodiac numbering 3 (ZODIAC3). |
| \pgnhindia | Hindi vowel numeric format. |
| \pgnhindib | Hindi consonants. |
| \pgnhindic | Hindi digits. |
| \pgnhindid | Hindi descriptive (cardinal) text. |
| \pgnthaia | Thai letters. |
| \pgnthaib | Thai digits. |
| \pgnthaic | Thai descriptive. |
| \pgnvieta | Vietnamese descriptive. |
| \pgnid | Page number in dashes (Korean). |
| \pgnhn*N* | Indicates the heading level that is used to prefix a heading number to the page number. This control word can only be used in conjunction with numbered heading styles.<br>A 0 (zero) specifies to not show heading level (the default).<br>Values 1 through 9 correspond to heading levels 1 through 9. |
| \pgnhnsh | Hyphen separator character. This separator and the successive ones appear between the heading level number and the page number. |
| \pgnhnsp | Period separator character. |
| \pgnhnsc | Colon separator character. |
| \pgnhnsm | Em dash (—) separator character. |
| \pgnhnsn | En dash (–) separator character. |
| **Vertical Alignment** | |
| \vertal | Text is bottom-aligned. (Alias for **\vertalb**) |
| \vertalt | Text is top-aligned (the default). |
| \vertalb | Text is bottom-aligned. Note: Word uses **\vertal**. |
| \vertalc | Text is centered vertically. |

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| Control word | Meaning |
|---|---|
| \vertalj | Text is justified vertically. |
| **Revision Tracking** | |
| \srauth*N* | With revision tracking enabled, this control word identifies the author of changes to a section's properties. ***N*** refers to a value in the revision table. |
| \srdate*N* | With revision tracking enabled, this control word identifies the date of a revision (see Revision Marks for date/time format of ***N***). |
| **Bidirectional Controls** | |
| \rtlsect | This section will snake (newspaper style) columns from right to left. |
| \ltrsect | This section will snake (newspaper style) columns from left to right (the default). |
| **Asian Controls** | |
| \horzsect | Horizontal rendering. |
| \vertsect | Vertical rendering. |
| **Text Flow** | |
| \stextflow*N* | Section property for specifying text flow: |
| | 0 Text flows left to right and top to bottom |
| | 1 Text flows top to bottom and right to left, vertical |
| | 2 Text flows left to right and bottom to top |
| | 3 Text flows right to left and top to bottom |
| | 4 Text flows left to right and top to bottom, vertical |
| | 5 Text flows top to bottom and left to right, vertical (for Mongolian) |
| **Page Borders** | |
| \pgbrdrhead | Page border surrounds header. |
| \pgbrdrfoot | Page border surrounds footer. |
| \pgbrdrt | Page border top. |
| \pgbrdrb | Page border bottom. |
| \pgbrdrl | Page border left. |
| \pgbrdrr | Page border right. |
| \brdrart*N* | Page border art; the ***N*** argument is a value from 1 through 165 representing the number of the border. |
| \pgbrdropt*N* | 8 Page border measure from text. **Always display in front** option is set to **off**. |
| | 32 Page border measure from edge of page. **Always display in front** option is set to **on**. |
| | 40 Page border measure from edge of page. **Always display in front** option is set to **off**. |
| \pgbrdrsnap | Align paragraph borders and table edges with page border. |
| **Line and Character Grid** | |
| \sectexpand*N* | Character space basement (character pitch minus font size) ***N*** in device-independent units (a device-independent unit is 1/294912th of an inch). |
| \sectlinegrid*N* | Line grid, where ***N*** is the line pitch in 20ths of a point. |
| \sectdefaultcl | Default state of section. Indicates **\sectspecifycl** and **\sectspecifyl** are not emitted. |
| \sectspecifycl | Specify number of characters per line only. |
| \sectspecifyl | Specify both number of characters per line and number of lines per page. |
| \sectspecifygenN | Indicates that text should snap to the character grid. Note that the N is part of the keyword. |

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The color, width, border style, and border spacing keywords for page borders are the same as the keywords defined for paragraph borders.

## Headers and Footers

Headers and footers are RTF destinations. Each section in the document can have its own set of headers and footers. If no headers or footers are defined for a given section, the headers and footers from the previous section (if any) are used. Headers and footers have the following syntax:

| | |
|---|---|
| <hdrftr> | '{' <hdrctl> <para>+ '}' <hdrftr>? |
| <hdrctl> | \header \| \footer \| \headerl \| \headerr \| \headerf \| \footerl \| \footerr \| \footerf |

**Note:** Each separate <hdrftr> group must have a distinct <hdrctl> introducing it.

| Control word | Meaning |
|---|---|
| \header | Header on all pages. This is a destination control word. |
| \footer | Footer on all pages. This is a destination control word. |
| \headerl | Header on left pages only. This is a destination control word. |
| \headerr | Header on right pages only. This is a destination control word. |
| \headerf | Header on first page only. This is a destination control word. |
| \footerl | Footer on left pages only. This is a destination control word. |
| \footerr | Footer on right pages only. This is a destination control word. |
| \footerf | Footer on first page only. This is a destination control word. |

**Note:** Prior to the Microsoft Word 2007, only the **\footer** keyword and/or the **\header** keyword wer written if the "facing pages" (**\facingp**) option was disabled. Additionally, only the **\headerl** and **\headerr** keywords for the left and right headers, respectively, were written if the **\facingp** option was enabled. With the release of the Microsoft Word 2007, the **\headerl** keyword and the **\headerr** keyword are always written. Additionally, the **\headerr** keyword is written as the header on every page if the **\facingp** option is disabled.

The **\headerl**, **\headerr**, **\footerl**, and **\footerr** control words are used in conjunction with the **\facingp** control word, and the **\headerf** and **\footerf** control words are used in conjunction with the **\titlepg** control word. Many RTF readers will not function correctly if the appropriate document properties are not set. In particular, if **\facingp** is not set, then only **\header** and **\footer** can be used, but **\headerr** and **\footerr** should be used if **\header** and **\footer** are missing. If **\facingp** is set, then only **\headerl**, **\headerr**, **\footerl**, and **\footerr** should be used. Combining both **\facingp** and **\titlepg** is allowed. You should not use **\header** to set the headers for both pages when **\facingp** is set. You can use **\headerf** if **\titlepg** is not set, but no header will appear. For more information, see Document Formatting Properties and Section Formatting Properties in this Specification.

If the previous section had a first page header or footer and had **\titlepg** set, and the current section does not, then the previous section's first page header or footer is not used for the current section. However, it is not destroyed; if subsequent sections have **\titlepg** set, then the first page header or footer is restored.

# Paragraph Text

There are two kinds of paragraphs: *plain* and *table*. A table is a collection of paragraphs. A table row is a contiguous series of paragraphs partitioned into cells. The **\intbl** control word marks

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the paragraph as being part of a table. Additional keywords related to table styles are documented next, and refer to properties of the cell the paragraph resides within. For more information, see the Table Definitions section of this Specification. This control word is inherited by subsequent paragraphs not reset by the **\pard** control word.

| | |
|---|---|
| <para> | <textpar> \| <row> |
| <textpar> | <pn>? <brdrdef>? <parfmt>* <apoctl>* <tabdef>? <shading>? (**\v** **\spv**)? (**\subdocument*N*** \| <char>+) (**\par** <para>)? |
| <row> | (<tbldef> <cell>+ <tbldef> **\row**) \| (<tbldef> <cell>+ **\row**) \| (<cell>+ <tbldef> **\row**) |
| <cell> | (<nestrow>? <tbldef>?) & <textpar>+ **\cell** |
| <nestrow> | <nestcell>+ '{*' **\nesttableprops** <tbldef> **\nestrow** '}' |
| <nestcell> | <textpar>+ **\nestcell** |

## Paragraph Formatting Properties

These control words (described as <parfmt> in the paragraph-text syntax description) specify generic paragraph formatting properties. These control words can appear anywhere in the body of the paragraph, not just at the beginning.

**Note:** If the **\pard** control word is not present, the current paragraph inherits all paragraph properties from the previous paragraph.

The paragraph-formatting control words are listed in the following table.

| Control word | Meaning |
|---|---|
| \par | New paragraph. |
| \pard | Resets to default paragraph properties. |
| \spv | Style separator feature that causes the paragraph mark to not appear even in ShowAll. Used to nest paragraphs within the document view or outline without generating a new heading. |
| \hyphpar | Switches automatic hyphenation for the paragraph. Append 1 or nothing to toggle property on; append 0 to turn it off. |
| \intbl | Paragraph is part of a table. |
| \itap*N* | Paragraph nesting level, where 0 is the main document, 1 is a table cell, 2 is a nested table cell, 3 is a doubly nested table cell, and so forth (default is 1). |
| \keep | Keep paragraph intact (completely on one page if possible). |
| \keepn | Keep paragraph with the next paragraph. |
| \level*N* | ***N*** is the outline level of the paragraph. |
| \noline | No line numbering. |
| \nowidctlpar | No widow/orphan control. This is a paragraph-level property and is used to override the document-level **\widowctrl**. |
| \widctlpar | Widow/orphan control is used for the current paragraph. This is a paragraph property used to override the absence of the document-level **\widowctrl**. |
| \outlinelevel*N* | Outline level of paragraph. The ***N*** argument is a value from 0 to 8 representing the outline level of the paragraph. In the default case, no outline level is specified (same as body text). |
| \pagebb | Break page before the paragraph. |
| \sbys | Side-by-side paragraphs. |
| \s*N* | Designates paragraph style. If a paragraph style is specified, style properties must be specified with the paragraph. ***N*** references an entry in the style sheet. |
| **Table Style Specific** | |
| \yts*N* | Designates the table style handle that was applied to the row/cell. |

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| Control word | Meaning |
|---|---|
| \tscfirstrow | This cell is in the first row. |
| \tsclastrow | This cell is in the last row. |
| \tscfirstcol | This cell is in the first column. |
| \tsclastcol | This cell is in the last column. |
| \tscbandhorzodd | This cell is in the odd row band. |
| \tscbandhorzeven | This cell is in the even row band. |
| \tscbandvertodd | This cell is in the odd column band. |
| \tscbandverteven | This cell is in the even column band. |
| \tscnwcell | This is the NW (north west) cell in the table (upper left). |
| \tscnecell | NE cell. |
| \tscswcell | SW cell. |
| \tscsecell | SE cell. |
| **Alignment** | |
| \qc | Centered. |
| \qj | Justified. |
| \ql | Left-aligned (the default). |
| \qr | Right-aligned. |
| \qd | Distributed. |
| \qk*N* | Percentage of line occupied by Kashida justification (0 – low, 10 – medium, 20 – high). |
| \qt | For Thai distributed justification. |
| **Font Alignment** | |
| \faauto | Font alignment. The default setting for this is "Auto." |
| \fahang | Font alignment: Hanging. |
| \facenter | Font alignment: Center. |
| \faroman | Font alignment: Roman (default). |
| \favar | Font alignment: Upholding variable. |
| \fafixed | Font alignment: Upholding fixed. |
| **Indentation** | |
| \fi*N* | First-line indent in twips (default is 0). |
| \cufi*N* | First-line indent in hundredths of a character unit; overrides **\fi*N***, although they should both be emitted with equivalent values. |
| \li*N* | Left indent in twips (default is 0). |
| \lin*N* | Left indent for left-to-right paragraphs; right indent for right-to-left paragraphs (default is 0). **\lin*N*** defines space before the paragraph. |
| \culi*N* | Left indent (space before) in hundredths of a character unit. Behaves like **\lin*N*** and overrides **\li*N*** and **\lin*N***, although they should all be emitted with equivalent values. |
| \ri*N* | Right indent in twips (default is 0). |
| \rin*N* | Right indent for left-to-right paragraphs; left indent for right-to-left paragraphs (default is 0). **\rin*N*** defines space after the paragraph. |
| \curi*N* | Right indent (space after) in hundredths of a character unit. Behaves like **\rin*N*** and overrides **\ri*N*** and **\rin*N***, although they should all be emitted with equivalent values. |
| \adjustright | Automatically adjust right indent when document grid is defined. |

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| Control word | Meaning |
|---|---|
| \indmirror | This control word specifies whether the paragraph indents should be interpreted as mirrored indents. When this control word is present, the left indent shall become the inside indent and the right indent shall become the outside indent.<br>If this control word is specified for this paragraph, then the inside page edge is the right page edge for odd numbered pages and the left page edge for even numbered pages. Conversely, the outside page edge is the left page edge for odd numbered pages and the right page edge for even numbered pages.<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged). If this setting is never specified in the style hierarchy, then this property shall not be applied. |
| **Spacing** | |
| \sb*N* | Space before in twips (default is 0). |
| \sa*N* | Space after in twips (default is 0). |
| \sbauto*N* | Auto spacing before:<br>0 Space before determined by **\sb*N***<br>1 Space before is Auto (ignores **\sb*N***)<br>Default is 0. |
| \saauto*N* | Auto spacing after:<br>0 Space after determined by **\sa*N***<br>1 Space after is Auto (ignores **\sa*N***)<br>Default is 0. |
| \lisb*N* | Space before in hundredths of a character unit. Overrides **\sb*N***, although they should both be emitted with equivalent values. |
| \lisa*N* | Space after in hundredths of a character unit. Overrides **\sa*N***, although they should both be emitted with equivalent values. |
| \sl*N* | Space between lines. If this control word is missing or if **\sl0** is used, the line spacing is automatically determined by the tallest character in the line. If ***N*** is a positive value, this size is used only if it is taller than the tallest character (otherwise, the tallest character is used); if ***N*** is a negative value, the absolute value of ***N*** is used, even if it is shorter than the tallest character. |
| \slmult*N* | Line spacing multiple. Indicates that the current line spacing is a multiple of "Single" line spacing. This control word can follow only the **\sl*N*** control word and works in conjunction with it.<br>0 "At Least" or "Exactly" line spacing<br>1 Multiple line spacing, relative to "Single" |
| \nosnaplinegrid | Disable snap line to grid. |
| \contextualspace | This control word specifies that any space specified before or after this paragraph should not be applied when the preceding and following paragraphs are of the same paragraph style, affecting the top and bottom spacing respectively.<br>Example: This control word is typically used for paragraphs in lists, in which any space between subsequent list items, even if inherited from another style, is not desirable.<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged).<br>If this setting is never specified in the style hierarchy, then spacing is not ignored. If it is present, then the spacing above or below on this paragraph is subtracted from the spacing that would have been present if contextual spacing was not applied, never going below zero. |

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| Control word | Meaning |
|---|---|
| **Subdocuments** | |
| \subdocument*N* | Indicates that a subdocument in a master document/subdocument relationship should occur here. ***N*** represents an index into the file table. This control word must be the only item in a paragraph. |
| **Revision Tracking** | |
| \prauth*N* | With revision tracking enabled, this control word identifies the author of changes to a paragraph's properties. *N* refers to a value in the revision table. |
| \prdate*N* | With revision tracking enabled, this control word identifies the date of a revision (see Revision Marks for date/time format of *N*). |
| **Bidirectional Controls** | |
| \rtlpar | Text in this paragraph will display with right-to-left precedence. |
| \ltrpar | Text in this paragraph will display with left-to-right precedence (the default). |
| **Asian Typography** | |
| \nocwrap | No character wrapping. |
| \nowwrap | No word wrapping. |
| \nooverflow | No overflow period and comma. |
| \aspalpha | Auto spacing between DBC and English. |
| \aspnum | Auto spacing between DBC and numbers. |
| **Pocket Word** | |
| \collapsed | Paragraph property active in outline view that specifies that the paragraph is collapsed (not viewed). **\collapsed** turns on collapsed and **\collapsed0** turns it off. |
| **Paragraphs Surrounding Text Box Wrapping** | |
| \txbxtwno | This control word specifies, for paragraphs in a text box, that no lines in the paragraph shall allow surrounding text to be tight wrapped to their extents and not the containing text box's extents.<br>This element shall only be read for paragraphs that are contained within a text box.<br>If the parent text box does not meet the following three criteria, then this property has no effect:<br>• The text box wrapping must be set to 1 (shape property **WrapText** = 1)<br>• The text box border must not be set<br>• The text box shading must not be set<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged).<br>If this setting is never specified in the style hierarchy, then paragraphs in a text box have no tight wrapping overrides, and text shall wrap to the extents of the text box. |
| \txbxtwalways | This control word specifies, for paragraphs in a text box, that all lines in the paragraph shall allow surrounding text to be tight wrapped to their extents and not the containing text box's extents.<br>This element shall only be read for paragraphs that are contained within a text box.<br>If the parent text box does not meet the following three criteria, then this property has no effect:<br>• The text box wrapping must be set to 1 (shape property **WrapText** = 1)<br>• The text box border must not be set<br>• The text box shading must not be set<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged). |

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| Control word | Meaning |
|---|---|
| | If this setting is never specified in the style hierarchy, then paragraphs in a text box have no tight wrapping overrides, and text shall wrap to the extents of the text box. |
| \txbxtwfirstlast | This control word specifies, for paragraphs in a text box, that only the first and last lines in the paragraph shall allow surrounding text to be tight wrapped to their extents and not the containing text box's extents.<br>This element shall only be read for paragraphs that are contained within a text box.<br>If the parent text box does not meet the following three criteria, then this property has no effect:<br>• The text box wrapping must be set to 1 (shape property **WrapText** = 1)<br>• The text box border must not be set<br>• The text box shading must not be set<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged).<br>If this setting is never specified in the style hierarchy, then paragraphs in a text box have no tight wrapping overrides, and text shall wrap to the extents of the text box. |
| \txbxtwfirst | This control word specifies, for paragraphs in a text box, that only the first line in the paragraph shall allow surrounding text to be tight wrapped to their extents and not the containing text box's extents.<br>This element shall only be read for paragraphs that are contained within a text box.<br>If the parent text box does not meet the following three criteria, then this property has no effect:<br>• The text box wrapping must be set to 1 (shape property **WrapText** = 1)<br>• The text box border must not be set<br>• The text box shading must not be set<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged).<br>If this setting is never specified in the style hierarchy, then paragraphs in a text box have no tight wrapping overrides, and text shall wrap to the extents of the text box. |
| \txbxtwlast | This control word specifies, for paragraphs in a text box, that only the last line in the paragraph shall allow surrounding text to be tight wrapped to their extents and not the containing text box's extents.<br>This element shall only be read for paragraphs that are contained within a text box.<br>If the parent text box does not meet the following three criteria, then this property has no effect:<br>• The text box wrapping must be set to 1 (shape property **WrapText** = 1)<br>• The text box border must not be set<br>• The text box shading must not be set<br>If this control word is omitted on a given paragraph, its value is determined by the setting previously set at any level of the style hierarchy (that is that previous setting remains unchanged).<br>If this setting is never specified in the style hierarchy, then paragraphs in a text box have no tight wrapping overrides, and text shall wrap to the extents of the text box. |

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## Tabs

Any paragraph may have its own set of tabs. Tabs must follow this syntax:

| | |
|---|---|
| <tabdef> | (<tab> \| <bartab>)+ |
| <tab> | <tabkind>? <tablead>? **\tx*N*** |
| <bartab> | <tablead>? **\tb*N*** |
| <tabkind> | **\tqr** \| **\tqc** \| **\tqdec** |
| <tablead> | **\tldot** \| **\tlmdot** \| **\tlhyph** \| **\tlul** \| **\tlth** \| **\tleq** |

| Control word | Meaning |
|---|---|
| \tx*N* | Tab position in twips from the left margin. |
| \tqr | Flush-right tab. |
| \tqc | Centered tab. |
| \tqdec | Decimal tab. |
| \tb*N* | Bar tab position in twips from the left margin. |
| \tldot | Leader dots. |
| \tlmdot | Leader middle dots. |
| \tlhyph | Leader hyphens. |
| \tlul | Leader underline. |
| \tlth | Leader thick line. |
| \tleq | Leader equal sign. |

## Absolute Postion Tabs

The control words given by <reltomargin> and <reltoindent> below specify that an absolute position tab character be placed at the current location in the run content. An *absolute position tab* is a character that is used to advance the position on the current line of text when displaying RTF content independently of custom tab stops defined using the **\tb*N*** and **\tx*N*** control words. The resulting end position of the tab character is not affected by the addition of custom tab stops or changes to the value of the **\deftab*N*** control word. Absolute position tabs are defined to be adjusted left, center, or right relative to either the starting (in LTR paragraphs, left) margin or the starting indent. They are useful in headers and footers.

If the alignment location specified by the positional tab cannot be found on the current line, because the starting location is past that point, then the tab character shall advance to that location on the next available line in the document.

The syntax for absolute position tabs is:

| | |
|---|---|
| <ptab> | '{' <ptableadding>? <relto> '}' |
| <ptableadding> | **\ptablnone** \| **\ptabldot** \| **\ptablminus** \| **\ptabluscore** \| **\ptablmdot** |
| <relto> | <reltomargin> \| <reltoindent> |
| <reltomargin> | **\pmartabql** \| **\pmartabqc** \| **\pmartabqr** |
| <reltoindend> | **\pindtabql** \| **\pindtabqc** \| **\pindtabqr** |

For example, here is the RTF specifying an absolute position "flush right" tab with leading dots between the left indent and the absolute tab:

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```
{\ptabldot \pindtabqr}
```

| Control word | Meaning |
|---|---|
| \ptablnone | Absolute position tab with a blank leading (default). |
| \ptabldot | Absolute position tab with a leading that uses period symbols (.....). |
| \ptablminus | Absolute position tab with a leading that uses minus symbols (-----). |
| \ptabluscore | Absolute position tab with a leading that uses underscore symbols (_____). |
| \ptablmdot | Absolute position tab with a leading that uses middle dot symbols (·····). |
| \pmartabql | Left absolute position tab relative to the margin. |
| \pmartabqc | Center absolute position tab relative to the margin. |
| \pmartabqr | Right absolute position tab relative to the margin. |
| \pindtabql | Left absolute position tab relative to indent. |
| \pindtabqc | Center absolute position tab relative to indent. |
| \pindtabqr | Right absolute position tab relative to indent. |

## Bullets and Numbering

### *Word 6.0 and Word 95 RTF*

To provide compatibility with existing RTF readers, all applications that can automatically format paragraphs with bullets or numbers will also emit the generated text as plain text in the **\pntext** group. This allows existing RTF readers to capture the plain text and safely ignore the auto number instructions. This group precedes all bulleted or numbered paragraphs, and contains all the automatically generated text and formatting. It should precede the '{*' **\pn** …'}' destination, and it is the responsibility of RTF readers that understand the '{*' **\pn** … '}' destination to ignore the **\pntext** group. The following table defines the grammar of this group.

| | |
|---|---|
| <pn> | <pnseclvl> \| <pnpara> |
| <pnseclvl> | '{*' **\pnseclvl*N*** <pndesc> '}' |
| <pnpara> | <pntext> <pnprops> |
| <pntext> | '{' **\pntext** <char> '}' |
| <pnprops> | '{*' **\pn** <pnlevel> <pndesc> '}' |
| <pnlevel> | **\pnlvl*N*** \| **\pnlvlblt** \| **\pnlvlbody** \| **\pnlvlcont** |
| <pndesc> | <pnnstyle> & <pnchrfmt> & <pntxtb> & <pntxta> & <pnfmt> |
| <pnnstyle> | **\pncard** \| **\pndec** \| **\pnucltr** \| **\pnucrm** \| **\pnlcltr** \| **\pnlcrm** \| **\pnord** \| **\pnordt** \| **\pnbidia** \| **\pnbidib** \| **\pnaiu** \| **\pnaiud** \| **\pnaiueo** \| **\pnaiueod** \| **\pnchosung** \| **\pncnum** \| **\pndbnum** \| **\pndbnumd** \| **\pndbnumk** \| **\pndbnuml** \| **\pndbnumt** \| **\pndecd** \| **\pnganada** \| **\pngbnum** \| **\pngbnumd** \| **\pngbnumk** \| **\pngbnuml** \| **\pniroha** \| **\pnirohad** \| **\pnuldash** \| **\pnuldashd** \| **\pnuldashdd** \| **\pnulhair** \| **\pnulth** \| **\pnulwave** \| **\pnzodiac** \| **\pnzodiacd** \| **\pnzodiacl** |
| <pnchrfmt> | **pnf**? & **pnfs**? & **pnb**? & **pni**? & **pncaps**? & **pnscaps**? & <pnul>? & **pnstrike**? & **pncf**? |
| <pnul> | **\pnul** \| **\pnuld** \| **\pnuldb** \| **\pnulnone** \| **\pnulw** |
| <pnfmt> | **\pnnumonce**? & **\pnacross**? & **\pnindent**? & **\pnsp?** & **\pnprev**? & <pnjust>? & **\pnstart**? & **\pnhang**? & **\pnrestart**? |
| <pnjust> | **\pnqc** \| **\pnql** \| **\pnqr** |
| <pntxtb> | '{' **\pntxtb** #PCDATA '}' |
| <pntxta> | '{' **\pntxta** #PCDATA '}' |

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Settings in the following table marked with an asterisk can be turned off by appending 0 to the control word.

| Control word | Meaning |
|---|---|
| \pntext | This group precedes all numbered/bulleted paragraphs and contains all automatically generated text and formatting. It should precede the '{*' **\pn** … '}' destination, and it is the responsibility of RTF readers that understand the '{*' **\pn** … '}' destination to ignore this preceding group. This is a destination control word. |
| \pn | Turns on paragraph numbering. This is a destination control word. |
| \pnlvl*N* | Paragraph level, where ***N*** is a level from 1 to 9. Default set by **\pnseclvl*N*** section formatting property. |
| \pnlvlblt | Bulleted paragraph (corresponds to level 11). The actual character used for the bullet is stored in the **\pntxtb** group. |
| \pnlvlbody | Simple paragraph numbering (corresponds to level 10). |
| \pnlvlcont | Continue numbering but do not display number ("skip numbering"). |
| \pnnumonce | Number each cell only once in a table (default is to number each paragraph in a table). |
| \pnacross | Number across rows (default is to number down columns). |
| \pnhang | Paragraph uses a hanging indent. |
| \pnrestart | Restart numbering after each section break. Note that this control word is used only in conjunction with the Heading Numbering feature (applying multilevel numbering to Heading style definitions). |
| \pncard | Cardinal numbering (One, Two, Three). |
| \pndec | Decimal numbering (1, 2, 3). |
| \pnucltr | Uppercase alphabetical numbering (A, B, C). |
| \pnucrm | Uppercase Roman numbering (I, II, III). |
| \pnlcltr | Lowercase alphabetical numbering (a, b, c). |
| \pnlcrm | Lowercase Roman numbering (i, ii, iii). |
| \pnord | Ordinal numbering ($1^{st}$, $2^{nd}$, $3^{rd}$). |
| \pnordt | Ordinal text numbering (First, Second, Third). |
| \pnbidia | Abjad Jawaz if language is Arabic and Biblical Standard if language is Hebrew. |
| \pnbidib | Alif Ba Tah if language is Arabic and Non-standard Decimal if language is Hebrew. |
| \pnaiu | 46 phonetic katakana characters in "aiueo" order (AIUEO). |
| \pnaiud | 46 phonetic double-byte katakana characters (AIUEO DBCHAR). |
| \pnaiueo | 46 phonetic katakana characters in "aiueo" order (AIUEO). |
| \pnaiueod | 46 phonetic double-byte katakana characters (AIUEO DBCHAR). |
| \pnchosung | Korean numbering 1 (CHOSUNG). |
| \pncnum | 20 numbered list in circle (CIRCLENUM). |
| \pndbnum | Kanji numbering without the digit character (DBNUM1). |
| \pndbnumd | Kanji numbering with the digit character (DBNUM2). |
| \pndbnumk | Kanji numbering 4 (DBNUM4). |
| \pndbnuml | Kanji numbering 3 (DBNUM3). |
| \pndbnumt | Kanji numbering 3 (DBNUM3), alias for **\pndbnuml** |
| \pndecd | Double-byte decimal numbering (Arabic DBCHAR). |
| \pnganada | Korean numbering 2 (GANADA). |
| \pngbnum | Chinese numbering 1 (GB1). |
| \pngbnumd | Chinese numbering 2 (GB2). |

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| Control word | Meaning |
|---|---|
| \pngbnumk | Chinese numbering 4 (GB4). |
| \pngbnuml | Chinese numbering 3 (GB3). |
| \pniroha | 46 phonetic katakana characters in "iroha" order (IROHA). |
| \pnirohad | 46 phonetic double-byte katakana characters (IROHA DBCHAR). |
| \pnzodiac | Chinese Zodiac numbering 1 (ZODIAC1). |
| \pnzodiacd | Chinese Zodiac numbering 2 (ZODIAC2). |
| \pnzodiacl | Chinese Zodiac numbering 3 (ZODIAC3). |
| \pnb* | Bold numbering. |
| \pni* | Italic numbering. |
| \pncaps* | All caps numbering. |
| \pnscaps* | Small caps numbering. |
| \pnul* | Continuous underline. |
| \pnuld* | Dotted underline. |
| \pnuldash* | Dashed underline. |
| \pnuldashd* | Dash-dotted underline. |
| \pnuldashdd* | Dash-dot-dotted underline. |
| \pnulhair* | Hairline underline. |
| \pnulth* | Thick underline. |
| \pnulwave* | Wave underline. |
| \pnuldb* | Double underline. |
| \pnulnone | Turns off any kind of underlining. |
| \pnulw* | Word underline. |
| \pnstrike* | Strikethrough numbering. |
| \pncf*N* | Foreground color—index into color table (default is 0). |
| \pnf*N* | Font number. |
| \pnfs*N* | Font size (in half-points). |
| \pnindent*N* | Minimum distance from margin to body text. |
| \pnsp*N* | Distance from number text to body text. |
| \pnprev | Used for multilevel lists. Include information from previous level in this level; for example, 1, 1.1, 1.1.1, 1.1.1.1 |
| \pnqc | Centered numbering. |
| \pnql | Left-aligned numbering. |
| \pnqr | Right-justified numbering. |
| \pnstart*N* | Start at number. |
| *\pntxta | Text after. This group contains the text that follows the number. This is a destination control word. |
| *\pntxtb | Text before. This group contains the text that precedes the number. This is a destination control word. |

**Note:** there is a limit of 32 characters total for the sum of text before, and text after, simple numbering. Multilevel numbering has a limit of 64 characters total for the sum of all levels.

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### *Word 97 through Word 2007 RTF*

Each paragraph that is part of a list must contain some keyword to indicate the list that it is in, and the level of the list it belongs to. Word 97 through Word 2007 also provide the flat text representation of each number (in the **\listtext** destination); so, RTF readers that do not understand Word 97 numbering will get the paragraph number, along with appropriate character properties, inserted into their document at the beginning of the paragraph. Any RTF reader that does understand Word 97 through Word 2007 numbering should ignore the entire **\listtext** destination.

| Control word | Meaning |
|---|---|
| \ls*N* | Should exactly match the **\ls*N*** for one of the list overrides in the List Override table. |
| \ilvl*N* | The 0-based level of the list to which the paragraph belongs. For all simple lists, ***N*** should always be 0. For multilevel lists, it can be 0 through 8. The value 9 is never used. The values 10 through 12 have the special meanings for documents generated by Word 6: 10 = ilvlBullet (a bulleted paragraph in Word 6), 11 = ilvlList (a numbered paragraph in Word 6), 12 = ilvlContinue (a paragraph that was not itself numbered, but took its indenting scheme from its numbering properties and did not "break" numbering (that in Word 6 required otherwise contiguous paragraphs). |
| \listtext | Contains the flat text representation (<char>) of the number, including character properties. Should be ignored by any reader that understands Word 97 through Word 2007 numbering. This is a destination control word. |

## Revision Marks for Paragraph Numbers and ListNum Fields

Paragraph numbers and ListNum fields track revision information with special properties applied to the paragraph mark and ListNum field, respectively. The special properties hold the "old" value of the number—the value it held when revision-mark tracking began. At display time, Word checks the number's current value and compares it with this "old" value to determine whether it has changed. If the numbers are different, the old value shows up as deleted and the new value as inserted. If the numbers are the same, Word displays the new value normally, with no revision information. If there is no old value, the new value shows up as inserted. The following table lists the RTF specifications for these special properties.

| Control word | Meaning |
|---|---|
| \pnrauth*N* | Index into the revision table. The content of the ***N***th group in the revision table is considered to be the author of that revision.<br><br>**Note** This keyword is used to indicate paragraph number revisions. |
| \pnrdate*N* | Time of the revision. The 32-bit DTTM structure is emitted as a long integer. |
| \pnrnot | Indicates whether the paragraph number for the current paragraph is marked as "inserted." |
| \pnrxst*N* | The keywords **\pnrxst*N***, **\pnrrgb*N***, **\pnrpnbr*N***, and **\pnrnfc*N*** describe the "deleted number" text for the paragraph number. Their values are binary. Each of these keywords is represented as an array. The deleted number is written out with a **\pnrstart*N*** keyword, followed by the array's keyword, followed by the first byte of the array, followed by the array's keyword, followed by the second byte of the array's keyword, followed by the array's keyword, followed by the third byte of the array's keyword, and so on. Some arrays contain 16-bit (32-bit) quantities, but each array keyword only takes a byte value, so two (four) array keywords are needed to represent a single quantity in these cases. This sequence is followed by the **\pnrstop*N*** keyword.<br><br>**\pnrxst*N*** is a 32-item Unicode character array (two bytes for each character) with a length byte as the first number—it has the actual text of the number, with "level" place holders written out as digits from 0 through 8. |
| \pnrrgb*N* | Nine-item array of indices of the level place holders in the **\pnrxst*N*** array. |

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| | |
|---|---|
| \pnrnfc*N* | Nine-item array containing the number format codes of each level (using the same values as the **\levelnfc*N*** keyword). The number format code is represented as a short integer. |
| \pnrpnbr*N* | Nine-item array of the actual values of the number in each level. The number is represented as a long integer. |
| \pnrstart*N* | The **\pnrxst*N***, **\pnrrgb*N***, **\pnrpnbr*N***, and **\pnrnfc*N*** arrays are each preceded by the **\pnrstart*N*** keyword, whose argument is 0 through 3, respectively, depending on the array. |
| \pnrstop*N* | The **\pnrxst*N***, **\pnrrgb*N***, **\pnrpnbr*N***, and **\pnrnfc*N*** arrays are each terminated by the **\pnrstop*N*** keyword, whose argument is the number of bytes written out in the array. |

Example: Let's take an example of the number "3-4b", which represents the third level of the list. The following table lists the values of each array.

| Array | Binary | Comment |
|---|---|---|
| pnrxst | \'05\'00-\'01\'02. | The length of the string is 5. Then, first level (level 0), followed by a dash (character $45_{10}$), followed by the second and third levels (levels 1 and 2), followed by a period (character $46_{10}$). |
| pnrrgb | \'01\'03\'04 | The level place holders are at indices 1, 3, and 4 in the string. The remaining six unused levels should be emitted as index 0. |
| pnrnfc | \'00\'00\'04 | The nfc values are Arabic (0), Arabic (0), and lowercase letter (4). The remaining six unused nfc values should be emitted as 0. |
| pnrpnbr | \'03\'04\'02 | The numbers, i.e., 3, 4, and 2 (b). The remaining unused number values should be emitted as 0. |

Here is the RTF for this number:

```
\pnrstart0
\pnrxst0\pnrxst5\pnrxst0\pnrxst1\pnrxst0\pnrxst45\pnrxst0\pnrxst2\pnrxst0\pnrxst3\pnrxst0\pnrxst46
\pnrstop12

\pnrstart1
\pnrrgb1\pnrrgb3\pnrrgb4
\pnrrgb0\pnrrgb0\pnrrgb0
\pnrrgb0\pnrrgb0\pnrrgb0
\pnrstop9

\pnrstart2
\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc4
\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0
\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0\pnrnfc0
\pnrstop18

\pnrstart3
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr3
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr4
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr2
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr0
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr0
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr0
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr0
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr0
\pnrpnbr0\pnrpnbr0\pnrpnbr0\pnrpnbr0
\pnrstop36
```

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| Control word | Meaning |
|---|---|
| **Track Changes (Revision Mark) Properties for ListNum Fields** | |
| \dfrauth*N* | Index into the revision table. The content of the ***N***th group in the revision table is considered the author of that revision.<br><br>**Note** This keyword is used to indicate the deleted value of a ListNum field. |
| \dfrdate*N* | Time of the revision. The 32-bit DTTM structure is emitted as a long integer. |
| \dfrxst*N* | Unicode character array with a length byte. |
| \dfrstart*N* | The **\dfrxst*N*** array is preceded by the **\dfrstart*N*** keyword. |
| \dfrstop*N* | The **\dfrxst*N*** array is terminated by the **\dfrstop*N*** keyword. |

Example: Let's look again at the preceding example, in which the deleted value is "3-4b." The RTF would then be

```
\dfrstart0\dfrxst0\dfrxst5\dfrxst0\dfrxst51\dfrxst0\dfrxst45\dfrxst0\dfrxst52
\dfrxst0\dfrxst66\dfrxst0\dfrxst46\dfrstop10
```

where 5 is the length byte, 51 is Unicode for "3", 45 is Unicode for "-", 52 is Unicode for "4".

## Paragraph Borders

Paragraph borders have the following syntax:

| | |
|---|---|
| <brdrdef> | (<brdrseg> <brdr> )+ |
| <brdrseg> | **\brdrt** \| **\brdrb** \| **\brdrl** \| **\brdrr** \| **\brdrbtw** \| **\brdrbar** \| **\box** |
| <brdr> | <brdrk> **\brdrw*N***? **\brsp*N***? **\brdrcf*N***? |
| <brdrk> | **\brdrs** \| **\brdrth** \| **\brdrsh** \| **\brdrdb** \| **\brdrdot** \| **\brdrdash** \| **\brdrhair** \| **brdrinset** \| **\brdrdashsm** \| **\brdrdashd** \| **\brdrdashdd** \| **\brdrdashdot** \| **\brdrdashdotdot** \| **\brdrtriple** \| **\brdrtnthsg** \| **\brdrthtnsg** \| **\brdrtnthtnsg** \| **\brdrtnthmg** \| **\brdrthtnmg** \| **\brdrtnthtnmg** \| **\brdrtnthlg** \| **\brdrthtnlg** \| **\brdrtnthtnlg** \| **\brdrwavy** \| **\brdrwavydb** \| **\brdrdashdotstr** \| **\brdremboss** \| **\brdrengrave \brdroutset** \| **\brdrnone** \| **\brdrtbl** \| **\brdrnil** |

| Control word | Meaning |
|---|---|
| \brdrt | Border top. |
| \brdrb | Border bottom. |
| \brdrl | Border left. |
| \brdrr | Border right. |
| \brdrbtw | Consecutive paragraphs with identical border formatting are considered part of a single group with the border information applying to the entire group. To have borders around individual paragraphs within the group, the **\brdrbtw** control must be specified for that paragraph. |
| \brdrbar | Border outside (right side of odd-numbered pages, left side of even-numbered pages). |
| \box | Border around the paragraph (box paragraph). |
| \brdrs | Single-thickness border. |
| \brdrth | Double-thickness border. |
| \brdrsh | Shadowed border. |
| \brdrdb | Double border. |
| \brdrdot | Dotted border. |
| \brdrdash | Dashed border. |

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| Control word | Meaning |
|---|---|
| \brdrhair | Hairline border. |
| \brdrdashsm | Dashed border (small). |
| \brdrdashd | Dot-dashed border. |
| \brdrdashdd | Dot-dot-dashed border. |
| \brdrdashdot | Dot-dashed border (alias for \brdrdashd read but not written by Word) |
| \brdrdashdotdot | Dot-dot-dashed border (alias for \brdrdashdd read but not written by Word) |
| \brdrinset | Inset border. |
| \brdrnone | No border. |
| \brdroutset | Outset border. |
| \brdrtriple | Triple border. |
| \brdrtnthsg | Thick-thin border (small). |
| \brdrthtnsg | Thin-thick border (small). |
| \brdrtnthtnsg | Thin-thick thin border (small). |
| \brdrtnthmg | Thick-thin border (medium). |
| \brdrthtnmg | Thin-thick border (medium). |
| \brdrtnthtnmg | Thin-thick thin border (medium). |
| \brdrtnthlg | Thick-thin border (large). |
| \brdrthtnlg | Thin-thick border (large). |
| \brdrtnthtnlg | Thin-thick-thin border (large). |
| \brdrwavy | Wavy border. |
| \brdrwavydb | Double wavy border. |
| \brdrdashdotstr | Striped border. |
| \brdremboss | Embossed border. |
| \brdrengrave | Engraved border. |
| \brdrframe | Border resembles a "Frame." |
| \brdrw*N* | ***N*** is the width in twips of the pen used to draw the paragraph border line. ***N*** cannot be greater than 255. To obtain a larger border width, the **\brdrth** control word can be used to obtain a width double that of ***N.*** |
| \brdrcf*N* | ***N*** is the color of the paragraph border, specified as an index into the color table in the RTF header. |
| \brsp*N* | Space in twips between borders and the paragraph. |
| \brdrnil | No border specified. |
| \brdrtbl | Table cell has no borders. |

## Paragraph Shading

Paragraph shading has the following syntax:

| | |
|---|---|
| <shading> | (**\shading*N*** \| <pat>) **\cfpat*N***? **\cbpat*N***? |
| <pat> | **\bghoriz** \| **\bgvert** \| **\bgfdiag** \| **\bgbdiag** \| **\bgcross** \| **\bgdcross** \| **\bgdkhoriz** \| **\bgdkvert** \| **\bgdkfdiag** \| **\bgdkbdiag** \| **\bgdkcross** \| **\bgdkdcross** |

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| Control word | Meaning |
|---|---|
| \shading*N* | ***N*** is the shading of the paragraph in hundredths of a percent. |
| \bghoriz | Specifies a horizontal background pattern for the paragraph. |
| \bgvert | Specifies a vertical background pattern for the paragraph. |
| \bgfdiag | Specifies a forward diagonal background pattern for the paragraph (\\\\). |
| \bgbdiag | Specifies a backward diagonal background pattern for the paragraph (////). |
| \bgcross | Specifies a cross background pattern for the paragraph. |
| \bgdcross | Specifies a diagonal cross background pattern for the paragraph. |
| \bgdkhoriz | Specifies a dark horizontal background pattern for the paragraph. |
| \bgdkvert | Specifies a dark vertical background pattern for the paragraph. |
| \bgdkfdiag | Specifies a dark forward diagonal background pattern for the paragraph (****). |
| \bgdkbdiag | Specifies a dark backward diagonal background pattern for the paragraph (**////**). |
| \bgdkcross | Specifies a dark cross background pattern for the paragraph. |
| \bgdkdcross | Specifies a dark diagonal cross background pattern for the paragraph. |
| \cfpat*N* | ***N*** is the fill color, specified as an index into the document's color table. |
| \cbpat*N* | ***N*** is the background color of the background pattern, specified as an index into the document's color table. |

## Positioned Objects and Frames

The following paragraph-formatting control words specify the location of a paragraph on the page. Consecutive paragraphs with the same frame formatting are considered part of the same frame. For two framed paragraphs to appear at the same position on a page, they must be separated by a paragraph with different or no frame information.

**Note:** if any paragraph in a table row has any of these control words specified, then all paragraphs in the table row must have the same control words specified, either by inheriting the properties from the previous paragraph or by re-specifying the controls.

Paragraph positioning has the following syntax:

| | |
|---|---|
| <apoctl> | <framesize> & <horzpos> & <vertpos> & <txtwrap> & <dropcap> & <txtflow> & **\absnoovrlp*N***? |
| <framesize> | **\absw*N***? & **\absh*N***? |
| <horzpos> | <hframe> & <hdist> |
| <vertpos> | <vframe> & <vdist> |
| <txtwrap> | **\nowrap**? & **\dxfrtext*N***? & **\dfrmtxtx*N***? & **\dfrmtxty*N***? & <wrap>? |
| <wrap> | **\wrapdefault**? \| **\wraparound**? \| **\wraptight**? \| **\wrapthrough**? |
| <dropcap> | **\dropcapli**? & **\dropcapt**? |
| <hframe> | **\phmrg**? \| **\phpg**? \| **\phcol**? |
| <hdist> | **\posx*N***? \| **\posnegx*N***? \| **\posxc**? \| **\posxi**? \| **\posxo**? \| **\posxl**? \| **\posxr**? |
| <vframe> | **\pvmrg**? \| **\pvpg**? \| **\pvpara**? |
| <vdist> | **\posy*N***? \| **\posnegy*N***? \| **\posyt**? \| **\posyil**? \| **\posyb**? \| **\posyc**? \| **\posyin**? \| **\posyout**? & **\abslock*N***? |
| <txtflow> | **\frmtxlrtb** \| **\frmtxtbrl** \| **\frmtxbtlr** \| **\frmtxlrtbv** \| **\frmtxtbrlv** |

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| Control word | Meaning |
|---|---|
| **Frame Size** | |
| \absw*N* | ***N*** is the width of the frame in twips. |
| \absh*N* | ***N*** is the height of the frame in twips. A positive number indicates the minimum height of the frame, and a negative number indicates the exact height of the frame. A value of zero indicates that the height of the frame adjusts to the contents of the frame. This is the default for frames where no height is given. |
| **Horizontal Position** | |
| \phmrg | Use the margin as the horizontal reference frame. |
| \phpg | Use the page as the horizontal reference frame. |
| \phcol | Use the column as the horizontal reference frame. This is the default if no horizontal reference frame is given. |
| \posx*N* | Positions the frame ***N*** twips from the left edge of the reference frame. |
| \posnegx*N* | Same as **\posx*N*** but allows arbitrary negative values. |
| \posxc | Centers the frame horizontally within the reference frame. |
| \posxi | Positions the paragraph horizontally inside the reference frame. |
| \posxo | Positions the paragraph horizontally outside the reference frame. |
| \posxr | Positions the paragraph to the right within the reference frame. |
| \posxl | Positions the paragraph to the left within the reference frame. This is the default if no horizontal positioning information is given. |
| **Vertical Position** | |
| \pvmrg | Positions the reference frame vertically relative to the margin. This is the default if no vertical frame positioning information is given. |
| \pvpg | Positions the reference frame vertically relative to the page. |
| \pvpara | Positions the reference frame vertically relative to the upper left corner of the next unframed paragraph in the RTF stream. |
| \posy*N* | Positions the paragraph ***N*** twips from the top edge of the reference frame. |
| \posnegy*N* | Same as **\posy*N*** but allows arbitrary negative values. |
| \posyil | Positions paragraph vertically to be inline. |
| \posyt | Positions paragraph at the top of the reference frame. |
| \posyc | Centers paragraph vertically within the reference frame. |
| \posyb | Positions paragraph at the bottom of the reference frame. |
| \posyin | Positions paragraph vertically inside the reference frame. |
| \posyout | Positions paragraph vertically outside the reference frame. |
| \abslock*N* | Lock anchor:<br>0 Do not lock anchor (default).<br>1 Locks a frame anchor to the current paragraph that it is associated with. |
| **Text Wrapping** | |
| \nowrap | Prevents text from flowing around the positioned object. |
| \dxfrtext*N* | Distance in twips of a positioned paragraph from text in the main text flow in all directions. |
| \dfrmtxtx*N* | ***N*** is the horizontal distance in twips from text on both sides of the frame. |
| \dfrmtxty*N* | ***N*** is the vertical distance in twips from text on both sides of the frame. |
| \overlay | Text flows underneath frame. |

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| Control word | Meaning |
|---|---|
| \wrapdefault | Specifies that text shall have the default application-defined behavior of the application displaying the RTF document with regard to the text wrapping displayed around the frame. |
| \wraparound | Specifies that text shall be allowed to wrap around the remaining space on each line around this text frame in the document. |
| \wraptight | Specifies that text shall be allowed to tightly wrap around the remaining space on each line around this text frame in the document. |
| \wrapthrough | Specifies that text shall be allowed to wrap around the remaining space on each line around this text frame in the document. |
| **Drop Caps** | |
| \dropcapli*N* | Number of lines drop cap is to occupy. The range is 1 through 10. |
| \dropcapt*N* | Type of drop cap:<br>1 In-text drop cap<br>2 Margin drop cap |
| **Overlap** | |
| \absnoovrlp*N* | Allow overlap with other frames or objects with similar wrapping:<br>0 Allow overlap (default)<br>1 Do not allow overlap |
| **Text Flow** | |
| \frmtxlrtb | Frame box flows from left to right and top to bottom (default). |
| \frmtxtbrl | Frame box flows right to left and top to bottom. |
| \frmtxbtlr | Frame box flows left to right and bottom to top. |
| \frmtxlrtbv | Frame box flows left to right and top to bottom, vertical. |
| \frmtxtbrlv | Frame box flows top to bottom and right to left, vertical. |

The following is an example of absolute-positioned text in a document:

```
\par \pard \pvpg\phpg\posxc\posyt\absw5040\dxfrtest173 First APO para

\par \pard \phmrg\posxo\posyc\dxfrtext1152 Second APO para
```

## Table Definitions

There is no RTF table group; instead, tables are specified as paragraph properties. A table is represented as a sequence of table rows. A table row is a contiguous series of paragraphs partitioned into cells. The table row begins with the **\trowd** control word and ends with the **\row** control word. Every paragraph that is contained in a table row must have the **\intbl** control word specified or inherited from the previous paragraph. A cell may have more than one paragraph in it; the cell is terminated by a cell mark (the **\cell** control word), and the row is terminated by a row mark (the **\row** control word). Table rows can also be positioned. In this case, every paragraph in a table row must have the same positioning controls (see the <apoctl> controls on the Positioned Objects and Frames subsection of this Specification. Table properties may be inherited from the previous row; therefore, a series of table rows may be introduced by a single <tbldef>.

An RTF table row has the following syntax, as shown in the general paragraph-text syntax shown in the Paragraph Text section of this Specification:

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| | |
|---|---|
| <row> | (<tbldef> <cell>+ <tbldef> **\row**) \| (<tbldef> <cell>+ **\row**) \| (<cell>+ <tbldef> **\row**) |
| <cell> | (<nestrow>? <tbldef>?) & <textpar>+ **\cell** |
| <nestrow> | <nestcell>+ '{*' **\nesttableprops** <tbldef> **\nestrow** '}' |
| <nestcell> | <textpar>+ **\nestcell** |

**Note:** While Word 97 emitted the row properties (<tbldef>) at the beginning of the row, a reader should not assume that this is the case. Properties can be emitted at the end, and, in fact, Word 2002, Word 2003, and Word 2007 do this. To avoid breaking readers that might make the aforementioned assumption, Word 2002, Word 2003, and Word 2007 will write a copy at the beginning as well, so the properties of a typical row in a Word 2002, Word 2003, or Word 2007 document are repeated at the beginning and at the end of the row. Note that for nested cells, Word 2002, Word 2003, and Word 2007 write the properties at the end only.

A table definition has the following syntax:

| | |
|---|---|
| <tbldef> | **\trowd \irow*N* \irowband*N* \ts*N* \trgaph*N*** & <rowjust>? & <rowwrite>? & <rowtop>? & <rowbot>? & <rowleft>? & <rowright>? & <rowhor>? & <rowvert>? & <rowpos> ? & **\trleft**? & **\trrh**? **\trhdr**? & **\trkeep**? & <rowwidth>? & <rowinv>? & **\trautofit**? & <rowspc>? & <rowpad>? & <rowspcout>? & <rowpadout>? & **\taprtl**? <trrevision>? <tflags>? <celldef>+ |
| <rowjust> | **\trql \| \trqr \| \trqc** |
| <rowwrite> | **\ltrrow \| \rtlrow** |
| <rowtop> | **\trbrdrt** <brdr> |
| <rowbot> | **\trbrdrb** <brdr> |
| <rowleft> | **\trbrdrl** <brdr> |
| <rowright> | **\trbrdrr** <brdr> |
| <rowhor> | **\trbrdrh** <brdr> |
| <rowvert> | **\trbrdrv** <brdr> |
| <rowpos> | <rowhorzpos> & <rowvertpos> & <rowwrap> & **\tabsnoovrlp**? |
| <rowhorzpos> | <rowhframe>& <rowhdist> |
| <rowvertpos> | <rowvframe>& <rowvdist> |
| <rowwrap> | **\tdfrmtxtLeft*N***? & **\tdfrmtxtRight*N***? & **\tdfrmtxtTop*N***? & **\tdfrmtxtBottom*N***? |
| <rowhframe> | **\phmrg**? \| **\phpg**? \| **\phcol**? |
| <rowhdist> | **\tposx*N***? \| **\tposnegx*N***? \| **\tposxc**? \| **\tposxi**? \| **\tposxo**? \| **\tposxl**? \| **\tposxr**? |
| <rowvframe> | **\tpvmrg**? \| **\tpvpg**? \| **\tpvpara**? |
| <rowvdist> | **\tposy*N***? \| **\tposnegy*N***? \| **\tposyt**? \| **\tposyil**? \| **\tposyb**? \| **\tposyc**? \| **\tposyin** \| **\tposyout** |
| <rowwidth> | **\trftsWidth*N*** & **\trwWidth*N***? |
| <rowinv> | **(\trftsWidthB*N*** & **\trwWidthB*N***?)? & (**\trftsWidthA*N*** & **\trwWidthA*N***?)? |
| <rowspc> | (**\trspdl*N*** & **\trspdfl*N***?)? & (**\trspdt*N*** & **\trspdft*N***?)? & (**\trspdb*N*** & **\trspdfb*N***?)? & (**\trspdr*N*** & **trspdfr*N***?)? |
| <rowpad> | (**\trpaddl*N*** & **\trpaddfl*N***?)? & (**\trpaddt*N*** & **\trpaddft*N***?)? & (**\trpaddb*N*** & **\trpaddfb*N***?)? & (**\trpaddr*N*** & **\trpaddfr*N***?)? |
| <rowspcout> | (**\trspol*N*** & **\trspofl*N***?)? & (**\trspot*N*** & **\trspoft*N***?)? & (**\trspob*N*** & **\trspofb*N***?)? & (**\trspor*N*** & **trspofr*N***?)? |
| <rowpadout> | (**\trpadol*N*** & **\trpadofl*N***?)? & (**\trpadot*N*** & **\trpadoft*N***?)? & (**\trpadob*N*** & **\trpadofb*N***?)? & (**\trpador*N*** & **\trpadofr*N***?)? |
| <trrevision> | **\trauth*N* \trdate*N*** |

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| | |
|---|---|
| <tflags> | **\tbllkborder** & **\tbllkshading** & **\tbllkfont** & **\tbllkcolor** & **\tbllkbestfit** & **\tbllkhdrrows** & **\tbllklastrow** & **\tbllkhdrcols** & **\tbllklastcol** & **\ tbllknorowband** & **\ tbllknocolband** |
| <celldef> | (**\clmgf**? & **\clmrg**? & **\clvmgf**? & **\clvmrg**? <celldgu>? & <celldgl>? & <cellalign>? & <celltop>? & <cellleft>? & <cellbot>? & <cellright>? & <cellshad>? & <cellflow>? & **clFitText**? & **clNoWrap**? & <cellwidth>? <cellrev>? & <cellins>? & <celldel>? & <cellpad>? & <cellsp>?) **\cellx*N*** |
| <celldgu> | **\cldglu** <brdr> |
| <celldgl> | **\cldgll** <brdr> |
| <cellalign> | **\clvertalt** \| **\clvertalc** \| **\clvertalb** |
| <celltop> | **\clbrdrt** <brdr> |
| <cellleft> | **\clbrdrl** <brdr> |
| <cellbot> | **\clbrdrb** <brdr> |
| <cellright> | **\clbrdrr** <brdr> |
| <cellshad> | <cellpat>? **\clcfpat*N***? & **\clcbpat*N***? & **\clshdng*N*** |
| <cellpat> | **\clbghoriz \| \clbgvert \| \clbgfdiag \| \clbgbdiag \| \clbgcross \| \clbgdcross \| \clbgdkhor \| \clbgdkvert \| \clbgdkfdiag \| \clbgdkbdiag \| \clbgdkcross \| \clbgdkdcross** |
| <cellflow> | **\cltxlrtb \| \cltxtbrl \| \cltxbtlr \| \cltxlrtbv \| \cltxtbrlv** |
| <cellwidth> | **\clftsWidth*N*** & **\clwWidth*N***? & **\clhidemark**? |
| <cellrev> | **\clmrgd** \| **\clmrgdr** \| **\ clsplit** \| **\clsplitr** & <cellrevauth>? & <cellrevdate>? |
| <cellrevauth> | **\clmrgdauth*N*** |
| <cellrevdate> | **\clmrgddttm*N*** |
| <cellins> | **\clins** & <cellinsauth>? & <cellinsdttm>? |
| <cellinsauth> | **\clinsauth*N*** |
| <cellinsdttm> | **\clinsdttm*N*** |
| <celldel> | **\cldel** & <celldelauth>? & <celldeldttm>? |
| <celldelauth> | **\cldelauth*N*** |
| <celldeldttm> | **\cldeldttm*N*** |
| <cellpad> | (**\clpadl*N*** & **\clpadfl*N***?)? & (**\clpadt*N*** & **\clpadft*N***?)? & (**\clpadb*N*** & **\clpadfb*N***?)? & (**\clpadr*N*** & **\clpadfr*N***?)? |
| <cellsp> | (**\clspl*N*** & **\clspfl*N***?)? & (**\clspt*N*** & **\clspft*N***?)? & (**\clspb*N*** & **\clspfb*N***?)? & (**\clspr*N*** & **\clspfr*N***?)? |

**Note:** For <tbldef> the number of **\cellx**s must match the number of **\cell**s in the **\row**.

The following control words further define options for each row of the table.

| Control word | Meaning |
|---|---|
| \trowd | Sets table row defaults. |
| \irow*N* | ***N*** is the row index of this row. |
| \irowband*N* | ***N*** is the row index of the row, adjusted to account for header rows. A header row has a value of –1. |
| \row | Denotes the end of a row. |
| \lastrow | Output if this is the last row in the table. |
| \tcelld | Sets table cell defaults. |
| \nestcell | Denotes the end of a nested cell. |
| \nestrow | Denotes the end of a nested row. |
| \nesttableprops | Defines the properties of a nested table. This is a destination control word. |

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| Control word | Meaning |
|---|---|
| \nonesttables | Contains text (<char>) for readers that do not understand nested tables. This destination should be ignored by readers that support nested tables. |
| \trgaph*N* | Half the space between the cells of a table row in twips. |
| \cellx*N* | Defines the right boundary of a table cell, including its half of the space between cells. |
| \cell | Denotes the end of a table cell. |
| \clmgf | The first cell in a range of table cells to be merged. |
| \clmrg | Contents of the table cell are merged with those of the preceding cell. |
| \clvmgf | The first cell in a range of table cells to be vertically merged. |
| \clvmrg | Contents of the table cell are vertically merged with those of the preceding cell. |
| **Table Row Revision Tracking** | |
| \trauth*N* | With revision tracking enabled, this control word identifies the author of changes to a table row's properties. *N* refers to a value in the revision table. |
| \trdate*N* | With revision tracking enabled, this control word identifies the date of a revision (see Revision Marks for date/time format of *N*). |
| **Autoformatting Flags** | |
| \tbllkborder | Flag sets table autoformat to format borders. |
| \tbllkshading | Flag sets table autoformat to affect shading. |
| \tbllkfont | Flag sets table autoformat to affect font. |
| \tbllkcolor | Flag sets table autoformat to affect color. |
| \tbllkbestfit | Flag sets table autoformat to apply best fit. |
| \tbllkhdrrows | Flag sets table autoformat to format the first (header) row. |
| \tbllklastrow | Flag sets table autoformat to format the last row. |
| \tbllkhdrcols | Flag sets table autoformat to format the first (header) column. |
| \tbllklastcol | Flag sets table autoformat to format the last column. |
| \tbllknorowband | Specifies row banding conditional formatting shall not be applied. |
| \tbllknocolband | Specifies column banding conditional formatting shall not be applied. |
| **Row Formatting** | |
| \taprtl | Table direction is right to left. |
| \trautofit*N* | AutoFit:<br>0 No AutoFit (default).<br>1 AutoFit is on for the row. Overridden by **\clwWidth*N*** and **\trwWidth*N*** in any table row. |
| \trhdr | Table row header. This row should appear at the top of every page on which the current table appears. |
| \trkeep | Keep table row together. This row cannot be split by a page break. This property is assumed to be off unless the control word is present. |
| \trkeepfollow | Keep row in the same page as the following row. |
| \trleft*N* | Position in twips of the leftmost edge of the table with respect to the left edge of its column. |
| \trqc | Centers a table row with respect to its containing column. |
| \trql | Left-justifies a table row with respect to its containing column. |
| \trqr | Right-justifies a table row with respect to its containing column. |
| \trrh*N* | Height of a table row in twips. When 0, the height is sufficient for all the text in the line; when positive, the height is guaranteed to be at least the specified height; when negative, the absolute |

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| Control word | Meaning |
|---|---|
| | value of the height is used, regardless of the height of the text in the line. |
| \trpaddb*N* | Default bottom cell margin or padding for the row. |
| \trpaddl*N* | Default left cell margin or padding for the row. |
| \trpaddr*N* | Default right cell margin or padding for the row. |
| \trpaddt*N* | Default top cell margin or padding for the row. |
| \trpaddfb*N* | Units for **\trpaddb*N***:<br>0 Null. Ignore **\trpaddb*N*** in favor of **\trgaph*N*** (Word 97 style padding).<br>3 Twips. |
| \trpaddfl*N* | Units for **\trpaddl*N***:<br>0 Null. Ignore **\trpaddl*N*** in favor of **\trgaph*N*** (Word 97 style padding).<br>3 Twips. |
| \trpaddfr*N* | Units for **\trpaddr*N***:<br>0 Null. Ignore **\trpaddr*N*** in favor of **\trgaph*N*** (Word 97 style padding).<br>3 Twips. |
| \trpaddft*N* | Units for **\trpaddt*N***:<br>0 Null. Ignore **\trpaddt*N*** in favor of **\trgaph*N*** (Word 97 style padding).<br>3 Twips. |
| \trspdb*N* | Default bottom cell spacing for the row. The total vertical spacing between adjacent cells is equal to the sum of **\trspdt*N*** from the bottom cell and **\trspdb*N*** from the top cell, both of which will have the same value when written by Word. |
| \trspdl*N* | Default left cell spacing for the row. The total horizontal spacing between adjacent cells is equal to the sum of **\trspdl*N*** from the rightmost cell and **\trspdr*N*** from the leftmost cell, both of which will have the same value when written by Word. |
| \trspdr*N* | Default right cell spacing for the row. The total horizontal spacing between adjacent cells is equal to the sum of **\trspdl*N*** from the rightmost cell and **\trspdr*N*** from the leftmost cell, both of which will have the same value when written by Word. |
| \trspdt*N* | Default top cell spacing for the row. The total vertical spacing between adjacent cells is equal to the sum of **\trspdt*N*** from the bottom cell and **\trspdb*N*** from the top cell, both of which will have the same value when written by Word. |
| \trspdfb*N* | Units for **\trspdb*N***:<br>0 Null. Ignore **\trspdb*N***.<br>3 Twips. |
| \trspdfl*N* | Units for **\trspdl*N***:<br>0 Null. Ignore **\trspdl*N***.<br>3 Twips. |
| \trspdfr*N* | Units for **\trspdr*N***:<br>0 Null. Ignore **\trspdr*N***.<br>3 Twips. |
| \trspdft*N* | Units for **\trspdt*N***:<br>0 Null. Ignore **\trspdt*N***.<br>3 Twips. |
| \trpadob*N* | Default bottom cell margin or padding for the bottom row. |
| \trpadol*N* | Default left cell margin or padding for the leftmost column. |
| \trpador*N* | Default right cell margin or padding for the rightmost column. |

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| Control word | Meaning |
|---|---|
| \trpadot*N* | Default top cell margin or padding for the top row. |
| \trpadofb*N* | Units for **\trpadob*N***: |
| | 0 Null. Ignore **\trpadob*N*** in favor of **\trgaph*N*** (Word 97 style padding). |
| | 3 Twips. |
| \trpadofl*N* | Units for **\trpadol*N***: |
| | 0 Null. Ignore **\trpadol*N*** in favor of **\trgaph*N*** (Word 97 style padding). |
| | 3 Twips. |
| \trpadofr*N* | Units for **\trpador*N***: |
| | 0 Null. Ignore **\trpador*N*** in favor of **\trgaph*N*** (Word 97 style padding). |
| | 3 Twips. |
| \trpadoft*N* | Units for **\trpadot*N***: |
| | 0 Null. Ignore **\trpadot*N*** in favor of **\trgaph*N*** (Word 97 style padding). |
| | 3 Twips. |
| \trspob*N* | Default bottom cell spacing for the bottom row. |
| \trspol*N* | Default left cell spacing for the leftmost column. |
| \trspor*N* | Default right cell spacing for the rightmost column |
| \trspot*N* | Default top cell spacing for the top row. |
| \trspofb*N* | Units for **\trspob*N***: |
| | 0 Null. Ignore **\trspob*N***. |
| | 3 Twips. |
| \trspofl*N* | Units for **\trspol*N***: |
| | 0 Null. Ignore **\trspol*N***. |
| | 3 Twips. |
| \trspofr*N* | Units for **\trspor*N***: |
| | 0 Null. Ignore **\trspor*N***. |
| | 3 Twips. |
| \trspoft*N* | Units for **\trspot*N***: |
| | 0 Null. Ignore **\trspot*N***. |
| | 3 Twips. |
| \trwWidth*N* | Preferred row width. Overrides **\trautofit*N***. |
| \trftsWidth*N* | Units for **\trwWidth*N***: |
| | 0 Null. Ignore **\trwWidth*N*** in favor of **\cellx*N*** (Word 97 style of determining cell and row width) |
| | 1 Auto, no preferred row width, ignores **\trwWidth*N*** if present; **\trwWidth*N*** will generally not be written, giving precedence to row defaults and autofit. |
| | 2 Percentage (in 50ths of a percent). |
| | 3 Twips. |
| \trwWidthB*N* | Width of invisible cell at the beginning of the row. Used only in cases where rows have different widths. |
| \trftsWidthB*N* | Units for **\trwWidthB*N***: |
| | 0 Null. No invisible cell before. |
| | 1 Auto. Ignores **\trwWidthB*N*** if present; **\trwWidthB*N*** will generally not be written. |

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| Control word | Meaning |
|---|---|
| | 2 Percentage (in 50ths of a percent). |
| | 3 Twips. |
| \trwWidthA*N* | Width of invisible cell at the end of the row. Used only when rows have different widths. |
| \trftsWidthA*N* | Units for **\trwWidthA*N***: |
| | 0 Null. No invisible cell after. |
| | 1 Auto, ignores **\trwWidthA*N*** if present; **\trwWidthA*N*** will generally not be written. |
| | 2 Percentage (in 50ths of a percent). |
| | 3 Twips. |
| \tblind*N* | This element, along with **\tblindtype*N***, specifies the indentation that shall be added before the leading edge of the current table in the document (the left edge in a left-to-right table, and the right edge in a right-to-left table). This indentation should shift the table into the text margin by the specified amount.<br>This value specified corresponds to the unit of measurement specified by the **\tblindtype*N*** control word.<br>If this control word is omitted, then its value shall be assumed to be 0. |
| \tblindtype*N* | This element, along with **\tblind*N*** specifies the indentation that shall be added before the leading edge of the current table in the document (the left edge in a left-to-right table, and the right edge in a right-to-left table). This indentation should shift the table into the text margin by the specified amount.<br>This control word specifies the units of measurement that shall be used in conjunction with the value of **\tblind*N***. Any width value greater than 3 or less than 0 for this element shall be ignored.<br>If this attribute is omitted, then its value shall be assumed to be 1 (twentieths of a point). |

| Value | Description |
|---|---|
| 0 – auto (Automatically Determined Width) | Specifies that the value for the measurement of the current table width property in the parent table shall be automatically determined by the table layout algorithm when the table is displayed (this width can be adjusted as appropriate).<br>If this value is inappropriate for the current measurement (that is this measurement is not affected by that algorithm), then this type and the associated value may be ignored. |
| 1 – dxa (Width in Twentieths of a Point) | Specifies that the value for the measurement of the current table width property in the parent table shall be interpreted as twentieths of a point (1/1440 of an inch). |
| 2 – nil (No Width) | Specifies that the current width is zero, regardless of any width value specified on the parent element. |
| 3 – pct (Width in Fiftieths of a Percent) | Specifies that the value for the measurement of the current table width property in the parent table shall be interpreted as fiftieths of a percent.<br>If this value is inappropriate for the current measurement (that is this measurement is not part of the width of the table), then this type and the associated value may be ignored. |

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| Control word | Meaning |
|---|---|
| **Row Shading and Background Color** | |
| \trcbpat*N* | Background pattern color for the table row shading. |
| \trcfpat*N* | Foreground pattern color for the table row shading. |
| \trpat*N* | Pattern for table row shading. |
| \trshdng*N* | Percentage shading for table row shading. |
| \trbgbdiag | Backward diagonal pattern. |
| \trbgcross | Cross pattern. |
| \trbgdcross | Diagonal cross pattern. |
| \trbgdkbdiag | Dark backward diagonal pattern. |
| \trbgdkcross | Dark cross pattern. |
| \trbgdkdcross | Dark diagonal cross pattern. |
| \trbgdkfdiag | Dark forward diagonal pattern. |
| \trbgdkhor | Dark horizontal pattern. |
| \trbgdkvert | Dark vertical pattern. |
| \trbgfdiag | Forward diagonal pattern. |
| \trbghoriz | Horizontal pattern. |
| \trbgvert | Vertical pattern. |
| **Cell Formatting** | |
| \clFitText | Fit text in cell, compressing each paragraph to the width of the cell. |
| \clNoWrap | Do not wrap text for the cell. Only has an effect if the table cell does not have a preferred **\clwWidth*N***, which overrides **\trautofit*N***. |
| \clpadl*N* | Left cell margin or padding. Overrides **\trpaddl*N***. |
| \clpadt*N* | Top cell margin or padding. Overrides **\trpaddt*N***. |
| \clpadb*N* | Bottom cell margin or padding. Overrides **\trpaddb*N***. |
| \clpadr*N* | Right cell margin or padding. Overrides **\trpaddr*N***. |
| \clpadfl*N* | Units for **\clpadl*N***: |
| | 0 Null. Ignore **\clpadl** in favor of **\trgaph*N*** (Word 97 style cell padding). |
| | 3 Twips. |
| \clpadft*N* | Units for **\clpadt*N***: |
| | 0 Null. Ignore **\clpadt** in favor of **\trgaph*N*** (Word 97 style cell padding). |
| | 3 Twips. |
| \clpadfb*N* | Units for **\clpadb*N***: |
| | 0 Null. Ignore **\clpadb** in favor of **\trgaph*N*** (Word 97 style cell padding). |
| | 3 Twips. |
| \clpadfr*N* | Units for **\clpadr*N***: |
| | 0 Null. Ignore **\clpadr** in favor of **\trgaph*N*** (Word 97 style cell padding). |
| | 3 Twips. |
| \clspl*N* | Left cell margin or padding. Overrides **\trspdl*N***. |
| \clspt*N* | Top cell margin or padding. Overrides **\trspdt*N***. |
| \clspb*N* | Bottom cell margin or padding. Overrides **\trspdb*N***. |
| \clspr*N* | Right cell margin or padding. Overrides **\trspdr*N***. |

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| Control word | Meaning |
|---|---|
| \clspfl*N* | Units for **\clspl*N***:<br>0 Null. Ignore **\clspl**.<br>3 Twips. |
| \clspft*N* | Units for **\clspt*N***:<br>0 Null. Ignore **\clspt**.<br>3 Twips. |
| \clspfb*N* | Units for **\clspb*N***:<br>0 Null. Ignore **\clspb**.<br>3 Twips. |
| \clspfr*N* | Units for **\clspr*N***:<br>0 Null. Ignore **\clspr**.<br>3 Twips. |
| \clwWidth*N* | Preferred cell width. Overrides **\trautofit*N***. |
| \clftsWidth*N* | Units for **\clwWidth*N***:<br>0 Null. Ignore **\clwWidth*N*** in favor of **\cellx*N*** (Word 97 style of determining cell and row width).<br>1 Auto, no preferred cell width, ignores **\clwWidth*N*** if present; **\clwWidth*N*** will generally not be written, giving precedence to row defaults.<br>2 Percentage (in 50ths of a percent).<br>3 Twips. |
| \clhidemark | This control word specifies whether the end of cell glyph shall influence the height of the given table row in the table. If it is specified, then only printing characters in this cell shall be used to determine the row height.<br>**Note:** Typically, the height of a table row is determined by the height of all glyphs in all cells in that row, including the non-printing end of cell glyph characters. However, if these characters are not formatted, they are always created with the document default style properties. This means that the height of a table row cannot ever be reduced below the size of the end of cell marker glyph without manually formatting each paragraph in that run.<br>In a typical document, this behavior is desirable as it prevents table rows from 'disappearing' if they have no content. However, if a table row is being used as a border (for example, by shading its cells or putting an image in them), then this behavior makes it impossible to have a virtual border that is reasonably small without formatting each cell's content directly. This setting specifies that the end of cell glyph shall be ignored for this cell, allowing it to collapse to the height of its contents without formatting each cell's end of cell marker, which would have the side effect of formatting any text ever entered into that cell.<br>If this control word is omitted, then the end of cell marker shall be included in the determination of the height of this row.<br>Example: Consider the following RTF table: |

| | | | |
|---|---|---|---|
| Here is some small text. | | | |
| | | | |

Notice that the only printing content in this table row is displayed using 5 point font, yet the row height is influenced by the end of cell markers in the empty cells.

If each cell in the second row in this table was set to exclude the table cell from this calculation, using the following RTF: \clhidemark, the resulting table shall exclude the cell markers from the row height calculation:

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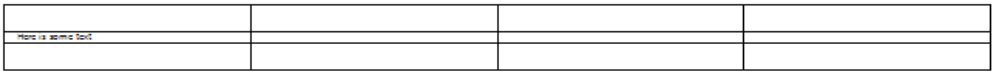
| Control word | Meaning |
|---|---|
| |  |
| | The **clhidemark** control word specified that each cell marker was excluded, resulting in the row height being defined by the actual run contents. |
| **Compared Table Cells** | |
| \clins | Table cell should be treated as though it was inserted into the 'compared document' that resulted from a document compare. |
| \cldel | Table cell should be treated as though it was deleted from the 'compared document' that resulted from a document compare. This means that although the table cell control word exists in the structure of the table, the table cell technically no longer exists in the document. |
| \clmrgd | Specifies vertical merge setting that was applied to the given table cell during a document compare; specifically, that this cell was merged with the cell above it in the 'compared document'. |
| \clmrgdr | Specifies vertical merge setting that was applied to the given table cell during a document compare; specifically, that this cell was merged with the cell below it in the 'compared document'. |
| \clsplit | Specifies vertical merge setting that was applied to the given table cell during a document compare; specifically, that this cell was split from the cell above it in the 'compared document'. |
| \clsplitr | Specifies vertical merge setting that was applied to the given table cell during a document compare; specifically, that this cell was split with the cell below it in the 'compared document'. |
| \clinsauth*N* | Specifies author for a table cell insertion (**\clins**) within an RTF document.<br>If this control word is omitted, then no author shall be associated with the annotation. |
| \clinsdttm*N* | Specifies date information for a table cell insertion (**\clins**) within an RTF document.<br>If this control word is omitted, then no date information shall be associated with the annotation. |
| \cldelauth*N* | Specifies author for a table cell deletion (**\cldel**) within an RTF document.<br>If this control word is omitted, then no author shall be associated with the annotation. |
| \cldeldttm*N* | Specifies date information for a table cell deletion (**\cldel**) within an RTF document.<br>If this control word is omitted, then no date information shall be associated with the annotation. |
| \clmrgdauth*N* | Specifies author for a table cell merge (**\clmrgd**, **\clmrgdr**, **\clsplit**, **\clsplitr**) within an RTF document.<br>If this control word is omitted, then no author information shall be associated with the annotation. |
| \clmrgddttm*N* | Specifies date information for a table cell merge (**\clmrgd**, **\clmrgdr**, **\clsplit**, **\clsplitr**) within an RTF document.<br>If this control word is omitted, then no date information shall be associated with the annotation. |
| **Positioned Wrapped Tables** (The following properties must be the same for all rows in the table) | |
| \tdfrmtxtLeft*N* | Distance in twips, between the left of the table and surrounding text (default is 0). |
| \tdfrmtxtRight*N* | Distance in twips, between the right of the table and surrounding text (default is 0). |
| \tdfrmtxtTop*N* | Distance in twips, between the top of the table and surrounding text (default is 0). |
| \tdfrmtxtBottom*N* | Distance in twips, between the bottom of the table and surrounding text (default is 0). |
| \tabsnoovrlp | Do not allow table to overlap with other tables or shapes with similar wrapping not contained within it. |
| \tphcol | Use column as horizontal reference frame. This is the default if no horizontal table positioning information is given. |
| \tphmrg | Use margin as horizontal reference frame. |

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| Control word | Meaning |
|---|---|
| \tphpg | Use page as horizontal reference frame. |
| \tposnegx*N* | Same as **\tposx*N*** but allows arbitrary negative values. |
| \tposnegy*N* | Same as **\tposy*N*** but allows arbitrary negative values. |
| \tposx*N* | Position table ***N*** twips from the left edge of the horizontal reference frame. |
| \tposxc | Center table within the horizontal reference frame. |
| \tposxi | Position table inside the horizontal reference frame. |
| \tposxl | Position table at the left of the horizontal reference frame. |
| \tposxo | Position table outside the horizontal reference frame. |
| \tposxr | Position table at the right of the horizontal reference frame. |
| \tposy*N* | Position table ***N*** twips from the top edge of the vertical reference frame. |
| \tposyb | Position table at the bottom of the vertical reference frame. |
| \tposyc | Center table within the vertical reference frame |
| \tposyil | Position table to be inline. |
| \tposyin | Position table inside within the vertical reference frame. |
| \tposyout | Position table outside within the vertical reference frame. |
| \tposyt | Position table at the top of the vertical reference frame. |
| \tpvmrg | Position table vertically relative to the top margin. This is the default if no vertical table positioning information is given. |
| \tpvpara | Position table vertically relative to the upper left corner of the next unframed paragraph in the stream. |
| \tpvpg | Position table vertically relative to the top of the page. |
| **Bidirectional Controls** | |
| \rtlrow | Cells in this table row will have right-to-left precedence. |
| \ltrrow | Cells in this table row will have left-to-right precedence (the default). |
| **Row Borders** | |
| \trbrdrt | Table row border top. |
| \trbrdrl | Table row border left. |
| \trbrdrb | Table row border bottom. |
| \trbrdrr | Table row border right. |
| \trbrdrh | Table row border horizontal (inside). |
| \trbrdrv | Table row border vertical (inside). |
| **Cell Borders** | |
| \brdrnil | No border specified. |
| \clbrdrb | Bottom table cell border. |
| \clbrdrt | Top table cell border. |
| \clbrdrl | Left table cell border. |
| \clbrdrr | Right table cell border. |
| \cldglu | Diagonal line (upper left to lower right). |
| \cldgll | Diagonal line (upper right to lower left). |
| **Cell Shading and Background Pattern** | |
| \clshdrawnil | No shading specified. |

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| Control word | Meaning |
|---|---|
| \clshdng*N* | ***N*** is the shading of a table cell in hundredths of a percent. This control should be included in RTF along with cell border information. |
| \clshdngraw*N* | Same as **\clshdng*N*** for use with table styles. |
| \clbghoriz | Specifies a horizontal background pattern for the cell. |
| \rawclbghoriz | Same as **\clbghoriz** for use with table styles. |
| \clbgvert | Specifies a vertical background pattern for the cell. |
| \rawclbgvert | Same as **\clbgvert** for use with table styles. |
| \clbgfdiag | Specifies a forward diagonal background pattern for the cell (\\\\). |
| \rawclbgfdiag | Same as **\clbgfdiag** for use with table styles. |
| \clbgbdiag | Specifies a backward diagonal background pattern for the cell (////). |
| \rawclbgbdiag | Same as **\clbgbdiag** for use with table styles. |
| \clbgcross | Specifies a cross background pattern for the cell. |
| \rawclbgcross | Same as **\clbgcross** for use with table styles. |
| \clbgdcross | Specifies a diagonal cross background pattern for the cell. |
| \rawclbgdcross | Same as **\clbgdcross** for use with table styles. |
| \clbgdkhor | Specifies a dark horizontal background pattern for the cell. |
| \rawclbgdkhor | Same as **\clbgdkhor** for use with table styles. |
| \clbgdkvert | Specifies a dark vertical background pattern for the cell. |
| \rawclbgdkvert | Same as **\clbgdkvert** for use with table styles. |
| \clbgdkfdiag | Specifies a dark forward diagonal background pattern for the cell (****). |
| \rawclbgdkfdiag | Same as **\clbgdkfdiag** for use with table styles. |
| \clbgdkbdiag | Specifies a dark backward diagonal background pattern for the cell (**////**). |
| \rawclbgdkbdiag | Same as **\clbgdkbdiag** for use with table styles. |
| \clbgdkcross | Specifies a dark cross background pattern for the cell. |
| \rawclbgdkcross | Same as **\clbgdkcross** for use with table styles. |
| \clbgdkdcross | Specifies a dark diagonal cross background pattern for the cell. |
| \rawclbgdkdcross | Same as **\clbgdkdcross** for use with table styles. |
| \clcfpat*N* | ***N*** is the line color of the background pattern. |
| \clcfpatraw*N* | Same as **\clcfpat*N*** for use with table styles. |
| \clcbpat*N* | ***N*** is the background color of the background pattern. |
| \clcbpatraw*N* | Same as **\clcbpat*N*** for use with table styles. |
| **Cell Vertical Text Alignment** | |
| \clvertalt | Text is top-aligned in cell (the default). |
| \clvertalc | Text is centered vertically in cell. |
| \clvertalb | Text is bottom-aligned in cell. |
| **Cell Text Flow** | |
| \cltxlrtb | Text in a cell flows from left to right and top to bottom (default). |
| \cltxtbrl | Text in a cell flows right to left and top to bottom. |
| \cltxbtlr | Text in a cell flows left to right and bottom to top. |
| \cltxlrtbv | Text in a cell flows left to right and top to bottom, vertical. |
| \cltxtbrlv | Text in a cell flows top to bottom and right to left, vertical. |

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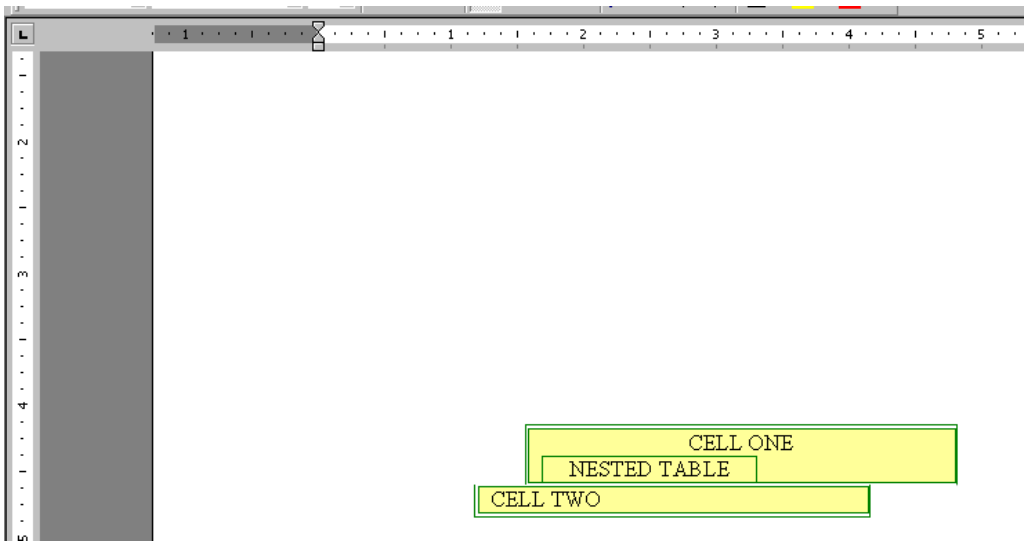
**Example**

The following is an example of a complex Word 2000 table created from RTF. It does not take account of the table styles implemented in Word 2002, Word 2003, or Word 2007. The bitmap showing the table's formatting is followed by the actual RTF used to create it. Following this example display of RTF is an analysis of the control words and values used to create the table.

The image shows a freely positioned Word table, with two cells at an offset. Inside the topmost cell is a nested table. The table has green borders, yellow shading, a small amount of spacing between cells, and inner cell margins or padding.




The following RTF was emitted by Word 2000. Word 2000 also emits RTF that older readers (such as previous versions of Word) can understand, so new features degrade nicely.

```
\trowd \trgaph115\trleft388\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11
\trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15\brdrcf11
\trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWid
thA3\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalc\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4644 \cellx5074\pard\plain
\qc
\li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\a
djustright\rin0\lin0
\fs24\lang1033\langfe2052\loch\af0\hich\af0\dbch\af17\cgrid\langnp1033\langfenp2052
{\hich\af0\dbch\af17\loch\f0 CELL ONE
```

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```
\par }\pard \qc
\li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\a
djustright\rin0\lin0\itap2 {\hich\af0\dbch\af17\loch\f0 NESTED TABLE\nestcell{\nonesttables
\par }}\pard \ql \li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap2
{{\*\nesttableprops\trowd \trgaph108\trleft8\trbrdrt\brdrs\brdrw15\brdrcf11
\trbrdrl\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr
\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\trftsWidth1\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddfr3
\clvertalt\clbrdrt\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb
\brdrs\brdrw15\brdrcf11 \clbrdrr\brdrs\brdrw15\brdrcf11 \cltxlrtb\clftsWidth3\clwWidth2340
\cellx2348\nestrow}{\nonesttables
\par }}\trowd \trgaph115\trleft388\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11
\trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11
\trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWid
thA3\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalc\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4644 \cellx5074\pard
\qc
\li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\a
djustright\rin0\lin0 {\cell }\pard \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0 {\trowd
\trgaph115\trleft388\trbrdrt
\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11
\trbrdrr\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWid
thA3\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalc\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4644 \cellx5074\row }\trowd
\trgaph115\trleft-158\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl
\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15\brdrcf11
\trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trftsWidthA3\trwWidth
A900\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalt\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4248 \cellx4132\pard
```

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```
\ql
\li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\a
djustright\rin0\lin0 {\hich\af0\dbch\af17\loch\f0 CELL TWO\cell }\pard \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0 {
\trowd \trgaph115\trleft-158\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11
\trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11
\trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trftsWidthA3\trwWidth
A900\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalt\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4248 \cellx4132\row}
```

The following is an analysis of the preceding RTF. It has been restructured for ease of explanation. All text in red is comments. The topmost cell is cell 1 (inside row 1). The bottom cell is cell 2 (inside row 2).

```
Begin table row defaults for row 1.
\trowd
\trgaph115
\trleft388

Row borders
\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11
\trbrdrr\brdrs\brdrw15\brdrcf11
\trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11

Absolute positioning of the table. All rows should have the same positioning.
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187

Width of invisible cell before cell one (to simulate offset)
\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWidthA3

Autofit is on.
\trautofit1

Default cell spacing for the row
\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\trpaddr115\trpadd
fl3\trpaddfr3
```

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Cell 1 definition begins.

Vertical alignment of contents

\clvertalc

Cell borders

\clbrdrt\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11 \clbrdrr\brdrs\brdrw15\brdrcf11

Cell shading

\clcbpat17

Cell text flow

\cltxlrtb

Cell width, using new properties and old ones

\clftsWidth3\clwWidth4644 \cellx5074

Text for cell 1 begins here. Includes paragraph absolute positioning equivalent to the table absolute positioning above so that old readers get it right.

\pard\plain \qc \li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\adjustright\rin0\lin0 \fs24\lang1033\langfe2052\loch\af0\hich\af0\dbch\af17\cgrid\langnp1033\langfenp2052 {\hich\af0\dbch\af17\loch\f0 CELL ONE

\par }

Begin definition of nested table inside cell 1.

\pard \qc \li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\adjustright\rin0\lin0

Notice itap is set to 2, indicating second nesting level.

\itap2

Nested cell ends with a \nestcell and is followed by a paragraph mark inside a \nonesttables destination, which is only read by readers that do not understand nested tables. This way the text in the nested table is in its own paragraph.

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```
{\hich\af0\dbch\af17\loch\f0 NESTED TABLE\nestcell{\nonesttables
\par }}\pard \ql \li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap2
```

Nested table properties occur after the text for the nested cell.

```
{{\*\nesttableprops\trowd \trgaph108\trleft8\trbrdrt\brdrs\brdrw15\brdrcf11
\trbrdrl\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr
\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\trftsWidth1\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddfr3
\clvertalt\clbrdrt\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb
\brdrs\brdrw15\brdrcf11 \clbrdrr\brdrs\brdrw15\brdrcf11 \cltxlrtb\clftsWidth3\clwWidth2340
\cellx2348\nestrow}{\nonesttables
\par }}
```

End of nested table properties

Set the default for the row again after nested table! We're still in the first row, and this repeats what was written in the beginning of the row. Defaults of the table are reset and the cell is closed with a \cell.

```
\trowd \trgaph115\trleft388\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11
\trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15
cf11 \trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWid
thA3\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalc\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4644 \cellx5074\pard
\qc
\li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\a
djustright\rin0\lin0 {\cell }\pard \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
```

This is the end of the table cell.

Now the row ends, repeating the defaults of the row at the end of it!

```
{\trowd \trgaph115\trleft388\trbrdrt
\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11
\trbrdrr\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWid
thA3\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalc\clbrdrt
```

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```
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4644 \cellx5074\row }
END OF ROW 1

Row 2 begins here and is structured similarly.
Row defaults
\trowd \trgaph115\trleft-158\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl
\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15\brdrcf11
\trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11

Absolute positioning for the table row, matching the previous one
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trftsWidthA3\trwWidth
A900\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3

Cell 2 properties
\clvertalt\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4248 \cellx4132

Cell 2 text
\pard
\ql
\li0\ri0\widctlpar\intbl\phmrg\posxc\posyc\dxfrtext187\dfrmtxtx187\dfrmtxty0\aspalpha\aspnum\faauto\a
djustright\rin0\lin0 {\hich\af0\dbch\af17\loch\f0 CELL TWO\cell }\pard \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
End cell 2 text

Now the row ends, repeating the defaults of the row at the end of it!
{\trowd \trgaph115\trleft-158\trbrdrt\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11
\trbrdrb\brdrs\brdrw15\brdrcf11 \trbrdrr\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11
\trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trftsWidthA3\trwWidth
A900\trautofit1\trspdl14\trspdt14\trspdb14\trspdr14\trspdfl3\trspdft3\trspdfb3\trspdfr3\trpaddl115\tr
paddr115\trpaddfl3\trpaddfr3 \clvertalt\clbrdrt
\brdrs\brdrw15\brdrcf11 \clbrdrl\brdrs\brdrw15\brdrcf11 \clbrdrb\brdrs\brdrw15\brdrcf11
\clbrdrr\brdrs\brdrw15\brdrcf11 \clcbpat17\cltxlrtb\clftsWidth3\clwWidth4248 \cellx4132\row }
END OF ROW TWO
```

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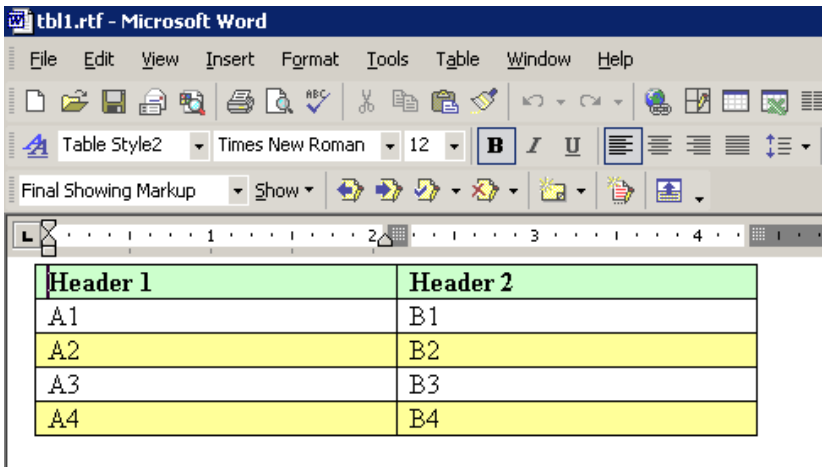
Table Styles Example




Here is the style sheet with one table style highlighted. Note that a single table style can have multiple entries.

**\ts**11 is the default table style. This style gives the first row a fill color and font attributes. Every subsequent odd row is filled with pale yellow.

```
{\stylesheet{\ql \li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 \snext0 Normal;}{\*\cs10 \additive
\ssemihidden Default Paragraph
Font;}{\*\ts11\tsrowd\trftsWidthB3\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3\trpaddfr3\tsce
llwidthfts0\tsvertalt\tsbrdrt\tsbrdrl\tsbrdrb\tsbrdrr\tsbrdrdgl\tsbrdrdgr\tsbrdrh\tsbrdrv \ql
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs20\lang1024\langfe1024\cgrid\langnp1024\langfenp1024 \snext11 \ssemihidden Normal
Table;}{\*\ts15\tsrowd\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10 \trbrdrb\brdrs\brdrw10
\trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidthB3\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3\trpaddfr3\tscellwidthfts0\tsvertalt
\tsbrdrt\tsbrdrl\tsbrdrb\tsbrdrr\tsbrdrdgl\tsbrdrdgr\tsbrdrh\tsbrdrv \ql
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs20\lang1024\langfe1024\cgrid\langnp1024\langfenp1024 \sbasedon11 \snext15 \styrsid353782 Table
Grid;}{\*\ts16\tsrowd\trbrdrt\brdrs\brdrw15\brdrcf1 \trbrdrl\brdrs\brdrw15\brdrcf1
\trbrdrb\brdrs\brdrw15\brdrcf1 \trbrdrr\brdrs\brdrw15\brdrcf1 \trbrdrv\brdrs\brdrw15\brdrcf1
\trftsWidthB3\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3\trpaddfr3\tscbandsh1\tscellwidthfts
0\tsvertalt\tsbrdrt\tsbrdrl\tsbrdrb\tsbrdrr\tsbrdrdgl\tsbrdrdgr\tsbrdrh\tsbrdrv \ql
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs20\lang1024\langfe1024\cgrid\langnp1024\langfenp1024 \sbasedon11 \snext16 \styrsid353782 Table
List 8;}{\*\ts16\tsrowd\tscellcfpat7\tscellcbpat8\tscellpct10000\tsbrdrb\brdrs\brdrw15\brdrcf1
\tsbrdrdgl\brdrnil\tsbrdrdgr\brdrnil \b\i \tscfirstrow Table List
8;}{\*\ts16\tsrowd\tsbrdrt\brdrs\brdrw15\brdrcf1 \tsbrdrdgl\brdrnil\tsbrdrdgr\brdrnil \b \tsclastrow
Table List 8;}{\*\ts16\tsrowd\tsbrdrdgl\brdrnil\tsbrdrdgr\brdrnil \b \tscfirstcol Table List
8;}{\*\ts16\tsrowd\tsbrdrdgl\brdrnil\tsbrdrdgr\brdrnil \b \tsclastcol Table List
```

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```
8;}{\*\ts16\tsrowd\tscellcfpat7\tscellcbpat8\tscellpct2500\tsbrdrdgl\brdrnil\tsbrdrdgr\brdrnil \cf0
\tscbandhorzodd Table List
8;}{\*\ts16\tsrowd\tscellcfpat6\tscellcbpat8\tscellpct5000\tsbrdrdgl\brdrnil\tsbrdrdgr\brdrnil
\tscbandhorzeven Table List 8;}{\*\ts17\tsrowd\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidthB3\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3\trpaddfr3\tscbandsh1\tscellwidthfts
0\tsvertalc\tsbrdrt\tsbrdrl\tsbrdrb\tsbrdrr\tsbrdrdgl\tsbrdrdgr\tsbrdrh\tsbrdrv \qr
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs20\lang1024\langfe1024\cgrid\langnp1024\langfenp1024 \sbasedon15 \snext17 \styrsid353782 Table
Style1;}{\*\ts17\tsrowd\tsvertalc\tscellcfpat0\tscellcbpat17\tscellpct0 \qc \f36\fs22 \tscfirstrow
Table Style1;}{\*\ts17\tsrowd\tsvertalt \qr \tsclastrow Table Style1;}{\*\ts17\tsrowd \ql \f36\fs18
\tscfirstcol Table Style1;}{\*\ts17\tsrowd\tscellcfpat0\tscellcbpat18\tscellpct0 \tscbandhorzodd
Table Style1;}{\*\ts17\tsrowd \b\f36\fs20 \tscsecell Table
Style1;}{\*\ts18\tsrowd\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10 \trbrdrb\brdrs\brdrw10
\trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidthB3\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3\trpaddfr3\tscbandsh1\tscellwidthfts
0\tsvertalt\tsbrdrt\tsbrdrl\tsbrdrb\tsbrdrr\tsbrdrdgl\tsbrdrdgr\tsbrdrh\tsbrdrv \ql
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs20\lang1024\langfe1024\cgrid\langnp1024\langfenp1024 \sbasedon15 \snext18 \styrsid353782 Table
Style2;}{\*\ts18\tsrowd\tscellcfpat0\tscellcbpat17\tscellpct0 \b \tscfirstrow Table
Style2;}{\*\ts18\tsrowd\tscellcfpat0\tscellcbpat18\tscellpct0 \tscbandhorzeven Table Style2;}}
```

## Table RTF

Most of this has been explained in the preceding example, so only some of the changes in Word 2002 have been highlighted.

```
\trowd \irow0\irowband-1\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat17\cltxlrtb\clftsWidth3\clwWidth3208\clcbpatraw17 \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat17\cltxlrtb\clftsWidth3\clwWidth3207\clcbpatraw17 \cellx6307\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\tscfirstrow\yts18
\b\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 Header 1\cell }\pard\plain
\ql \li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\tscfirstrow\yts18
\b\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 Header 2\cell }\pard\plain
\ql \li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 \trowd \irow0\irowband-1
\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10 \trbrdrb\brdrs\brdrw10
\trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
```

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```
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat17\cltxlrtb\clftsWidth3\clwWidth3208\clcbpatraw17 \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat17\cltxlrtb\clftsWidth3\clwWidth3207\clcbpatraw17 \cellx6307\row }\trowd
\irow1\irowband0\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3208\clshdrawnil \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3207\clshdrawnil \cellx6307\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\yts18
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 A1\cell B1\cell }\pard\plain
\ql \li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 \trowd
\irow1\irowband0\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3208\clshdrawnil \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3207\clshdrawnil \cellx6307\row }\trowd
\irow2\irowband1\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3208\clcbpatraw18 \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3207\clcbpatraw18 \cellx6307\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\tscbandhorzeven\yts18
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 A2\cell }\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\tscbandhorzeven\yts18
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 B2\cell }\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 \trowd
\irow2\irowband1\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
```

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```
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3208\clcbpatraw18 \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3207\clcbpatraw18 \cellx6307\row }\trowd
\irow3\irowband2\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3208\clshdrawnil \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3207\clshdrawnil \cellx6307\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\yts18
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 A3\cell B3\cell }\pard\plain
\ql \li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 \trowd
\irow3\irowband2\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3208\clshdrawnil \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\cltxlrtb\clftsWidth3\clwWidth3207\clshdrawnil \cellx6307\row }\trowd \irow4\irowband3\lastrow
\ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10 \trbrdrb\brdrs\brdrw10
\trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3208\clcbpatraw18 \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3207\clcbpatraw18 \cellx6307\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\tscbandhorzeven\yts18
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 A4\cell }\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0\tscbandhorzeven\yts18
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 B4\cell }\pard\plain \ql
\li0\ri0\widctlpar\intbl\aspalpha\aspnum\faauto\adjustright\rin0\lin0
\fs24\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\insrsid353782 \trowd
\irow4\irowband3\lastrow \ts18\trgaph108\trleft-108\trbrdrt\brdrs\brdrw10 \trbrdrl\brdrs\brdrw10
\trbrdrb\brdrs\brdrw10 \trbrdrr\brdrs\brdrw10 \trbrdrh\brdrs\brdrw10 \trbrdrv\brdrs\brdrw10
\trftsWidth1\trftsWidthB3\trftsWidthA3\trautofit1\trpaddl108\trpaddr108\trpaddfl3\trpaddft3\trpaddfb3
\trpaddfr3\tscbandsh1\tbllkhdrrows\tbllklastrow\tbllkhdrcols\tbllklastcol
\clvertalt\clbrdrt\brdrs\brdrw10 \clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
```

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```
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3208\clcbpatraw18 \cellx3100\clvertalt\clbrdrt\brdrs\brdrw10
\clbrdrl\brdrs\brdrw10 \clbrdrb\brdrs\brdrw10 \clbrdrr\brdrs\brdrw10
\clcbpat18\cltxlrtb\clftsWidth3\clwWidth3207\clcbpatraw18 \cellx6307\row }\pard \ql
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0 {\insrsid14034704 \par }
```

## Mathematics

This section discusses the Microsoft Office Word 2007 math RTF control words. These control words mirror the Office Open XML Math elements (OMML, see Office Open XML, Section 7.1), only they are written with RTF syntax. Because of this, the Office Open XML specification can be referenced for further math information. For example in OMML, the built-up skewed fraction $a/b$ can be represented by (leaving out parent math zone elements):

```
<m:f>
  <m:fPr>
    <m:type m:val="skw"/>
  </m:fPr>
  <m:num>
      <m:r>a</m:r>
  </m:num>
  <m:den>
      <m:r>b</m:r>
  </m:den>
</m:f>
```

In RTF, this can be represented as:

```
{\mf{\mfPr{\mctrlPr}{\mtype skw}}
{\mnum\u-10187?\u-9138?}
{\mden\u-10187?\u-9137?}}
```

The math object's properties group must be included, here `{\mfPr…}`, including the `{\mctrlPr}` even if the latter is empty if you want the text to inherit ambient character formatting.

Word generally does not write surrogate pairs for Unicode math alphanumerics like $a$ and $b$, but they work and they're simpler to use since they're used internally for most math variables. Instead, Word writes `{\mr\mscr0\msty2 a}` for the math italic a (U+1D44E) in the numerator of the fraction above and `{\mr\mscr0\msty2 b}` for the math italic b (U+1D44F) in the denominator. Surrogate pairs like `\u-10187?\u-9138?` must appear inside math object groups as in this example, or inside a math text-run group `{\mr…}` if not inside a math object.

Math information is collected into two areas:

1. Document default math properties in the `{\mmathPr…}` group
2. Math zones in `{\mmath…}` groups

A *math zone* is a text range within which math typography rules usually apply and outside of which math typography rules do not apply. Math zones can contain specially marked normal text

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runs for which math typography rules don't apply (see **\mnor**). With Office math, math zones are identified internally by a character-format effect bit like bold. Hence if you delete the ordinary text separating two math zones, you get a single merged math zone.

Math zones can be *inline* or *display*, corresponding to TeX's $ and $$ toggle keys. If a math zone fills an entire paragraph, it is a display math zone, i.e., it is displayed on its own line(s). If a math zone is preceded and/or followed by nonmath text other than a **\par**, the math zone is inline and is rendered in a more compressed fashion. Inline math zones usually consist of math expressions or variables, whereas display math zones usually consist of one or more equations or formulas.

The RTF for the content of an inline math zone replaces the first ellipsis of the nested group structure

```
{\mmath {\*\moMath…}{\mmathPict…}}
```

Readers that do not understand the ignorable `{\*\moMath…}` group can use one of the pictures in the `{\mmathPict…}` group.

The RTF for the content of a display math zone replaces the second ellipsis in the nested group structure

```
{\mmath{\*\moMathPara{\moMathParaPr…}{\*\moMath…}+}{\mmathPict…}}
```

Here the + means that a {*\moMath…} group is emitted for each instance of mathematical text that should start on a new line, e.g., for each new equation. The control word **\moMathPara** stands for a "math paragraph", which can contain multiple equations with various alignment and breaking options. A math paragraph may be part of a text paragraph (text ending in a **\par** and either starting a document or following a **\par**). In general, a text paragraph can contain multiple math paragraphs separated from one another by lines of normal text.

In this discussion, we see that math RTF uses two ways to assign property values depending on the property: 1) the standard RTF way with a parameter ***N*** as in `\msty2`, and 2) using a mini group like `{\mtype skw}`. The latter way is inspired from the corresponding OMML syntax, such as `<m:type m:val="skw"/>`, while the RTF way is more succinct. As usual in this document, control words that take a parameter ***N*** are displayed with a trailing ***N*** in the following detailed definitions.

## Syntax

The math RTF document properties group has the following syntax:

| | |
|---|---|
| <mathprops> | '{*' **\mmathPr** <mathPr>* '}' |
| <mathPr> | **\mbrkBin*N*** \| **\mbrkBinSub*N*** \| **\mdefJc*N*** \| **\mdispDef*N*** \| **\minterSp*N*** \| **\mintLim*N*** \| **\mintraSp*N*** \| **\mlMargin*N*** \| **\mmathFont*N*** \| **\mnaryLim*N*** \| **\mpostSp*N*** \| **\mpreSp*N*** \| **\mrMargin*N*** \| **\msmallFrac*N*** \| **\mwrapIndent*N*** \| **\mwrapRight*N*** |

The math zone RTF group has the following syntax:

| | |
|---|---|
| <mathzone> | '{' **\mmath** (<mathpara> \| <mathinline>) <mathpict>? '}' |
| <mathpara> | '{*' **\moMathPara** <mathparaprops>? <oMath>+ '}' |
| <mathparaprops> | '{' **\moMathParaPr \mjc*N***? '}' |
| <mathinline> | <oMath> |
| <oMath> | '{*' **\moMath \f*N*** (<mathobject> \| <r>)* '}' |
| <mathobject> | <acc> \| <bar> \| <borderBox> \| <box> \| <d> \| <eqArr> \| <f> \| <func> \| <groupChr> \| <limLow> \| <limUpp> \| <m> \| <nary> \| <phant> \| <rad> \| <sPre> \| <sSub> \| <sSubSup> \| <sSup> |

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In principle, the **\f*N*** specifying the math font shouldn't be necessary in the <oMath> definition, since the **\mmathFont*N*** should provide the default. But Word 2007 does need it. Math objects have the following syntax:

| | |
|---|---|
| <acc> | '{' **\macc** <accPr><e> '}' |
| <bar> | '{' **\mbar** <barPr><e> '}' |
| <borderBox> | '{' **\mborderBox** <borderBoxPr><e> '}' |
| <box> | '{' **\mbox** <boxPr><e> '}' |
| <d> | '{' **\md** <dPr><e>+ '}' |
| <eqArr> | '{' **\meqArr** <eqArrPr><e>+ '}' |
| <f> | '{' **\mf** <mfPr><num><den> '}' |
| <func> | '{' **\mfunc** <mfuncPr><fname><e> '}' |
| <groupChr> | '{' **\mgroupChr** <groupChrPr><e> '}' |
| <limLow> | '{' **\mlimlow** <limLowPr><lim><e> '}' |
| <limUpp> | '{' **\mlimUpp** <limUppPr><lim><e> '}' |
| <m> | '{' **\mm** <mPr><mr>+ '}' |
| <nary> | '{' **\mnary** <naryPr><sub><sup><e> '}' |
| <phant> | '{' **\mphant** <phantPr><e> '}' |
| <rad> | '{' **\mrad** <radPr><e> '}' |
| <sPre> | '{' **\msPre** <sPrePr><sub><sup><e> '}' |
| <sSub> | '{' **\msSub** <sSubPr><sub><e> '}' |
| <sSubSup> | '{' **\msSubSup** <sSubSupPr><sub><sup><e> '}' |
| <sSup> | '{' **\msSup** <sSupPr><sup><e> '}' |

Math object property groups have the following syntax

| | |
|---|---|
| <accPr> | '{' **\maccPr** <chr>?<ctrlPr> '}' |
| <barPr> | '{' **\mbarPr** <pos>?<ctrlPr> '}' |
| <borderBoxPr> | '{' **\mborderBoxPr** <borderBoxPrp>* <ctrlPr> '}' |
| <boxPr> | '{' **\mboxPr** <boxPrp>* **\mbrk**?<ctrlPr> '}' |
| <dPr> | '{' **\mdPr** <begChr>? <endChr>? <sepChr>? <grow>? <shp>? <ctrlPr> '}' |
| <eqArrPr> | '{' **\meqArrPr** <baseJc>? <maxdist>? <objdist>? **\mrSp*N***? **\mrSpRule*N***? <ctrlPr> '}' |
| <fPr> | '{' **\mfPr** <type>?<ctrlPr> '}' |
| <funcPr> | '{' **\mfuncPr** <ctrlPr> '}' |
| <groupChrPr> | '{' **\mgroupChrPr** <chr>? <pos>? <vertJc>? <ctrlPr> '}' |
| <limLowPr> | '{' **\mlimLowPr** <ctrlPr> '}' |
| <limUppPr> | '{' **\mlimUppPr** <ctrlPr> '}' |
| <mPr> | '{' **\mmPr** <baseJc>? **\mcGp*N***? **\mcGpRule*N***? **\mcSp*N***? <mcs> <plcHide>? **\mrSp*N***? **\mrSpRule*N***? <ctrlPr> '}' |
| <naryPr> | '{' **\mnaryPr** <chr>? <grow>? <limloc>? <subhide>? <suphide>? <ctrlPr> '}' |
| <phantPr> | '{' **\mphantPr** <phantprp>* <ctrlPr> '}' |
| <radPr> | '{' **\mradPr** ('{' \mdegHide <onoff> '}')? <ctrlPr> '}' |
| <sPrePr> | '{' **\msPrePr** <ctrlPr> '}' |

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| | |
|---|---|
| <sSubPr> | '{' **\msSubPr** <ctrlPr> '}' |
| <sSubSupPr> | '{' **\msSubSupPr** ('{' **\maInScr** <onoff> '}')? <ctrlPr> '}' |
| <sSupPr> | '{' **\msSupPr** <ctrlP> '}' |
| <ctrlPr> | '{' **\mctrlPr** <chrfmt>* '}' |

Math object arguments have the following syntax:

| | |
|---|---|
| <deg> | '{' **\mdeg** <argPr>? <math> '}' |
| <den> | '{' **\mden** <argPr>? <math> '}' |
| <e> | '{' **\me** <argPr>? <math> '}' |
| <lim> | '{' **\mlim** <argPr>? <math> '}' |
| <fname> | '{' **\mfName** <argPr>? <math> '}' |
| <mr> | '{' **\mr** <e>+ '}' |
| <num> | '{' **\mnum** <argPr>? <math> '}' |
| <sub> | '{' **\msub** <argPr>? <math> '}' |
| <sup> | '{' **\msup** <argPr>? <math> '}' |
| <argPr> | '{' **\margPr** \margSz? '}' |

Math object properties and text have the following syntax:

| | |
|---|---|
| <baseJc> | '{' **\mbaseJc** ('bot' \| 'top') '}' |
| <borderBoxPrp> | '{' (**\mhideBot** \| **\mhideLeft** \| **\mhideRight** \| **\mhideTop** \| **\mstrikeBLTR** \| **\mstrikeH** \| **\mstrikeTLBR** \| **\mstrikeV**) <onoff> '}' |
| <boxPrp> | '{' (**\maln** \| **\mdiff** \| **\mnoBreak** \| **\mopEmu**) <onoff> '}' |
| <chr> | '{' **\mchr** <single char> '}' |
| <count> | '{' **\mcount** <digits> '}' |
| <begChr> | '{' **\mbegChr** <single char> '}' |
| <endChr> | '{' **\mendChr** <single char> '}' |
| <grow> | '{' **\mgrow** <onoff> '}' |
| <limLoc> | '{' **\mlimLoc** ('undovr' \| 'subsup') '}' |
| <lit> | '{' **\mlit** <onoff> '}' |
| <math> | (<mathobject> \| <r> \| <char> \| <u>)* |
| <mathPict> | '{' **\mmathPict** '{*' **\shppict** <pict> '}{' **\nonshppict** <pict> '}}' |
| <mc> | '{' **\mmc** <mcpr> '}' |
| <mcPr> | '{' **\mmcPr** <count>? <mjc>? '}' |
| <mcs> | '{' **\mmcs** <mc>+ '}' |
| <mjc> | '{' **\mmjc** ('left' \| 'center' \| 'right') '}' |
| <r> | '{' **\mr** (**\mnor** \| **\mscr*N*** **\msty*N***)? **\mlit**? <char>* <u>* '}' |
| <maxDist> | '{' **\mmaxDist** <onoff> '}' |
| <objDist> | '{' **\mobjDist** <onoff> '}' |
| <onoff> | 'on' \| 'off' |
| <phantPrp> | '{' (**\mshow** \| **\mtransp** \| **\mzeroAsc** \| **\mzeroDesc** \| **\mzeroWid**) <onoff> '}' |

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| | |
|---|---|
| <plcHide> | '{' **\mplcHide** <onoff> '}' |
| <pos> | '{' **\mpos** ('top' \| 'bot') '}' |
| <sepChr> | '{' **\msepChr** <single char> '}' |
| <single char> | single character or <u> |
| <shp> | '{' **\mshp** ('match' \| 'centered') '}' |
| <subHide> | '{' **\msubHide** <onoff> '}' |
| <supHide> | '{' **\msupHide** <onoff> '}' |
| <type> | '{' **\mtype** ('bar' \| 'lin' \| 'nobar' \| 'skw') '}' |
| <u> | \u***N*** '?' |
| <vertJc> | '{' **\mvertJc** ('bot' \| 'top') '}' |

## Math Objects

Built-up objects like fractions and integrals can appear inside the `{\*\moMath…}` group and are defined in the following table:

| Control word | Meaning |
|---|---|
| \macc | Accent object, consisting of a base and a combining diacritical mark. |
| | Example accent functions are $\dot{a}, \ddot{a}, \hat{a}, \bar{a} + \bar{b}$. |
| \mbar | Bar object, consisting of a base argument and an overbar or underbar |
| \mborderBox | Border Box object, consisting of a border drawn around an equation as in $\boxed{a^2 + b^2 = c^2}$. |
| \mbox | Box object, which is used to group components of an equation |
| \md | Delimiter object, consisting of opening and closing delimiters (such as parentheses, braces, brackets, and vertical bars), and an element contained inside like $(a + b)$. |
| \meqArr | Equation-Array object, an object consisting of one or more equations that can be vertically justified as a unit respect to surrounding text on the line. Alignment of multiple points within each equation can occur within the equation array |
| \mf | Fraction object, consisting of a numerator and denominator separated by a fraction bar like $\frac{a}{b}$. |
| \mfunc | Function-Apply object used for math functions like $\sin x$. |
| \mgroupChr | Group Character object used for stretching a character above or below other characters |
| \mlimLow | Lower limit object |
| \mlimUpp | Upper limit object |
| \mm | Matrix object, consisting of one or more elements laid out in one or more rows and one or more columns |
| \mnary | *n*-ary object (includes integrals, summations, products, …) |
| \mphant | Phantom object used to introduce or suppress spacing |
| \mrad | Radical object like $\sqrt{a}$ |
| \msPre | Pre-Sub-Superscript object, which contains a base **\me** preceded by a subscript **\msub** and superscript **\msup**, e.g., ${}_{0}^{1}F$ |
| \msSub | Subscript object which contains a base **\me** followed by a subscript **\msub**, e.g., $a_2$ |
| \msSubSup | Subscript superscript object like $a_2^3$ |

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| | |
|---|---|
| \msSup | Superscript object like $x^2$ |

## Math Object Arguments

Each math object group contains a property group and one or more arguments. The arguments are contained in the special groups defined in the following argument table:

| Control word | Meaning |
|---|---|
| \mdeg | Degree argument of radical object **\mrad** |
| \mden | Denominator argument of fraction object **\mf** |
| \me | Base "element" of all mathematical objects except **\mf** |
| \mlim | Limit argument of a **\mlimLow** or **\mlimUpp** objects |
| \mfName | Function name argument of the Function-Apply object **\mfunc** |
| \mnum | Numerator argument of fraction object **\mf**<br>*Example*: The $a$ in $\frac{a}{b}$. |
| \msub | Subscript argument of **\mnary**, **\msPre**, **\msSub**, **\msSubSup** objects |
| \msup | Superscript argument of **\mnary**, **\msPre**, **\msSup**, **\msSubSup** objects |

## Math RTF Control Words

Here is an alphabetical listing of all RTF math control words (to obtain the corresponding Office Open XML tag, delete the leading "\m"):

| Control word | Meaning |
|---|---|
| \macc | Accent object, consisting of a base and a combining diacritical mark. |
| \maccPr | Accent object properties group |
| \maln | Alignment property on box object, utilized only when box is designated as an operator emulator. When true, this operator emulator serves as an alignment point; that is, designated alignment points in other equations can be aligned with it. |
| \malnScr | Alignment of scripts in subscript/superscript object. When on (resulting from **{\malnScr on}**), subscripts and superscripts are aligned to each other. When off, they are kerned to the shape of the base. If this control word is omitted, scripts are not aligned.<br>Example: (off): $f_2^2$ (on): $f_2^2$ |
| \margPr | Math argument properties group |
| \margSz | Size, or script level, of an argument. For example, **{\margSz 1}** requests the next larger size (next smaller script level). Only text, script, and scriptscript sizes are available. This appears in the subscript object $a_{1}$ in contrast to the usual $a_1$. |
| \mbar | Bar object, consisting of a base argument and an overbar or underbar as in $\overline{a+b}$ and $\underline{a+b}$, depending on the **\mpos** property. |
| \mbarPr | Bar object properties group |
| \mbaseJc | Vertical justification of a matrix.<br>Text outside the matrix can be aligned with the bottom, top, or center of a matrix function. If this control word is omitted, the matrix assumes center justification.<br>Example:<br>This matrix has **{\mbaseJc center}**: $\begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$ |

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This matrix has **{\mbaseJc top}**: $\begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$

This matrix has **{\mbaseJc bot}**: $\begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$

\mbegChr — Beginning, or opening, delimiter character. Mathematical delimiters are enclosing characters such as parentheses, brackets, and braces. If this control word is omitted, the default **\mbegChr** is '('.

The expression $\{a\}$ uses { and } as its enclosing characters as specified by the RTF **{\mbegChr \{}{\mendChr \}}**.

\mborderBox — Border Box object, consisting of a border drawn around an equation

\mborderBoxPr — Border Box object properties group; specifies the properties of the **\mborderBox** object, which dictate the types of lines that can be drawn as part of the border.

Example: $\boxed{a^2 + b^2 = c^2}$ (Diagonal Strikethrough from Upper left)

and

$\overline{a^2 + b^2 = c^2}$ (no left or right edges)

\mbox — Box object, used to group components of an equation.

\mboxPr — Box object properties group; specifies properties of the **\mbox** function, for example, whether the **\mbox** serves as operator emulator with or without an alignment point, serves as a line breakpoint, or receives the correct spacing for the mathematical differential.

\mbrk*N* — Specifies whether a line break occurs in a display math zone at start of **\mbox** or **\mr** object such that the line wraps at the start of the run or function. If this control word is omitted, a manual break is not inserted. The line may happen to wrap at this point if the equation exceeds the column width. The break aligns to the (***N*** + 1)st operator on the first line of the math zone.

*Example*: The following example has a manual line break **\mbrk1** for the run containing the third minus sign:

$$\pi_2(x, y_1) = x_2 A_1 \left(1 - \frac{1}{y_2 \alpha_2} - \frac{1}{y_3 \alpha_3} + \frac{1}{y_2 y_3 \alpha_2 \alpha_3} - \cdots \pm \frac{1}{y_2 y_3 y_4 \cdots y_j \alpha_3 \alpha_4 \cdots \alpha_j}\right).$$

\mbrkBin*N* — Document property specifying how binary operators are treated when they coincide with a line break.

If this control word is omitted or ***N*** = 0, the line break occurs before the binary operator. That is, the binary operator is the first control word on the wrapped line. If ***N*** = 1, the line break occurs after the operator. If ***N*** = 2, the operator is duplicated, that is, it appears at the end of the first line and at the start of the second (see **\mbrkBinSub*N*** for an enhancement of this kind of break).

Example:

| Before | After | Duplicate |
|---|---|---|
| $f(x) = a_{11} + a_{12} + \cdots + a_{nn}$ | $f(x) = a_{11} + a_{12} + \cdots + a_{nn}$ | $f(x) = a_{11} + a_{12} + \cdots + a_{nn}$ |

\mbrkBinSub*N* — Document property specifying how a subtraction operator **−** is treated when it coincides with a line break when **\mbrkBin*N*** is set to duplicate. If this control word is omitted or ***N*** = 0, the **−** appears before and after the break. If ***N*** = 1, + appears before the break and **−** after the break. If ***N*** = 2, **−** appears before the break and + after the break.

\mcGp*N* — Custom matrix column-gap spacing information used for **\mcGpRule*N*** values of 3 and 4, as described in the next entry (default is 0).

\mcGpRule*N* — Type of horizontal spacing between columns in a matrix (default is 0).

| ***N*** | **Column spacing between rows** | **Example** |
|---|---|---|

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| | | |
|---|---|---|
| 0 | Single line gap (one em) | $\begin{matrix} a & b \\ c & d \end{matrix}$ |
| 1 | 1.5 line gap | $\begin{matrix} a & b \\ c & d \end{matrix}$ |
| 2 | 2 line gap | $\begin{matrix} a & b \\ c & d \end{matrix}$ |
| 3 | Exactly equal to the **\mcGp*N*** value measured in twips. Here that value is 480 twips (24 pts). | $\begin{matrix} a & b \\ c & d \end{matrix}$ |
| 4 | Multiple of the **\mcGp*N*** value measured in half lines. Here that value is 3. | $\begin{matrix} a & b \\ c & d \end{matrix}$ |

\mchr

Combining diacritical mark character attached to base of accent object or *n*-ary operator character (default accent character is U+0302 (\hat); default *n*-ary operator is U+222B (\int)).

Examples of accent characters are the dot, hat, and arrow in the following cases: $\dot{a}\ \hat{a}\ \vec{a}$.

\mcount

Matrix column count

\mcSp*N*

Minimum spacing between edge of a column and corresponding edge of adjacent column. Additional spacing can be added to enhance appearance (default is '0').

*Example*: The following matrix specifies that there should never be fewer than 6 pts. Between adjacent column edges:

$\begin{matrix} a & b \\ c & d \end{matrix}$

\mctrlPr

Character format properties group; goes inside every object's properties group. Examples of control characters are n-ary operators (excluding their limits and bases), fraction bars (excluding the numerator and denominator), and grouping characters (excluding the base). **\mctrlPr** allows formatting properties to be stored on these control characters. The control character inherits its formatting from the paragraph formatting; **\mctrlPr** contains the formatting differences between the control character and the paragraph formatting.

\md

Delimiter object, consisting of opening and closing delimiters (such as parentheses, braces, brackets, and vertical bars), and an element contained inside. May have separator character(s) between additional elements.

For example, consider a:

Delimiter with one base: $(x^2)$

Delimiter with more than one base and separators: $(x^2|y^2)$

\mdefJc*N*

Document property for the default justification of displayed math zones. Individual equations can overrule the default setting. Displayed math zones can be left justified (***N*** = 3), right justified (***N*** = 4), centered (***N*** = 2), or centered as a group (**\mdefJc*N*** is omitted or ***N*** = 1). When a displayed math zone is centered as a group, the equation(s) are left aligned within a block, and the entire block is centered with respect to column margins.

\mdeg

Degree argument in radical object. For example the 3 in $\sqrt[3]{x}$. This control word is optional. When omitted, the square root function, as in $\sqrt{x}$, is assumed.

\mdegHide

Whether to hide degree argument. Every **\mrad** has a **\mdeg**, but the **\mdeg** can appear or not appear. When **\mdegHide** is set to "on", the degree is not shown, as in $\sqrt{x}$. When **\mdegHide** is omitted, the default is "off"; that is, the degree is not hidden.

\mden

Denominator argument in fraction object. For example, the $b$ in $a/b$.

\mdiff

Specifies the differential property on **\mbox**. When set to on, the **\mbox** acts as a differential, and receives the appropriate horizontal spacing for the mathematical differential. When this property is omitted, the **\mbox** is not treated as a differential.

*Example*: The following example shows an **mbox** containing $dx$ and having the **\mdiff** property on (notice that a thin space automatically appears between the $x$ and the $dx$):

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$\int_0^x x\,dx$

Note: using the differential d character \dd (U+2146) gets the same spacing.

\mdiffSty*N* Specifies document math style to display the differential $\mathrm{d}$ and related characters (U+2145..U+2149). Word 2007 doesn't understand this keyword and uses math italic.

| | |
|---|---|
| ***N*** = 0 or **\mdiffSty*N*** is missing | Math italic is used (the convention in US technical journals). |
| ***N*** = 1 | Upright style is used (often the convention in European journals) |
| ***N*** = 2 | Open-face italic is used (Mathematica convention) as in $\mathrm{d}$ |

\mdispDef*N* Document property to overwrite (***N*** = 1) paragraph settings for equations, i.e., use values given by **\mlMargin*N***, **\mrMargin*N***, **\mdefJc*N***, **\mwrapIndent*N***, **\mwrapRight*N***, etc. Default is 1. ***N*** = 0 uses the paragraph settings.

\mdPr Delimiter object properties group including enclosing and separating characters. Specifically, this control word specifies the properties of **\md**, including the enclosing and separating characters, and the properties that affect the shape of the delimiters.

\me Base argument "element" appearing in all mathematical objects except **\mf**.

For example, the **\mfunc** $\sin x$ has **\mfName** "sin" and **\me** $x$.

\mendChr Ending, or closing, delimiter character. Mathematical delimiters are enclosing characters such as parentheses, brackets, and braces. If this control word is omitted, the default **\mendChr** is ')'. The expression $\{a\}$ uses { and } as its enclosing characters.

\meqArr Equation-Array object, consisting of one or more equations that can be vertically justified as a unit respect to surrounding text on the line. Alignment of multiple points within each equation can occur within the equation array.

*Example*: An example of an equation array with alignment points is:

$$\begin{aligned} x - y + z &= 10 \\ 3x + y + 2z &= 34 \\ -5x + 2y - z &= -14 \end{aligned}$$

Notice that the variables, operators, and tens digits of the sums line up properly.

\meqArrPr Equation-Array object properties group; specifies the properties of the equation array object, including the vertical justification of the object and layout inside the object.

\mf Fraction object, consisting of a numerator and denominator separated by a fraction bar (unless {\mfPr…} includes {\mtype noBar})

\mfName Function name argument of the Function-Apply object

\mfPr Fraction object properties group. Specifically, this control word specifies the properties of the fraction function **\mf**. Properties of the Fraction function include the type or style of the fraction. The fraction bar can be horizontal or diagonal, depending on the fraction properties. The fraction object is also used to represent the stack function, which places one control word above another, with no fraction bar.

Example:

Stacked Fraction: $\frac{a}{b}$

Skewed Fraction: $a/b$

Linear Fraction: $a/b$

Stack Object (No-Bar Fraction): $\begin{smallmatrix} a \\ b \end{smallmatrix}$

\mfunc Function-Apply object used for math functions like $\sin x$. Specifically, this control word destination contains a function name **\mfName** and a base argument **\me**.

Examples of Function-Apply objects: $\sin x, \tan^{-1} x^2$, and $\max_{0 \le x \le 1} xe^{-x^2}$.

\mfuncPr Function-Apply object properties group; specifies properties such as **\mctrlPr** that can be that is stored on the function apply object **\mfunc**.

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\mgroupChr — Group Character object used for stretching a character above or below other characters.

Example: $\overbrace{x+x+\cdots}$

\mgroupChrPr — Group Character object properties group. Specifies the properties of the Group-Character control word **\mgroupChr**. These properties can be used to specify the character placed above or below the argument, and the position of the character. When omitted, U+23DF is used.

\mgrow — *n*-ary object property specifying whether *n*-ary operators grow. When omitted or set to off, *n*-ary operators such as integrals and summations do not grow to match the size of their operand height. When set to on (**{\mgrow on}**), the *n*-ary operator grows vertically to match its operand height.

*Example*: The two integrals below demonstrate the difference between omitting **\mgrow** and including **{\mgrow on}**.

$$\int_0^1 \frac{x^2}{x+y}dx \int_0^1 \frac{y^2}{x+y}dy$$

\mhideBot — Specifies the hidden or shown state of the bottom edge of **\mborderBox**. When this control word is omitted, the bottom edge is shown. When set to on (**{\mhideBot on}**), the bottom border is hidden, as in $\boxed{a+b}$.

\mhideLeft — Specifies the hidden or shown state of the left edge of **\mborderBox**. When this control word is omitted, the left edge is shown. When set to on, the left border is hidden, as in $\boxed{a+b}$

\mhideRight — Specifies the hidden or shown state of the right edge of **\mborderBox**. When this control word is omitted, the right edge is shown. When set to on, the right border is hidden, as in $\boxed{a+b}$.

\mhideTop — Specifies the hidden or shown state of the top edge of **\mborderBox**. When this control word is omitted, the top edge is shown. When set to on, the top border is hidden, as in $\boxed{a+b}$.

\minterSp*N* — Spacing between equations within a display math paragraph, in twips. (Default is 0; not written by Word 2007.)

\mintLim*N* — Document setting for default placement of integral limits when converting from linear format to professional (built-up) format in display mode (not inline). Limits can be either centered above and below the integral, or positioned just to the right of the operator, as in:

$$\int_a^b x\,dx \int_a^b x\,dx$$

When an integral object is written in linear format, e.g., ∫_a^b, the placement of limits is ambiguous. **\mintLim*N*** specifies the default positioning. When this control word is omitted or ***N*** = 0, the integral limits are placed to the right of the integral sign. When ***N*** = 1, they are placed above and below.

\mintraSp*N* — Document property giving intraequation spacing between consecutive display math paragraphs, in twips. (Default is 0; not written by Word 2007.)

\mjc*N* — Justification of a math paragraph; specifies justification of the math paragraph (a series of adjacent equations within the same paragraph). A math paragraph can be Left Justified (***N*** = 3), Right Justified (***N*** = 4), Centered (***N*** = 2), or Centered as Group (***N*** = 1). If this control word is omitted, the math paragraph is Centered as Group. This means that the equations can be aligned with respect to each other, but the entire group of equations is centered as a whole.

*Example*: An example of Centered as Group is the following example, in which each equation is left-aligned, but the series is centered:

$$x = x_1 + x_2 + x_3 + \cdots$$
$$y = y_1 + y_2 + y_3 + y_4 + \cdots$$
$$z = z_1 + z_2 + z_3 + z_4 + z_5 + \cdots$$

\mlim — Limit argument of a **\mlimLow** or **\mlimUpp** control words.

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*Example*: The limit argument of the **\mlimLow** $\lim_{n\to\infty}$ is $n \to \infty$.

\mlimLoc — Location of limits in *n*-ary operators. Limits can be either centered above and below *n*-ary operator, or positioned just to the right of the operator as in:

$$\sum_{i=0}^{n} a_i \sum_{i=0}^{n} a_i,$$

\mlimLow — Lower limit object; consisting of text on the baseline and reduced-size text immediately below it.

*Example*: $\lim_{n\to\infty}$ and $\max_{0\le x\le 1}$

\mlimLowPr — Lower limit object properties group; specifies control properties (**\mctrlPr**) that can be stored on the Lower Limit (**\mlimLow**).

\mlimUpp — Upper limit object; consisting of text on the baseline and reduced-size text immediately above it.

*Example*: $\overbrace{x + x + \cdots + x}^{k \text{ times}}$ and $\stackrel{\text{def}}{=}$

\mlimUppPr — Upper limit object properties group; specifies control properties (**\mctrlPr**) that can be stored on the Upper Limit (**\mlimUpp**).

\mlit — Property specifying that characters in a run are literal; i.e.,, they are to be interpreted literally without special mathematical meaning such as operators or characters that trigger conversion to 2-dimensional format

\mlMargin*N* — Document property for the left margin for math, in twips. Math margins are added to the paragraph settings for margins.

\mm — Matrix object, containing at least one element laid out in one or more rows and one or more columns. Note: **\mm** doesn't include surrounding parentheses or brackets; for these embed the **\mm** inside an **\md** object.

*Example*: $\begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$ and $\begin{bmatrix} 1 & \\ & 1 \end{bmatrix}$

\mmath — Math zone group containing math paragraph or inline math zone

\mmathFont*N* — Specifies default math font to be used in the document. ***N*** is the \fonttbl index of the font

\mmathPict — Picture group used by readers not understanding **\moMath** group

\mmathPr — Destination for document-level math properties

\mmaxDist — Equation Array Maximum Distribution. When set to on, the equation array is spaced to maximum width of containing element (page, column, cell). When this control word is omitted, Equation Array Maximum Distribution is 0.

\mmc — Matrix (**\mm**)single column group

\mmcJc — Justification of a matrix column (or group of matrix columns) **\mc**. When this control word is omitted, the column is centered.

The matrix below is inside a **\md** object and has three columns. The leftmost column is left-aligned **{\mmcJc left}**, the rightmost column is right-justified **{\mmcJc right}**, and the center column is centered **{\mmcJc center}**:

$$\begin{pmatrix} 1 & 1 & 1 \\ 23 & 23 & 23 \\ 456 & 456 & 456 \end{pmatrix}$$

*Example*: A simple example of this property in use is a 2×2 matrix with both columns centered (this matrix is also inside an **\md** object):

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

\mmcPr — Matrix single column properties; specifies the properties of the matrix column, including the number of columns and the type of justification.

*Example*: As an extreme example, the following matrix has two columns that are left

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justified (count is 2) and three columns that are right justified (count is 3).

$$\begin{pmatrix} 1 & 1 & 1 & 1 & 1 \\ 23 & 23 & 23 & 23 & 23 \\ 456 & 456 & 456 & 456 & 456 \end{pmatrix}$$

\mmcs — Matrix (**\mm**) columns group; specifies the collection of columns of the matrix

*Example*: An example of this control word in use is:

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

\mmPr — Matrix object properties group; specifies properties of the matrix **\mm**, including the justification of the matrix and the layout of control words within the matrix.

\mmr — Single row of matrix object

*Example*: An example of this control word in use is the following example, a 2x2 matrix. There are two rows; the first contains the 1 and 2; the second contains 3 and 4.

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

\mnary — *n*-ary object consisting of an *n*-ary object, a base (or operand), and optional upper and lower limits.

Examples of *n*-ary objects are: $\int_0^1 x\,dx, \sum_{k=0}^{n} a_k, \prod_{k=1}^{n} A_k$ and $\bigcup_{n=1}^{m}(X_n \cap Y_n)$

\mnaryLim*N* — Document setting for default placement of *n*-ary limits other than integrals when converted from linear format to Professional (built-up) format in display mode. Limits can be either centered above and below the *n*-ary operator (***N*** = 1), or positioned just to the right of the operator (***N*** = 0), as in

$$\sum_{i=0}^{n} a_i \text{ and } \sum_{i=0}^{n} a_i,$$

respectively. When this summation object is written in linear format as $\sum(i=0)^n$, the placement of limits when built up in a displayed math zone is ambiguous, and **\mnaryLim*N*** specifies the desired default positioning.

\mnaryPr — *n*-ary object properties group; specifies the properties of the *n*-ary (**\mnary**) object, including the type of n-ary operator that is used, the shape and height of the operator, the location of limits, and whether limits are shown or hidden.

\mnoBreak — "Unbreakable" property on **\mbox** object. When set to on, no line breaks can occur within the box. This can be important for operator emulators that consist of more than one binary operator. When this control word is not specified, breaks can occur inside **\mbox**.

\mnor — Normal text property, that is math italic and math spacing are not applied to run. In a normal text run, no characters will trigger reformatting of a linear expression into a two-dimensional expression.

*Example*: The example below illustrates three runs of normal text:

$$\text{rate} = \frac{\text{distance}}{\text{time}}$$

\mnum — Numerator argument of fraction object

\mobjDist — Equation Array Object Distribution. When active, contents of equation array are spaced to maximum width of equation array object. When this control word is omitted, the equation array does not receive object distribution.

\moMath — Destination for a displayed equation or inline mathematical expression. In a math paragraph, each equation is enclosed in its own {*\moMath…} group and starts on its own line.

\moMathPara — Math paragraph containing one or more displayed equations within a single text paragraph.

\moMathParaPr — Math paragraph properties group; specifies properties of the math paragraph **\moMathPara**, including justification **\mdefJc*N***.

\mopEmu — Operator Emulator property on box. When active, the box and its contents behave as a

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single operator and inherit the properties of an operator. This means, for example, that the character can serve as a point for a line break and can be aligned to other operators. Operator Emulators are often used when one or more glyphs combine to form an operator, such as **==**.

\mphant — Phantom object used to introduce or suppress spacing.

**Note: \mphant** has two primary uses: first, adding the spacing of the phantom base **\me** without displaying that base, and second, suppressing ("smashing") part of the glyph from spacing considerations.

\mphantPr — Phantom object properties group; specifies properties of the phantom function, including whether the phantom is hidden or visible, and the amount of space that is taken into account when laying out text and objects around phantoms.

\mplcHide — If set to 'on', hide placeholders property on a matrix **\mm.** When this property is on, placeholders do not appear in the matrix. If this control word is omitted, placeholders do appear such that the locations where text can be inserted are made visible.

*Example*: The following two matrices show the hidden and visible states of placeholders, respectively:

$$\begin{pmatrix} 1 & & \\ & 1 & \\ & & 1 \end{pmatrix} \begin{pmatrix} 1 & & \\ & 1 & \\ & & 1 \end{pmatrix}$$

\mpos — Position of the bar in the **\mbar** object; the default is 'bot', signifying the mathematical underbar. For an overbar, set **\mpos** to 'top', that is, use **{\mpos top}**.

\mpostSp*N* — Spacing after math paragraph, in twips (default is 0; not supported by Word 2007).

\mpreSp*N* — Spacing before math paragraph, in twips (default is 0; not supported by Word 2007).

\mr — Run of math text

\mrad — Radical object; specifies the radical function, consisting of a radical, a base **\me**, and an optional degree **\mdeg**.

*Example*: $\sqrt[n]{x}$ and $\sqrt{x}$.

\mradPr — Radical object; specifies properties of the radical function **\mrad**, including the hidden or shown state of the degree **\mdeg**.

\mrMargin*N* — Right margin for math, in twips. Math margins are added to the paragraph settings for margins.

\mrPr — Run properties group; specifies the properties of the math run **\mr**.

\mrSp*N* — Spacing between rows of an equation array **\meqArr** or matrix **\mm.** It is used only when **\mrSpRule*N*** is set to 3 (exactly; in which case the unit of measure is twips) or 4 (Multiple; in which case the unit of measure is half lines). If this control word is omitted, single line spacing is used in the equation array, and no additional spacing is used in the layout of rows.

\mrSpRule*N* — Row spacing rule; specifies the type of vertical spacing between rows in a matrix. The following table demonstrates possible values of **\mrSpRule*N*** along with their definitions and examples (default is 0):

| Value | Line spacing between rows | Example |
|---|---|---|
| 0 | Single line gap (one em) | $\begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix}$ |
| 1 | 1.5 line gap | $\begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix}$ |
| 2 | 2 line gap | $\begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix}$ |
| 3 | Exactly equal to value of **\mrSp*N***, measured in twips, here 360. | $\begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix}$ |

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| | | |
|---|---|---|
| 4 | Multiple of value of **\mrSp*N***, measured in half lines, here 3. | 1 2<br>3 4 |

\mscr*N* Math alphanumeric script of characters in a run. The allowed combinations of **\msty*N*** and **\mscr*N*** are limited to the Unicode math alphanumerics (see Unicode Technical Report #25, Section 2.1).

| Value | Alphabetical script |
|---|---|
| 0 | Roman |
| 1 | Script |
| 2 | Fraktur |
| 3 | Double-struck |
| 4 | Sans-serif |
| 5 | Monospace |

\msepChr The character that separates base arguments **\me** in the delimiter object **\md**.

If this control word is omitted, the default **\msepChr** is '|'.

*Example*: Examples of **\md**, each with a different **\msepChr**, are: $(a_1|a_2)(a_1;a_2)(a_1,a_2)$

\mshow Show property of phantom object (default: on). When inactive, the **\mphant** base **\me** is hidden. If this control word is omitted, the base **\me** is shown.

*Example*: In the following example, there is a phantom of the fraction a/b in the second radical such that only the height is preserved (includes the **\mphantPr** properties **{\mshow off}{\mzeroWid on}**). The fraction does not show.

$\sqrt{\frac{a}{b}} = \sqrt{x}$

\mshp Shape of delimiters in delimiter object **\md**. Delimiters can be centered on entire height of their contents, or their height can be altered to exactly match their contents' height. When this control word is omitted, delimiters are 'centered'.

\msmallFrac*N* Document property specifying reduced fraction size in display math (***N*** = 1), such that numerator and denominator are written in script size instead of regular-text size. The default is for text size (***N*** = 0).

\msPre Pre-Sub-Superscript object, which consists of a base **\me** along with a subscript **\msub** and a superscript **\msup** placed to left of base.

\msPrePr Pre-Sub-Superscript object properties group; specifies properties such as **\mctrlPr** that can be stored on the Pre-Sub-Superscript object **\msPre**.

\msSub Subscript object consisting of a base **\me** and a reduced-size **\msub** placed below and to the right, as in $x_n$

\msSubPr Subscript object properties group; specifies properties such as **\mctrlPr** that can be stored on the Subscript function **\msSub**.

\msSubSup Subscript superscript object consisting of a base **\me**, a reduced-size **\msub** placed below and to the right, and a reduced-size **\msup** placed above and to the right, as in $x_n^2$

\msSubSupPr Subscript superscript object properties group

\msSup Superscript object consisting of a base **\me** and a reduced-size **\msup** placed above and to the right, as in $x^2$.

\msSupPr Superscript object properties group

\mstrikeBLTR Hidden or shown state of a strikethrough diagonal line from bottom-left corner to top-right corner of **\mborderBox.** When this control word is 'off' (default), the strikethrough is not drawn as in $\boxed{a+b}$. When 'on', a strikethrough is drawn, as in $\boxed{a+b}$.

\mstrikeH Hidden or shown state of a strikethrough horizontal line in **\mborderBox** When this control word is off (default), the strikethrough is not drawn. When on, a horizontal

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strikethrough is drawn, as in $\boxed{a+b}$.

\mstrikeTLBR — Hidden or shown state of a strikethrough diagonal line from upper-left corner to bottom-right corner of **\mborderBox** When this control word is off (default), the strikethrough is not drawn. When on, a strikethrough is drawn, as in $\boxed{a+b}$.

\mstrikeV — Hidden or shown state of a strikethrough vertical line in **\mborderBox**. When off (default), a strikethrough is not drawn. When on, a strikethrough is drawn, as in $\boxed{a+b}$.

\msty*N* — Bold/italic styles of characters in run. The allowed combinations of **\msty*N*** and **\mscr*N*** are limited to the Unicode math alphanumerics (see Unicode Technical Report #25, Section 2.1).

| Value | Script |
|---|---|
| 0 | Upright |
| 1 | Bold |
| 2 | Italic |
| 3 | Bold-Italic |

\msub — Subscript argument of **\msPre**, **\msSub**, **\msSubSup** objects consisting of a base **\me** and a reduced-size **\msub** placed below and to the right, as the $n$ in $x_n$.

\msubHide — *n*-ary hide subscript property. When on, the lower limit does not appear, as in

$$\int^{n} \frac{x}{x+2} dx$$

If this control word is omitted, the lower limit appears.

\msup — Superscript argument of **\msPre**, **\msSup**, **\msSubSup** objects consisting of a base **\me** and a reduced-size **\msup** placed below and to the right, as the $2$ in $x^2$

\msupHide — *n*-ary hide superscript property. When on, the upper limit does not appear, as in $\int_0 \frac{x}{x+1} dx$.

If this control word is omitted, the lower limit appears.

\mtransp — Specifies that a phantom **\mphant** is transparent for spacing. This means that if the contents of the phantom belong to a special spacing class, such as binary operators, relational operators, or differentials, that spacing class participates in the layout calculations. If transparency is off (default), then the content's spacing class is ignored. In the following example, transparency is off for the visible phantom around the differential term, and hence there is no automatic thin space between the $x$ and $\mathrm{dx}$:

$$\int \mathrm{x\,dx}$$

Turning transparency on with **{\mtransp on}**, we see a thin space

$$\int x\,dx$$

\mtype — Type of fraction **\mf**. The default is 'bar'. Valid fraction **\mtype** attributes are:

| Type of fraction | String | Example |
|---|---|---|
| Stacked | bar | $\frac{a}{b}$ |
| Linear | lin | $a/b$ |
| Skewed | skw | $a/b$ |
| Stacked, no bar | nobar | $\begin{smallmatrix} a \\ b \end{smallmatrix}$ |

\mvertJc — Along with **\mpos** of **\mgroupChrPr**, specifies the vertical layout of the **\mgroupChr** object. Where **\mpos** specifies the position of the grouping character, **\mvertJc** specifies the alignment of the object with respect to the baseline.

For example, when the group character is above the object, **\mvertJc** of top signifies that the top of the object falls on the baseline; when **\mvertJc** is set to bot, the bottom of the object is on the baseline. The table below demonstrates the four possible combinations of **\mgroupChr** layout:

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| \mpos | \mvertJc | layout |
|---|---|---|
| top | top | $a \xleftarrow[\text{bcd}]{} e$ |
| top | bot | $a \overbrace{\text{bcd}} e$ |
| bot | top | $a \underbrace{\text{bcd}} e$ |
| bot | bot | $a \xrightarrow{\text{yields}} b$ |

\mwrapIndent*N* Indent of wrapped line of an equation in twips. The line or lines of a wrapped equation after the line break can either be indented by a specified amount from the left margin, or right-aligned. The default indent is 1" (1440 twips).

\mwrapRight*N* If ***N*** = 1, right justify wrapped lines of an equation. If this control word is omitted, the line or lines of a wrapped equation after the line break are indented by **\mwrapIndent*N*** from the left margin.

\mzeroAsc If on, phantom has zero ascent. In the following example, the differential term is contained in a phantom that zero ascent. As a result, spacing is reduced between the top of the $d$ and the radical bar: $\sqrt{x\,dx}$ as compared to $\sqrt{x\,dx}$

This control word is off by default (**{\mzeroAsc off}**).

\mzeroDesc If on, phantom has zero descent.

*Example*: In the following product, the second radical has a zero descent for the $y$. This causes the second radical to be smaller than the first. $\sqrt{y}\sqrt{y}$

This control word is off by default.

\mzeroWid If on, the phantom has zero width.

*Example*: In the following example, the second radical contains a zero-width phantom of the fraction $\frac{a}{b}$. Accordingly only the height grows to accommodate the hidden fraction: $\sqrt{\frac{a}{b}} = \sqrt{x}$

This control word is off by default.

## Character Text

Character text has the following syntax:

| | |
|---|---|
| <char> | <ptext> \| <atext> \| '{' <char> '}' |
| <ptext> | ((<chrfmt> \| <chshading> \| <chrev>)* <data>+ )+ |
| <data> | #PCDATA \| <u*N*> \| <spec> \| <pict> \| <obj> \| <do> \| <footnote> \| <annot> \| <field> \| <idx> \| <toc> \| <bookmark> |
| <u*N*> | **\u*N*** followed by equivalent character(s) in ANSI representation (see **\u*N*** & **\uc*N***) |

## Font (Character) Formatting Properties

These control words (described as <chrfmt> in the syntax description) change font (character) formatting properties. A control word preceding plain text turns on the specified attribute. Some control words (indicated in the following table by an asterisk following the description) can be turned off by appending 0 to the control word. For example, **\b** turns on bold, while **\b0** turns off bold.

The font (character) formatting control words are listed in the following table.

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| Control word | Meaning |
|---|---|
| \plain | Reset font (character) formatting properties to a default value defined by the application (for example, bold, underline and italic are disabled; font size is reset to 12 point). The associated font (character) formatting properties (described in the section Associated Character Properties of this Specification) are also reset. |
| \animtext*N* | Animated text properties (note: Word 2007 ignores this control word):<br>0 (none)<br>1 Las Vegas Lights<br>2 Blinking Background<br>3 Sparkle Text<br>4 Marching Black Ants<br>5 Marching Red Ants<br>6 Shimmer<br>7 Wipe down<br>8 Wipe right |
| \accnone | No accent characters (over dot/over comma). |
| \accdot | Over-dot accent. |
| \acccomma | Over-comma accent. |
| \acccircle | Over-circle accent. |
| \accunderdot | Under-dot accent. |
| \b* | Bold. |
| \caps* | All capitals. |
| \cb*N* | Background color (default is 0). ***N*** specifies the color as an index of the color table. Note: Windows versions of Word have never supported this control word (see **\chcbpat*N*** for Word background color). |
| \cchs*N* | Indicates any characters not belonging to the default document character set and indicates the character set to which they do belong to. The values for ***N*** correspond to the values for the **\fcharset*N*** control word. |
| \cf*N* | Foreground color (default is 0). ***N*** specifies the color as an index of the color table. |
| \charscalex*N* | Character scaling value. The ***N*** argument is a value representing a percentage (default is 100). |
| \cs*N* | Designates character style. If a character style is specified, style properties must be specified with the character run. ***N*** refers to an entry in the style table. |
| \cgrid*N* | Character grid. |
| \g | Destination related to character grids (not emitted by Word). |
| \gcw*N* | Grid column width. |
| \gridtbl | Destination keyword related to character grids (not emitted by Word). |
| \dn*N* | Move down ***N*** half-points (default is 6). |
| \embo* | Emboss. |
| \expnd*N* | Expansion or compression of the space between characters in quarter-points; a negative value compresses (default is 0). |
| \expndtw*N* | Expansion or compression of the space between characters in twips; a negative value compresses. For backward compatibility, both **\expndtw*N*** and **\expnd*N*** should be emitted. |
| \fittext*N* | Fit the text in the current group in ***N*** twips. When ***N*** is set to -1 (**\fittext-1**), it indicates a continuation of the previous **\fittext*N*** run. In other words, {\fittext1000 Fit this} {\fittext-1 text} fits the string "Fit this text" in 1000 twips. |
| \f*N* | Font number. ***N*** refers to an entry in the font table. |

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| Control word | Meaning |
|---|---|
| \fs*N* | Font size in half-points (default is 24). |
| \i* | Italic. |
| \impr* | Engrave (imprint). |
| \kerning*N* | Point size (in half-points) above which to kern character pairs. **\kerning0** turns off kerning. |
| \langfe*N* | Applies a language to a text run. ***N*** is the language ID (see standard language table). The **\plain** control word resets the language property to the language defined by **\deflangfe*N*** in the document properties. |
| \langfenp*N* | Applies a language to a text run. ***N*** is the language ID. The **\plain** control word resets the language property to the language defined by **\deflangfe*N*** in the document properties. Usually follows **\langfe*N*** and is used when **\noproof** is written as explained for **\langnp*N***. |
| \lang*N* | Applies a language to a text run. ***N*** is the language ID (see standard language table). The **\plain** control word resets the language property to the language defined by **\deflang*N*** in the document properties. |
| \langnp*N* | Applies a language to a text run. ***N*** is the language ID. The **\plain** control word resets the language property to the language defined by **\deflang*N*** in the document properties. It is identical to **\lang*N***, but needed when **\noproof** is written together with **\lang1024** to preserve the language of the text that is not being checked for spelling or grammar. Usually follows **\lang*N***. |
| \ltrch | Character data following this control word is treated as a left-to-right run (the default). |
| \noproof | Do not check spelling or grammar for text in the group. Serves the function of **\lang1024** (undefined language). Usually **\lang1024** is emitted with it for backward compatibility with old readers. |
| \nosupersub | Turns off superscripting or subscripting. |
| \nosectexpand | Disables character space basement. |
| \rtlch | Character data following this control word is treated as a right-to-left run. |
| \outl* | Outline. |
| \scaps* | Small capitals. |
| \shad* | Shadow. |
| \strike* | Strikethrough. |
| \striked1 | Double strikethrough. **\striked0** turns it off. |
| \sub | Subscripts text and shrinks point size according to font information. |
| \super | Superscripts text and shrinks point size according to font information. |
| \ul* | Continuous underline. **\ul0** turns off all underlining. |
| \ulc*N* | Underline color. |
| \uld* | Dotted underline. |
| \uldash* | Dashed underline. |
| \uldashd* | Dash-dotted underline. |
| \uldashdd* | Dash-dot-dotted underline. |
| \uldb* | Double underline. |
| \ulhwave* | Heavy wave underline. |
| \ulldash* | Long dashed underline. |
| \ulnone | Stops all underlining. |
| \ulth* | Thick underline. |
| \ulthd* | Thick dotted underline. |
| \ulthdash* | Thick dashed underline. |

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| Control word | Meaning |
|---|---|
| \ulthdashd* | Thick dash-dotted underline. |
| \ulthdashdd* | Thick dash-dot-dotted underline. |
| \ulthldash* | Thick long dashed underline. |
| \ululdbwave* | Double wave underline. |
| \ulw* | Word underline. |
| \ulwave* | Wave underline. |
| \up*N* | Move up ***N*** half-points (default is 6). |
| \v* | Hidden text. |
| \webhidden | Indicates that the text in the group is hidden in the Word 2002 Web View and will not be emitted upon saving as Web page. |

The following table defines the standard language indentifiers used by Microsoft. This table was generated by the Unicode group for use with TrueType and Unicode.

| Language | ID (Hexadecimal) | ID (Decimal) |
|---|---|---|
| Afrikaans (South Africa) | 0x436 | 1078 |
| Albanian (Albania) | 0x41c | 1052 |
| Alsatian (France) | 0x484 | 1156 |
| Amharic (Ethiopia) | 0x45e | 1118 |
| Arabic (Algeria) | 0x1401 | 5121 |
| Arabic (Bahrain) | 0x3c01 | 15361 |
| Arabic (Egypt) | 0x0c01 | 3073 |
| Arabic (Iraq) | 0x0801 | 2049 |
| Arabic (Jordan) | 0x2c01 | 11265 |
| Arabic (Kuwait) | 0x3401 | 13313 |
| Arabic (Lebanon) | 0x3001 | 12289 |
| Arabic (Libya) | 0x1001 | 4097 |
| Arabic (Morocco) | 0x1801 | 6145 |
| Arabic (Oman) | 0x2001 | 8193 |
| Arabic (Qatar) | 0x4001 | 16385 |
| Arabic (Saudi Arabia) | 0x0401 | 1025 |
| Arabic (Syria) | 0x2801 | 10241 |
| Arabic (Tunisia) | 0x1c01 | 7169 |
| Arabic (U.A.E.) | 0x3801 | 14337 |
| Arabic (Yemen) | 0x2401 | 9217 |
| Armenian (Armenia) | 0x42b | 1067 |
| Assamese (India) | 0x44d | 1101 |
| Azeri (Cyrillic, Azerbaijan) | 0x82c | 2092 |
| Azeri (Latin, Azerbaijan) | 0x42c | 1068 |
| Bashkir (Russia) | 0x46d | 1133 |
| Basque (Basque) | 0x42d | 1069 |
| Belarusian (Belarus) | 0x423 | 1059 |
| Bengali (Bangladesh) | 0x845 | 2117 |

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| | | |
|---|---|---|
| Bengali (India) | 0x445 | 1093 |
| BosniaHerzegovina | 0x101a | 4122 |
| Bosnian (Cyrillic, Bosnia and Herzegovina) | 0x201a | 8218 |
| Bosnian (Latin, Bosnia and Herzegovina) | 0x141a | 5146 |
| Breton (France) | 0x47e | 1150 |
| Bulgarian (Bulgaria) | 0x402 | 1026 |
| Burmese | 0x455 | 1109 |
| Catalan (Catalan) | 0x403 | 1027 |
| Cherokee | 0x45c | 1116 |
| Chinese (Hong Kong S.A.R.) | 0xc04 | 3076 |
| Chinese (Macao S.A.R.) | 0x1404 | 5124 |
| Chinese (PRC) | 0x804 | 2052 |
| Chinese (Singapore) | 0x1004 | 4100 |
| Chinese (Taiwan) | 0x404 | 1028 |
| Corsican (France) | 0x483 | 1155 |
| Croatian (Croatia) | 0x41a | 1050 |
| Croatian (Latin, Bosnia and Herzegovina) | 0x101a | 4122 |
| CustomCurrent | 0x0c00 | 3072 |
| Czech (Czech Republic) | 0x405 | 1029 |
| Danish (Denmark) | 0x406 | 1030 |
| Dari (Afghanistan) | 0x48c | 1164 |
| Divehi (Maldives) | 0x465 | 1125 |
| Dutch (Belgium) | 0x813 | 2067 |
| Dutch (Netherlands) | 0x413 | 1043 |
| DutchPreferred | 0x013 | 19 |
| Dzongkha | 0x851 | 2129 |
| Edo | 0x466 | 1126 |
| English (Australia) | 0xc09 | 3081 |
| English (Belize) | 0x2809 | 10249 |
| English (Canada) | 0x1009 | 4105 |
| English (Caribbean) | 0x2409 | 9225 |
| English (Hong Kong S.A.R.) | 0x3c09 | 15369 |
| English (India) | 0x4009 | 16393 |
| English (Indonesia) | 0x3809 | 14345 |
| English (Ireland) | 0x1809 | 6153 |
| English (Jamaica) | 0x2009 | 8201 |
| English (Malaysia) | 0x4409 | 17417 |
| English (New Zealand) | 0x1409 | 5129 |
| English (Republic of the Philippines) | 0x3409 | 13321 |
| English (Singapore) | 0x4809 | 18441 |
| English (South Africa) | 0x1c09 | 7177 |
| English (Trinidad and Tobago) | 0x2c09 | 11273 |
| English (United Kingdom) | 0x809 | 2057 |

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| | | |
|---|---|---|
| English (United States) | 0x409 | 1033 |
| English (Zimbabwe) | 0x3009 | 12297 |
| Estonian (Estonia) | 0x425 | 1061 |
| Faroese (Faroe Islands) | 0x438 | 1080 |
| Filipino (Philippines) | 0x464 | 1124 |
| Finnish (Finland) | 0x40b | 1035 |
| French (Belgium) | 0x80c | 2060 |
| French (Cameroon) | 0x2c0c | 11276 |
| French (Canada) | 0xc0c | 3084 |
| French (Congo (DRC)) | 0x240c | 9228 |
| French (Cote d'Ivoire) | 0x300c | 12300 |
| French (France) | 0x40c | 1036 |
| French (Haiti) | 0x3c0c | 15372 |
| French (Luxembourg) | 0x140c | 5132 |
| French (Mali) | 0x340c | 13324 |
| French (Monaco) | 0x180c | 6156 |
| French (Morocco) | 0x380c | 14348 |
| French (Reunion) | 0x200c | 8204 |
| French (Senegal) | 0x280c | 10252 |
| French (Switzerland) | 0x100c | 4108 |
| French (West Indies) | 0x1c0c | 7180 |
| Frisian (Netherlands) | 0x462 | 1122 |
| Fulfulde | 0x467 | 1127 |
| Gaelic (Ireland) | 0x83c | 2108 |
| Gaelic (Scotland) | 0x43c | 1084 |
| Galician (Galician) | 0x456 | 1110 |
| Georgian (Georgia) | 0x437 | 1079 |
| German (Austria) | 0xc07 | 3079 |
| German (Germany) | 0x407 | 1031 |
| German (Liechtenstein) | 0x1407 | 5127 |
| German (Luxembourg) | 0x1007 | 4103 |
| German (Switzerland) | 0x807 | 2055 |
| Greek (Greece) | 0x408 | 1032 |
| Greenlandic (Greenland) | 0x46f | 1135 |
| Guarani | 0x474 | 1140 |
| Gujarati (India) | 0x447 | 1095 |
| Hausa (Latin, Nigeria) | 0x468 | 1128 |
| Hawaiian | 0x475 | 1141 |
| Hebrew (Israel) | 0x40d | 1037 |
| Hindi (India) | 0x439 | 1081 |
| Hungarian (Hungary) | 0x40e | 1038 |
| Ibibio (Nigeria) | 0x469 | 1129 |
| Icelandic (Iceland) | 0x40f | 1039 |

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| | | |
|---|---|---|
| Igbo (Nigeria) | 0x470 | 1136 |
| Indonesian (Indonesia) | 0x421 | 1057 |
| Inuktitut (Latin, Canada) | 0x85d | 2141 |
| Inuktitut (Syllabics, Canada) | 0x45d | 1117 |
| isiXhosa (South Africa) | 0x434 | 1076 |
| isiZulu (South Africa) | 0x435 | 1077 |
| Italian (Italy) | 0x410 | 1040 |
| Italian (Switzerland) | 0x810 | 2064 |
| Japanese (Japan) | 0x411 | 1041 |
| Kannada (India) | 0x44b | 1099 |
| Kanuri | 0x471 | 1137 |
| Kashmiri | 0x860 | 2144 |
| Kashmiri (Arabic) | 0x460 | 1120 |
| Kazakh (Kazakhstan) | 0x43f | 1087 |
| Khmer (Cambodia) | 0x453 | 1107 |
| K'iche (Guatemala) | 0x486 | 1158 |
| Kinyarwanda (Rwanda) | 0x487 | 1159 |
| Kiswahili (Kenya) | 0x441 | 1089 |
| Konkani (India) | 0x457 | 1111 |
| Korean (Korea) | 0x412 | 1042 |
| Kyrgyz (Kyrgyzstan) | 0x440 | 1088 |
| Lao (Lao P.D.R.) | 0x454 | 1108 |
| Latin | 0x476 | 1142 |
| Latvian (Latvia) | 0x426 | 1062 |
| Lithuanian (Lithuania) | 0x427 | 1063 |
| LithuanianTrad | 0x827 | 2087 |
| Lower Sorbian (Germany) | 0x82e | 2094 |
| Luxembourgish (Luxembourg) | 0x46e | 1134 |
| Macedonian (Former Yugoslav Republic of Macedonia) | 0x42f | 1071 |
| Malay (Brunei Darussalam) | 0x83e | 2110 |
| Malay (Malaysia) | 0x43e | 1086 |
| Malayalam (India) | 0x44c | 1100 |
| Maldivian | 0x465 | 1125 |
| Maltese (Malta) | 0x43a | 1082 |
| Manipuri | 0x458 | 1112 |
| Maori (New Zealand) | 0x481 | 1153 |
| Mapudungun (Chile) | 0x47a | 1146 |
| Marathi (India) | 0x44e | 1102 |
| Mohawk (Mohawk) | 0x47c | 1148 |
| Mongolian (Cyrillic, Mongolia) | 0x450 | 1104 |
| Mongolian (Traditional Mongolian, PRC) | 0x850 | 2128 |
| Nepali (India) | 0x861 | 2145 |
| Nepali (Nepal) | 0x461 | 1121 |

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| | | |
|---|---|---|
| (none) | 0x400, 0 | 1024, 0 |
| Norwegian, Bokmål (Norway) | 0x414 | 1044 |
| Norwegian, Nynorsk (Norway) | 0x814 | 2068 |
| Occitan (France) | 0x482 | 1154 |
| Oriya (India) | 0x448 | 1096 |
| Oromo | 0x472 | 1138 |
| Papiamentu | 0x479 | 1145 |
| Pashto (Afghanistan) | 0x463 | 1123 |
| Persian | 0x429 | 1065 |
| Polish (Poland) | 0x415 | 1045 |
| Portuguese (Brazil) | 0x416 | 1046 |
| Portuguese (Portugal) | 0x816 | 2070 |
| Punjabi (India) | 0x446 | 1094 |
| Punjabi (Pakistan) | 0x846 | 2118 |
| Quechua (Bolivia) | 0x46b | 1131 |
| Quechua (Ecuador) | 0x86b | 2155 |
| Quechua (Peru) | 0xc6b | 3179 |
| Romanian (Moldova) | 0x818 | 2072 |
| Romanian (Romania) | 0x418 | 1048 |
| Romansh (Switzerland) | 0x417 | 1047 |
| Russian (Moldova) | 0x819 | 2073 |
| Russian (Russia) | 0x419 | 1049 |
| Sami, Inari (Finland) | 0x243b | 9275 |
| Sami, Lule (Norway) | 0x103b | 4155 |
| Sami, Lule (Sweden) | 0x143b | 5179 |
| Sami, Northern (Finland) | 0xc3b | 3131 |
| Sami, Northern (Norway) | 0x43b | 1083 |
| Sami, Northern (Sweden) | 0x83b | 2107 |
| Sami, Skolt (Finland) | 0x203b | 8251 |
| Sami, Southern (Norway) | 0x183b | 6203 |
| Sami, Southern (Sweden) | 0x1c3b | 7227 |
| Sanskrit (India) | 0x44f | 1103 |
| Serbian (Cyrillic, Bosnia and Herzegovina) | 0x1c1a | 7194 |
| Serbian (Cyrillic, Serbia) | 0xc1a | 3098 |
| Serbian (Latin, Bosnia and Herzegovina) | 0x181a | 6170 |
| Serbian (Latin, Serbia) | 0x81a | 2074 |
| Sesotho sa Leboa (South Africa) | 0x46c | 1132 |
| Setswana (South Africa) | 0x432 | 1074 |
| Sindhi (Arabic) | 0x859 | 2137 |
| Sindhi (Devanagari) | 0x459 | 1113 |
| Sinhala (Sri Lanka) | 0x45b | 1115 |
| Slovak (Slovakia) | 0x41b | 1051 |
| Slovenian (Slovenia) | 0x424 | 1060 |

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| | | |
|---|---|---|
| Somali | 0x477 | 1143 |
| Spanish (Argentina) | 0x2c0a | 11274 |
| Spanish (Bolivia) | 0x400a | 16394 |
| Spanish (Chile) | 0x340a | 13322 |
| Spanish (Colombia) | 0x240a | 9226 |
| Spanish (Costa Rica) | 0x140a | 5130 |
| Spanish (Dominican Republic) | 0x1c0a | 7178 |
| Spanish (Ecuador) | 0x300a | 12298 |
| Spanish (El Salvador) | 0x440a | 17418 |
| Spanish (Guatemala) | 0x100a | 4106 |
| Spanish (Honduras) | 0x480a | 18442 |
| Spanish (Mexico) | 0x80a | 2058 |
| Spanish (Nicaragua) | 0x4c0a | 19466 |
| Spanish (Panama) | 0x180a | 6154 |
| Spanish (Paraguay) | 0x3c0a | 15370 |
| Spanish (Peru) | 0x280a | 10250 |
| Spanish (Puerto Rico) | 0x500a | 20490 |
| Spanish (Spain, International Sort) | 0xc0a | 3082 |
| Spanish (Spain, Traditional Sort) | 0x40a | 1034 |
| Spanish (United States) | 0x540a | 21514 |
| Spanish (Uruguay) | 0x380a | 14346 |
| Spanish (Venezuela) | 0x200a | 8202 |
| Sutu (South Africa) | 0x430 | 1072 |
| Swedish (Finland) | 0x81d | 2077 |
| Swedish (Sweden) | 0x41d | 1053 |
| Syriac (Syria) | 0x45a | 1114 |
| Tajik (Cyrillic, Tajikistan) | 0x428 | 1064 |
| Tamazight (Arabic, Morocco) | 0x45f | 1119 |
| Tamazight (Latin, Algeria) | 0x85f | 2143 |
| Tamil (India) | 0x449 | 1097 |
| Tatar (Russia) | 0x444 | 1092 |
| Telugu (India) | 0x44a | 1098 |
| Thai (Thailand) | 0x41e | 1054 |
| Tibetan (PRC) | 0x451 | 1105 |
| Tigrigna (Eritrea) | 0x873 | 2163 |
| Tigrigna (Ethiopia) | 0x473 | 1139 |
| Tsonga | 0x431 | 1073 |
| Turkish (Turkey) | 0x41f | 1055 |
| Turkmen (Turkmenistan) | 0x442 | 1090 |
| Uighur (PRC) | 0x480 | 1152 |
| Ukrainian (Ukraine) | 0x422 | 1058 |
| Upper Sorbian (Germany) | 0x42e | 1070 |
| Urdu (Islamic Republic of Pakistan) | 0x420 | 1056 |

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| | | |
|---|---|---|
| Urdu (India) | 0x820 | 2080 |
| Uzbek (Cyrillic, Uzbekistan) | 0x843 | 2115 |
| Uzbek (Latin, Uzbekistan) | 0x443 | 1091 |
| Venda | 0x433 | 1075 |
| Vietnamese (Vietnam) | 0x42a | 1066 |
| Welsh (United Kingdom) | 0x452 | 1106 |
| Wolof (Senegal) | 0x488 | 1160 |
| Xhosa | 0x434 | 1076 |
| Yakut (Russia) | 0x485 | 1157 |
| Yi (PRC) | 0x478 | 1144 |
| Yiddish | 0x43d | 1085 |
| Yoruba (Nigeria) | 0x46a | 1130 |

To read negative **\expnd*N*** values from Macintosh Word 5.1 (1992) and earlier, an RTF reader should use only the low-order 6 bits of the value read. These versions do not emit negative values for **\expnd*N***. Instead, they treat values from 57 through 63 as –7 through –1, respectively (the low-order 6 bits of 57 through 63 are the same as –7 through –1). MacWord 6.0 on was based on the Word for Windows and interprets **\expnd*N*** the same way.

## Character Borders and Shading

Character shading has the following syntax:

| | |
|---|---|
| <chshading> | (**\chshdng*N*** \| <pat>) **\chcfpat*N***? **\chcbpat*N***? |
| <pat> | **\chbghoriz** \| **\chbgvert** \| **\chbgfdiag** \| **\chbgbdiag** \| **\chbgcross** \| **\chbgdcross** \| **\chbgdkhoriz** \| **\chbgdkvert** \| **\chbgdkfdiag** \| **\chbgdkbdiag** \| **\chbgdkcross** \| **\chbgdkdcross** |

| Control word | Meaning |
|---|---|
| \chbrdr | Character border (border always appears on all sides). |
| \chshdng*N* | Character shading. The ***N*** argument is a value representing the shading of the text in hundredths of a percent. |
| \chcfpat*N* | ***N*** is the pattern background color index. |
| \chcbpat*N* | ***N*** is the pattern foreground color index. |
| \chbghoriz | Specifies horizontal background pattern for the text. |
| \chbgvert | Specifies vertical background pattern for the text. |
| \chbgfdiag | Specifies forward diagonal background pattern for the text (\\\\). |
| \chbgbdiag | Specifies backward diagonal background pattern for the text (////). |
| \chbgcross | Specifies cross background pattern for the text. |
| \chbgdcross | Specifies diagonal cross background pattern for the text. |
| \chbgdkhoriz | Specifies dark horizontal background pattern for the text. |
| \chbgdkvert | Specifies dark vertical background pattern for the text. |
| \chbgdkfdiag | Specifies dark forward diagonal background pattern for the text (****). |
| \chbgdkbdiag | Specifies dark backward diagonal background pattern for the text (**////**). |
| \chbgdkcross | Specifies dark cross background pattern for the text. |
| \chbgdkdcross | Specifies dark diagonal cross background pattern for the text. |

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The color, width, and border style keywords for character borders are the same as the keywords for paragraph borders.

## Character Revision Mark Properties

These properties have the syntax and control words defined by

| | |
|---|---|
| <chrev> | **\revised**? **\revauth*N***? **\revdttm*N***? **\crauth*N***? **\crdate*N***? **\deleted**? **\revauthdel*N***? **\revdttmdel*N?*** **\mvf**? **\mvt**? **\mvauth*N***? **\mvdate*N***? |

| Control word | Meaning |
|---|---|
| **Track Changes (Revision Mark) Properties** | |
| \deleted | Text has been deleted since revision marking was turned on. |
| \revised | Text has been added since revision marking was turned on. |
| \crauth*N* | Index into revision table. The content of the ***N***th group in the revision table is considered to be the author of that revision. |
| | **Note** This keyword is used to indicate formatting revisions, such as bold, italic. |
| \crdate*N* | Time of revision. The 32-bit DTTM structure is emitted as a long integer. |
| \revauth*N* | Index into revision table. The content of the ***N***th group in the revision table is considered to be the author of that revision. |
| \revdttm*N* | Time of revision. The 32-bit DTTM structure is emitted as a long integer. |
| \revauthdel*N* | Index into revision table. The content of the ***N***th group in the revision table is considered to be the author of that deletion. |
| \revdttmdel*N* | Time of deletion. The 32-bit DTTM structure is emitted as a long integer. |
| \mvf | Text has been moved to another location (is part of a "Move From") since revision marking was turned on. This is only valid inside a "Move From" bookmark (see **\mvfmf** and **\mvfml**). |
| | **Note:** Deletion keywords (**\deleted**, **\revauthdel*N***) are emitted as well so that move-unaware applications can understand the revision as a deletion. These keywords can be ignored by move-aware applications. |
| \mvt | Text has been moved from another location (is part of a "Move To") since revision marking was turned on. This is only valid inside a "Move To" bookmark (see **\mvtof** and **\mvtol**). |
| | **Note:** Insertion keywords (**\revised**, **\revauth*N***) are emitted as well so that move-unaware applications can understand the revision as an insertion. These auxiliary keywords can be ignored by move-aware applications. |
| \mvauth*N* | Index into revision table. The contents of the ***N***th group in the revision table is considered to be the author of that move. |
| \mvdate*N* | Time of move. The 32-bit DTTM structure is emitted as a long integer. |

## Associated Character Properties

Bidirectional-aware text processors often need to associate a Latin (or other left-to-right) font with an Arabic or Hebrew (or other right-to-left) font. The association is needed to match commonly used pairs of fonts in name, size, and other attributes. Although RTF defines a broad variety of associated character properties, any implementation may choose not to implement a particular associated character property and share the property between the Latin and Arabic fonts.

South Asian (complex script) runs of text share associated properties with right-to-left runs, but they are considered left-to-right.

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Property association uses the following syntax:

| | |
|---|---|
| <atext> | <ltrrun> \| <rtlrun> \| <sarun> \| <nonsarun> \| <saltrrun> \| <nonsaltrrun> \| <nonsartlrun> \| <losbrun> \| <hisbrun> \| <dbrun> |
| <ltrrun> | **\rtlch \af*N*** & <aprops>* **\ltrch** <ptext> |
| <rtlrun> | **\ltrch \af*N*** & <aprops>* **\rtlch** <ptext> |
| <sarun> | **\fcs0 \af*N*** & <aprops>* **\fcs1** <ptext> |
| <nonsarun> | **\fcs1 \af*N*** & <aprops>* **\fcs0** <ptext> |
| <saltrrun> | **\rtlch \fcs0 \af** & <aprops>* **\ltrch \fcs1** <ptext> |
| <nonsaltrrun> | **\rtlch \fcs1 \af** & <aprops>* **\ltrch \fcs0** <ptext> |
| <nonsartlrun> | **\ltrch \fcs1 \af** & <aprops>* **\rtlch \fcs0** <ptext> |
| <losbrun> | **\hich \af*N*** & <aprops> **\dbch \af*N*** & <aprops> **\loch** <ptext> |
| <hisbrun> | **\loch \af*N*** & <aprops> **\dbch \af*N*** & <aprops> **\hich** <ptext> |
| <dbrun> | **\loch \af*N*** & <aprops> **\hich \af*N*** & <aprops> **\dbch** <ptext> |

The following are some examples of property association. The first example is a right-to-left run. Text will use the default bidirectional font, and will be underlined. The left-to-right font associated with this run is font 2 (in the font table) with bold and underlining.

```
\ltrch\af2\ab\au\rtlch\u Sample Text
```

The next example is a left-to-right run. The right-to-left font and the left-to-right font use the default font (specified by **\deff*N***).

```
\plain\rtlch\ltrch Sample Text
```

The following example is a left-to-right run. The right-to-left font is font 5, bold and italic. The left-to-right font is the default font, underlined. If the reader does not support underlining in the associated font, both fonts will be underlined.

```
\rtlch\af5\ab\ai\ltrch\u Sample Text
```

The property association control words (described as <aprops> in the syntax description) are listed in the following table. Some control words (indicated in the table by an asterisk following the description) can be turned off by appending 0 to the control word.

| Control word | Meaning |
|---|---|
| \ab* | Associated font is bold. |
| \acaps* | Associated font is all capitals. |
| \acf*N* | Associated foreground color (default is 0). |
| \adn*N* | Associated font is subscript position in half-points (default is 6). |
| \aexpnd*N* | Expansion or compression of the space between characters in quarter-points; a negative value compresses (default is 0). |
| \af*N* | Associated font number (default is 0). |
| \afs*N* | Associated font size in half-points (default is 24). |
| \ai* | Associated font is italic. |
| \alang*N* | Language ID (see the standard language table) for the associated font. |
| \aoutl* | Associated font is outline. |
| \ascaps* | Associated font is small capitals. |

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| Control word | Meaning |
|---|---|
| \ashad* | Associated font is shadow. |
| \astrike* | Associated font is strikethrough. |
| \aul | Associated font is continuous underline. **\aul0** turns off all underlining for the alternate font. |
| \auld | Associated font is dotted underline. |
| \auldb | Associated font is double underline. |
| \aulnone | Associated font is no longer underlined. |
| \aulw | Associated font is word underline. |
| \aup*N* | Superscript position in half-points (default is 6). |
| \fcs*N* | ***N*** = 1 means South East Asian complex script; ***N*** = 0 means not South East Asian script |
| \loch | The text consists of single-byte low-ANSI (0x00–0x7F) characters. |
| \hich | The text consists of single-byte high-ANSI (0x80–0xFF) characters. |
| \dbch | The text consists of double-byte characters. |

## Highlighting

This property applies highlighting to text. The formatting is not a character format, so it cannot be part of a style definition.

| Control word | Meaning |
|---|---|
| \highlight*N* | Highlights the specified text. ***N*** specifies the color as an index of the color table. |

## Special Characters

The RTF Specification includes control words for special characters (described as <spec> in the character-text syntax description). If a special-character control word is not recognized by the RTF reader, it is ignored and the text following it is considered plain text. The RTF Specification is flexible enough to allow new special characters to be added for interchange with other software.

The special RTF characters are listed in the following table (<spec> is any one of these).

| Control word | Meaning |
|---|---|
| \chdate | Current date (as in headers). |
| \chdpl | Current date in long format (for example, Wednesday, February 20, 2008). |
| \chdpa | Current date in abbreviated format (for example, Wed, Feb 20, 2008). |
| \chtime | Current time (as in headers). |
| \chpgn | Current page number (as in headers). |
| \sectnum | Current section number (as in headers). |
| \chftn | Automatic footnote reference (footnotes follow in a group). |
| \chatn | Annotation reference (annotation text follows in a group). |
| \chftnsep | Anchoring character for footnote separator. |
| \chftnsepc | Anchoring character for footnote continuation. |
| \cell | End of table cell. |
| \nestcell | End of nested table cell. |
| \row | End of table row. |

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| Control word | Meaning |
|---|---|
| \nestrow | End of nested table row. |
| \par | End of paragraph. |
| \sect | End of section and paragraph. |
| \page | Required page break. |
| \column | Required column break. |
| \line | Required line break (no paragraph break). |
| \lbr*N* | Text wrapping break of type:<br>0 Default line break (just like **\line**)<br>1 Clear left<br>2 Clear right<br>3 Clear all<br>Whenever an **\lbr*N*** is emitted, a **\line** will be emitted for the benefit of old readers. |
| \softpage | Nonrequired page break. Emitted as it appears in galley view. |
| \softcol | Nonrequired column break. Emitted as it appears in galley view. |
| \softline | Nonrequired line break. Emitted as it appears in galley view. |
| \softlheight*N* | Nonrequired line height. This is emitted as a prefix to each line. |
| \tab | Tab character. |
| \emdash | Em dash (—). |
| \endash | En dash (–). |
| \emspace | Non-breaking space equal to width of character "m" in current font. Some old RTF writers use the construct '{' **\emspace** ' }' (with two spaces before the closing brace) to trick readers unaware of **\emspace** into parsing a regular space. A reader should interpret this as an **\emspace** and a regular space. |
| \enspace | Nonbreaking space equal to width of character "n" in current font. Some old RTF writers use the construct '{' **\enspace** ' }' (with two spaces before the closing brace) to trick readers unaware of **\enspace** into parsing a regular space. A reader should interpret this as an **\enspace** and a regular space. |
| \qmspace | One-quarter em space. |
| \bullet | Bullet character. |
| \lquote | Left single quotation mark. |
| \rquote | Right single quotation mark. |
| \ldblquote | Left double quotation mark. |
| \rdblquote | Right double quotation mark. |
| \\| | Formula character. (Used by Word 5.1 for the Macintosh as the beginning delimiter for a string of formula typesetting commands.) |
| \~ | Non-breaking space. |
| \- | Optional hyphen. |
| _ | Non-breaking hyphen. |
| \: | Specifies a subentry in an index entry. |
| * | Marks a destination whose text should be ignored if not understood by the RTF reader. |
| \'hh | A hexadecimal value, based on the specified character set (may be used to identify 8-bit values). |
| \ltrmark | The following characters should be displayed from left to right; usually found at the start of **\ltrch** runs. |

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| Control word | Meaning |
|---|---|
| \rtlmark | The following characters should be displayed from right to left; usually found at the start of **\rtlch** runs. |
| \zwbo | Zero-width break opportunity. Used to insert break opportunity between two characters. |
| \zwnbo | Zero-width non-break opportunity. Used to remove break opportunity between two characters. |
| \zwj | Zero-width joiner. This is used for ligating (joining) characters. |
| \zwnj | Zero-width nonjoiner. This is used for unligating a character. |

A carriage return (character value 13) or line feed (character value 10) is treated as a **\par** control if the character is preceded by a backslash. You must include the backslash; otherwise, RTF ignores the control word. (You may also want to insert a carriage-return/line feed pair without backslashes at least every 255 characters for better text transmission over communication lines.)

A tab (character value 9) should be treated as a **\tab** control word. Not all RTF readers understand this; therefore, an RTF writer should always emit the control word for tabs.

The following are the code values for the special characters listed.

| Control word | Word for Windows | Apple Macintosh |
|---|---|---|
| \bullet | 149 | 0xA5 |
| \endash | 150 | 0xD1 |
| \emdash | 151 | 0xD0 |
| \lquote | 145 | 0xD4 |
| \rquote | 146 | 0xD5 |
| \ldblquote | 147 | 0xD2 |
| \rdblquote | 148 | 0xD3 |

## Hyphenation Information

When hyphenation is active, information is stored at each hyphenated position describing the kind of hyphenation. In RTF, this information is given by **\hres*N*** and **\chhres*N*** as defined in the table

| Control word | Meaning |
|---|---|
| \hres*N* | Language dependent hyphenation spelling rule defined by |
| \chhres*N* | ***N*** is the Unicode character to use when **\hres*N*** needs a changed letter. |

| ***N*** | **Description** |
|---|---|
| 0 | No Hyphenation |
| 1 | Normal Hyphenation |
| 2 | Add letter before hyphen |
| 3 | Change letter before hyphen |
| 4 | Delete letter before hyphen |
| 5 | Change letter after hyphen |
| 6 | Delete letter before the hyphen and change the letter left preceding the hyphen |

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## Document Variables

Document variables are definable and accessed through macros. Document variables have the following syntax:

| | |
|---|---|
| <variables> | '{*' **\docvar** '{' <varname> '}{' <vartext> '}}' |
| <varname> | #PCDATA |
| <vartext> | #PCDATA |

The control word is described in the following table.

| Control word | Meaning |
|---|---|
| \ docvar | A group that defines a document variable name and its value. |

## Bookmarks

This destination may specify one of two control words: ***\bkmkstart**, which indicates the start of the specified bookmark, and ***\bkmkend**, which indicates the end of the specified bookmark.

Bookmarks have the following syntax:

| | |
|---|---|
| <bookmark> | <bookstart> \| <bookend> |
| <bookstart> | '{*' **\bkmkstart** (**\bkmkcolf*N***? & **\bkmkcoll*N***?) #PCDATA '}' |
| <bookend> | '{*' **\bkmkend** #PCDATA '}' |

A bookmark is shown in the following example:

```
\pard\plain \fs20 Kuhn believes that science, rather than

discovering in experience certain structured

relationships, actually creates (or already participates in)

a presupposed structure to which it fits the data.

{\bkmkstart paradigm} Kuhn calls such a presupposed

structure a paradigm.{\bkmkend paradigm}
```

The bookmark start and end are matched with the bookmark tag. In this example, the bookmark tag is "paradigm". Each bookmark start should have a matching bookmark end; however, the bookmark start and the bookmark end may be in any order.

**\bkmkcolf*N*** is used to denote the first column of a table covered by a bookmark. If it is not included, the first column is assumed. **\bkmkcoll*N*** is used to denote the last column. If it is not used, the last column is assumed. These controls are used within the ***\bkmkstart** destination following the **\bkmkstart** control. For example, `{\*\bkmkstart\bkmkcolf2\bkmkcoll5 Table1}` places the bookmark "Table1" in columns 2 through 5 of a table.

## Move Bookmarks

Move bookmarks provide an additional mechanism for revision tracking and behave in a similar, but more complex, fashion with respect to *insertions* (**\revised**) and *deletions* (**\deleted**).

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Specifically, unlike insertions and deletions, which only use character properties to mark a text run as inserted or deleted, move bookmarks use a combination of character properties and *bookmarks*. Character properties are used in the same way as in insertions and deletions – text is just marked to indicate that it has been moved.

Bookmarks, on the other hand, are used to signify where within the document the move is. This is needed because moved text may be edited; newly inserted or deleted[2] text, although within a move location, does not have the character properties for a move as it was not part of the original move. Newly typed text, for example, will either be marked through its character properties as an insertion (if you have "Track Changes" enabled) or not at all (if changes are not being tracked).

In short, bookmarks are used to determine where the move location is, and character properties are used to mark specific text runs as being part of the move.

Move bookmarks are just two different kinds of bookmarks indicating the source and the destination of a move, respectively. The move's source and destination bookmarks are matched by their unique tag (the same one that is used for matching the start and the end of the bookmark), and also contain move-specific information describing the author and date of a move.

***\mvfmf** and ***\mvtof** signify the start of a "Move From" or "Move To" bookmark, respectively. They indicate the move bookmark's unique tag[3] and a hex-encoded structure describing the author and date/time of the revision.

***\mvfml** and ***\mvtol** signify the end of a "Move From" or "Move To" bookmark, respectively. They indicate the move bookmark's unique tag so that they can be matched to their corresponding bookmark start control words.

Move bookmark syntax is:

<movebook> <movebookstart> | <movebookend>

<movebookstart> '{*' (**\mvfmf** | **\mvtof**) #PCDATA #SDATA '}'

<movebookend> '{*' (**\mvfml** | **\mvtol**) #PCDATA '}'

As with normal bookmarks, the #PCDATA represents a unique tag for matching the start and the end of a bookmark, and, in moves, the source and destination locations. #SDATA represents a 6-byte structure containing the move author (the first two bytes, little-endian representation; corresponds to the same value as the one used with the **\mvauth*N*** control word) and the date/time of the move (see the DTTM bit field structure).

The following is a sample of move tracking within an RTF file:

```
{\*\mvfmf move148856603 0100768baa46} <Move source's contents> {\*\mvfml move148856603}

{\*\mvtof move148856603 0100768baa46} <Move destination's contents> {\*\mvtol move148856603}
```

[2] Text can be deleted from a "Move To" location.

[3] Word generates "move*N*", where *N* is a unique number, but any alphanumeric string not longer than twenty characters is valid.

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| Control word | Meaning |
|---|---|
| *\mvfmf | Signifies the start of a "Move From" bookmark. The bookmark's tag is used to link this control word with the corresponding end of the "Move From" bookmark (**mvfml**)in the document and with the corresponding "Move To" bookmark (**\mvtof** and **\mvtol**).<br>The following restrictions are applied to the use of this control word:<br>• If this control word occurs without a corresponding **\mvfml** control word with a matching tag, then it shall be ignored and no "Move From" bookmark exists.<br>• If this control word and its corresponding bookmark end control word (**\mvfml**) occur without a matching "Move To" bookmark (**\mvtof** and **\mvtol**), then moved content in this move location shall be treated as if it has been marked as deleted instead of moved.<br>The control word and the bookmark tag are followed by the binary representation of a 6-byte structure containing the move author (the first two bytes, little-endian representation; corresponds to the same value as the one used with the **\mvauth*N*** control word) and the date/time of the move (see the DTTM bit field structure).<br>For example, in the RTF fragment below, 0100768baa46 specifies 0x0001 for the author and 0x46aa8b76 for the date/time, which corresponds to Tue 2006-10-17 13:54).<br><br>{*\mvfmf move148856603 0100768baa46} |
| *\mvfml | Signifies the end of a "Move From" bookmark. The bookmark's tag is used to link this control word with the corresponding start of the "Move From" bookmark (**\mvfmf** )in the document and with the corresponding "Move To" bookmark (**\mvtof** and **\mvtol**).<br>The following restrictions are applied to the use of this control word:<br>• If this control word occurs without a corresponding **\mvfmf** control word with a matching tag, then it shall be ignored and no "Move From" bookmark exists.<br>• If this control word and its corresponding bookmark start control word occur without a matching "Move To" bookmark (**\mvtof** and **\mvtol**), then moved content in this move location shall be treated as if it has been deleted instead of moved. |
| *\mvtof | Signifies the start of the "Move To" bookmark. The bookmark's tag is used to link this control word with the corresponding end of the "Move To" bookmark (**\mvtol**) in the document and with the corresponding "Move From" bookmark (**\mvfmf** and **\mvfml**).<br>The following restrictions are applied to the use of this control word<br>• If this control word occurs without a corresponding **\mvtol** control word with a matching tag, then it shall be ignored and no "Move To" bookmark exists.<br>• If this control word and its corresponding bookmark end control word occur without a matching "Move From" bookmark (**\mvfmf** and **\mvfml**), then moved content in this move location shall be treated as if it has been marked as inserted instead of moved.<br>The control word and the bookmark tag are followed by the binary representation of a 6-byte structure containing the move author (the first two bytes, little-endian representation; corresponds to the same value as the one used with the **\mvauth*N*** control word) and the date/time of the move (see the DTTM bit field structure).<br>For example, in the RTF fragment below, `0100768baa46` specifies 0x0001 for the author and 0x46aa8b76 for the date/time, which corresponds to Tue 2006-10-17 13:54).<br><br>`{\*\mvtof move148856603 0100768baa46}` |
| *\mvtol | Signifies the end of a "Move To" bookmark. The bookmark's tag is used to link this control word with the corresponding start of the "Move To" bookmark (**\mvtof**) in the document and with the corresponding "Move From" bookmark (**\mvfmf** and **\mvfml**).<br>The following restrictions are applied to the use of this control word:<br>• If this control word occurs without a corresponding **\mvtof** control word with a matching tag, then it shall be ignored and no "Move To" bookmark exists.<br>• If this control word and its corresponding bookmark start control word occur without a matching "Move From" bookmark (**\mvfmf** and **\mvfml**), then moved content in this move location shall be treated as if it has been inserted instead of moved. |

## Protection Exceptions

This destination may specify one of two control words: ***\protstart**, which indicates the start of the specified protection-exception range, and ***\protend**, which indicates the end of the range.

Protection exceptions have the following syntax:

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| | |
|---|---|
| <protexcept> | <protstart> \| <protend> |
| <protstart> | '{*' **\protstart** #PCDATA '}' |
| <protend> | '{*' **\protend** #PCDATA '}' |

| Control word | Meaning |
|---|---|
| \protstart | Denotes the start of a section exempted from doc protection. The data that follows it is an encoding of the user name. |
| \protend | Denotes the end of a section exempted from doc protection |

The following is an example of protected ranges:

```
\par \hich\af0\dbch\af11\loch\f0 This is {\*\protstart 0300010003000000}\hich\af0\dbch\af11\loch\f0
SECTION 2.
\par {\*\protstart 0200010004000000}\hich\af0\dbch\af11\loch\f0 This is SECTI{\*\protend
0300010003000000}\hich\af0\dbch\af11\loch\f0 ON 3.
\par \hich\af0\dbch\af11\loch\f0 This is SECTION 3.
\par \hich\af0\dbch\af11\loch\f0 This is SECTION 3.
\par \hich\af0\dbch\af11\loch\f0 This is SECTIO\hich\af0\dbch\af11\loch\f0 N 3{\*\protend
0200010004000000}
```

## Pictures

An RTF file can include pictures created with other applications. These pictures can be in hexadecimal (the default) or binary format. Pictures are destinations and begin with the **\pict** control word. The **\pict** keyword is preceded by the ***\shppict** destination control keyword as described in the following example. A picture destination has the following syntax:

| | |
|---|---|
| <pict> | '{' **\pict** (<pictdata> \| <shpdata>) '}' |
| <pictdata> | (<brdr>? & <shading>? & <picttype> & <pictsize> & <metafileinfo>?) <data> |
| <picttype> | **\emfblip \| \pngblip \| \jpegblip \| \macpict \| \pmmetafile*N* \| \wmetafile*N* \| \dibitmap*N*** <bitmapinfo> \| **\wbitmap*N*** <bitmapinfo> |
| <bitmapinfo> | **\wbmbitspixel** & **\wbmplanes** & **\wbmwidthbytes** |
| <pictsize> | (**\picw*N*** & **\pich*N***) **\picwgoal**? & **\pichgoal**? **\picscalex**? & **\picscaley**? & **\picscaled**? & **\piccropt**? & **\piccropb**? & **\piccropr**? & **\piccropl**? |
| <metafileinfo> | **\picbmp** & **\picbpp*N*** |
| <data> | (**\bin*N*** #BDATA) \| #SDATA |
| <shpdata> | '{*' **\picprop \shplid*N***? <shpprop>+ '}' |
| <shpprop> | '{' **\sp** '{' **\sn** <shpname> '}{' **\sv** <shpvalue> '}}' |
| <shpname> | #PCDATA |
| <shpvalue> | #BDATA |

These control words are described in the following table. Some measurements in this table are in twips. A twip is one-twentieth of a point.

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| Control word | Meaning |
|---|---|
| \emfblip | Source of the picture is an EMF (enhanced metafile). |
| \pngblip | Source of the picture is a PNG. |
| \jpegblip | Source of the picture is a JPEG. |
| \shppict | Specifies a Word 97 through Word 2002 picture. This is a destination control word. |
| \nonshppict | Specifies that Word 97 through Word 2002 has written a {\pict destination that it will not read on input. This keyword is for compatibility with other readers. |
| \macpict | Source of the picture is QuickDraw. |
| \pmmetafile*N* | Source of the picture is an OS/2 metafile. The ***N*** argument identifies the metafile type. The ***N*** values are described in the **\pmmetafile*N*** table further on in this section. |
| \wmetafile*N* | Source of the picture is a Windows metafile. The ***N*** argument identifies the metafile mapping mode (the default type is 1, which is MM_TEXT). |
| \dibitmap*N* | Source of the picture is a Windows device-independent bitmap. The ***N*** argument identifies the bitmap type, which must equal 0.<br>The information to be included in RTF from a Windows device-independent bitmap is the concatenation of the BITMAPINFO structure followed by the actual pixel data. |
| \wbitmap*N* | Source of the picture is a Windows device-dependent bitmap. The ***N*** argument identifies the bitmap type (must equal 0).<br>The information to be included in RTF from a Windows device-dependent bitmap is the result of the **GetBitmapBits** function. |

The following is an example of the **\shppict** group:

```
{\*\shppict {\pict \emfblip …}}{\nonshppict {\pict …}}
```

For best device-independence and interoperability with Microsoft products, use of the **\wbitmap*N*** and **\dibitmap*N*** control words is discouraged. Rather, bitmaps should be embedded within Windows metafiles and the **\wmetafile*N*** control word should be used. For more information on the **GetDIBits** and **GetBitmapBits** functions, the structure of Windows device-independent and device-dependent bitmaps, and information on embedding bitmaps within metafiles, see *The GDI Bitmap Reference* section in MSDN. The following table outlines picture control keywords:

| Control word | Meaning |
|---|---|
| **Bitmap Information** | |
| \wbmbitspixel*N* | Number of adjacent color bits on each plane needed to define a pixel. Possible values are 1 (monochrome), 4 (16 colors), 8 (256 colors) and 24 (**RGB**). The default value is 1. |
| \wbmplanes*N* | Number of bitmap color planes (must equal 1). |
| \wbmwidthbytes*N* | Specifies the number of bytes in each raster line. This value must be an even number because the Windows Graphics Device Interface (GDI) assumes that the bit values of a bitmap form an array of integer (two-byte) values. In other words, **\wbmwidthbytes** multiplied by 8 must be the next multiple of 16 greater than or equal to the **\picw** (bitmap width in pixels) value. |
| **Picture Size, Scaling, and Cropping** | |
| \picw*N* | *xExt* field if the picture is a Windows metafile; picture width in pixels if the picture is a bitmap or from QuickDraw. The ***N*** argument is a long integer. |
| \pich*N* | *yExt* field if the picture is a Windows metafile; picture height in pixels if the picture is a bitmap or from QuickDraw. The ***N*** argument is a long integer. |
| \picwgoal*N* | Desired width of the picture in twips. The ***N*** argument is a long integer. |
| \pichgoal*N* | Desired height of the picture in twips. The ***N*** argument is a long integer. |

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| Control word | Meaning |
|---|---|
| \picscalex*N* | Horizontal scaling value. The ***N*** argument is a value representing a percentage (default is 100 percent). |
| \picscaley*N* | Vertical scaling value. The ***N*** argument is a value representing a percentage (default is 100 percent). |
| \picscaled | Scales the picture to fit within the specified frame. Used only with **macpict** pictures. |
| \picprop | Indicates there are shape properties applied to an inline picture. This is a destination control word. |
| \defshp | Indicates that the inline picture is a WordArt shape. |
| \piccropt*N* | Top cropping value in twips. A positive value crops toward the center of the picture; a negative value crops away from the center, adding a space border around the picture (the default value is 0). |
| \piccropb*N* | Bottom cropping value in twips. A positive value crops toward the center of the picture; a negative value crops away from the center, adding a space border around the picture (the default value is 0). |
| \piccropl*N* | Left cropping value in twips. A positive value crops toward the center of the picture; a negative value crops away from the center, adding a space border around the picture (the default value is 0). |
| \piccropr*N* | Right cropping value in twips. A positive value crops toward the center of the picture; a negative value crops away from the center, adding a space border around the picture (the default value is 0). |
| **Metafile Information** | |
| \picbmp | Specifies whether a metafile contains a bitmap. |
| \picbpp*N* | Specifies the bits per pixel in a metafile bitmap. The valid range is 1 through 32, with 1, 4, 8, and 24 being recognized. |
| **Picture Data** | |
| \bin*N* | The picture is in binary format. The numeric parameter ***N*** is the number of bytes that follow. Unlike most other control words, **\bin*N*** takes a 32-bit parameter and the bytes are any 8-bit values. |
| \blipupi*N* | ***N*** represents units per inch on a picture (only certain image types need or output this) |
| \blipuid | Destination of the form '{*' **\blipuid** *XXXX* '}' where *XXXX* is a 16-byte identification number for the image. |
| \bliptag*N* | A unique identifier for a picture, where ***N*** is a 32-bit signed integer value. |

The **\wbitmap*N*** control word is optional. If no other picture type is specified, the picture is assumed to be a Windows bitmap. If **\wmetafile*N*** is specified, the ***N*** argument can be one of the following Windows mapping modes:

| Type | *N* argument |
|---|---|
| MM_TEXT | 1 |
| MM_LOMETRIC | 2 |
| MM_HIMETRIC | 3 |
| MM_LOENGLISH | 4 |
| MM_HIENGLISH | 5 |
| MM_TWIPS | 6 |
| MM_ISOTROPIC | 7 |
| MM_ANISOTROPIC | 8 |

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If **\pmmetafile*N*** is specified, the ***N*** argument can be one of the following types.

| Type | *N* argument |
|---|---|
| PU_ARBITRARY | 0x0004 |
| PU_PELS | 0x0008 |
| PU_LOMETRIC | 0x000C |
| PU_HIMETRIC | 0x0010 |
| PU_LOENGLISH | 0x0014 |
| PU_HIENGLISH | 0x0018 |
| PU_TWIPS | 0x001C |

Be careful with spaces following control words when dealing with pictures in binary format. When reading files, RTF considers the first space after a control word to be the delimiter and subsequent spaces part of the document text. Therefore, any extra spaces are attached to the picture, with unpredictable results.

RTF writers should not use the carriage return/line feed (CR/LF) combination to break up pictures in binary format. If they do, the CR/LF combination is treated as literal text and considered part of the picture data.

The picture in hexadecimal or binary format follows the picture-destination control words. The following example illustrates the destination format:

```
{\pict\wbitmap0\picw170\pich77\wbmbitspixel1\wbmplanes1\wbmwidthbytes22

\picwgoal505

\pichgoal221

\picscalex172

\picscaley172

49f2000000000273023d1101a030

3901000a000000000273023d98

0048000200000275

02040000200010275023e000000000

273023d000002b90002b90002

b90002b90002b9

0002b90002b90002b90002b90002b90002

b92222b90002b90002b90

002b90002b9

0002b90002b90002b90002b9000
```

## Custom XML Tags

Custom XML Tags and Smart Tags provide a facility for embedding customer-defined semantics into the document by using the ability to provide a basic namespace or name for a run or set of runs in a document. For example, an invoice document may wish to specify that a particular sentence of text is a customer name, in order for that information to be easily extracted from the document without the need to parse the text using regular expression matching or similar

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technique. For such scenarios, multiple facilities are provided for the insertion and round-tripping of customer defined semantics within a document. RTF supports two distinct forms in which customer-defined semantics can be inserted into a document, each with its own specific intended usage:

- Smart tags, which provide a basic namespace/name for a run or set of runs within a document
- Custom XML markup, which provides the ability to tag the document with XML elements and attributes specified by any valid XML Schema file.

The following table lists the keywords that have been added to convert Custom XML Tags data to RTF.

| | |
|---|---|
| <xmltagopen> | '{*' **\xmlopen \xmlns*N*** <xmltagtype><xmltagname><xmlattr>* '}' |
| <xmltagtype> | **\xmlsdttunknown** \| **\xmlsdttregular** \| **\xmlsdttpara** \| **\xmlsdttcell** \| **\xmlsdttrow** \| **\xmlattr** |
| <xmltagname> | '{' **\xmlname** #PCDATA '}' |
| <xmlattr> | '{' **\xmlattr** <xmlattrns><xmlattrname><xmlattrvalue> '}' |
| <xmlattrns> | **\xmlattrnsN** |
| <xmlattrname> | **\xmlattrname** #PCDATA |
| <xmlattrvalue> | **\xmlattrvalue** #PCDATA |
| <xmltagclose> | '{*' **\xmlclose** '}' |

For example:

```
{\*\xmlopen\xmlns2\xmlsdttpara{\xmlname Book}}}{\rtlch\fcs1 \af0 \ltrch\fcs0
\insrsid1978110 \hich\af0\dbch\af11\loch\f0 Classic}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid136785
\par }{\rtlch\fcs1 \af0 \ltrch\fcs0 \insrsid136785
{\*\xmlopen\xmlns0\xmlsdttpara{\xmlname Title}}}{\rtlch\fcs1 \af0 \ltrch\fcs0
\insrsid1978110 \hich\af0\dbch\af11\loch\f0 Atlas Shrugged}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid136785 {\*\xmlclose}}{\rtlch\fcs1 \af0 \ltrch\fcs0
\insrsid136785
\par }{\rtlch\fcs1 \af0 \ltrch\fcs0 \insrsid136785
{\*\xmlopen\xmlns0\xmlsdttpara{\xmlname Author}}
{\*\xmlopen\xmlns0\xmlsdttregular{\xmlname FirstName}}}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid1978110 \hich\af0\dbch\af11\loch\f0 Ann }{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid136785 {\*\xmlclose}
{\*\xmlopen\xmlns0\xmlsdttregular{\xmlname LastName}}}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid1978110 \hich\af0\dbch\af11\loch\f0 Ryan}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid136785 {\*\xmlclose}{\*\xmlclose}}{\rtlch\fcs1 \af0
\ltrch\fcs0 \insrsid136785
\par }{\rtlch\fcs1 \af0 \ltrch\fcs0 \insrsid136785 {\*\xmlclose}}
```

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The following table lists the XML Tag control words:

| Control word | Meaning |
|---|---|
| *\xmlopen | Specifies the beginning of the given XML Tag. |
| \xmlns*N* | Specifies the namespace of the given XML Tag. |
| \xmlname | Specifies the name of the given XML Tag. |
| \xmlattrns*N* | Specifies the namespace of an attribute of the given XML Tag. |
| \xmlattrvalue | Specifies the value of an attribute of the given XML Tag. |
| \xmlattrname | Specifies the name of an attribute of the given XML Tag. |
| *\xmlclose | Specifies the ending of the given XML Tag. |
| \ xmlsdttunknown | Specifes the type of the XML Tag as unknown. |
| \xmlsdttpara | Specifes the type of the XML Tag as encapsulating a paragraph. |
| \xmlsdttcell | Specifes the type of the XML Tag as encapsulating a cell in a table. |
| \xmlsdttrow | Specifes the type of the XML Tag as encapsulating a row in a table. |
| \xmlsdttregular | Specifes the type of the XML Tag as regular (not encapsulating paragraphs, cells, or rows). |
| \xmlattr | Specifies an attribute of the given XML Tag. |

## SmartTag Data

Smart Tags provide a facility for embedding customer-defined semantics into the document by using the ability to provide a basic namespace or name for a run or set of runs in a document.

The following table lists the keywords that have been added to convert Smart Tags data to RTF.

| | |
|---|---|
| <smarttagopen> | '{*' **\xmlopen** **xmlns*N*** <smarttagname><xmlattr>* '}' |
| <smarttagname> | '{' **\factoidname** #PCDATA '}' |
| <xmlattr> | '{' **\xmlattr** **xmlattrns*N*** <xmlattrname><xmlattrvalue> '}' |
| <xmlattrname> | **\xmlattrname** #PCDATA |
| <xmlattrvalue> | **\xmlattrvalue** #PCDATA |
| <smarttagclose> | '{*' **\xmlclose** '}' |
| \factoidname | Specifies the name of the given SmartTag. |

The **\xml**... control words are described in the (previous) section on Custom XML Tags.

For example:

```
{\*\xmlopen\xmlns2{\factoidname date} {\xmlattr\xmlattrns0{\xmlattrname Month}{\xmlattrvalue 4}}
{\xmlattr\xmlattrns0{\xmlattrname Day}{\xmlattrvalue 11}} {\xmlattr\xmlattrns0{\xmlattrname
Year}{\xmlattrvalue 2006}}}4/11/2006} {\*\xmlclose}
```

## Custom XML Data Properties

This control word specifies the properties for the custom XML parts inside an RTF file. For additional information on custom XML parts, please reference the Office Open XML section on the element "datastoreItem".

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On Windows, custom XML parts may be saved to RTF as follows: The custom xml parts are written to an **IStorage** interface that is then stamped with the following CLSID: CLSID_SAXXMLReader50. The system call **OleConvertIStorageToOLESTREAM** is then used to flatten the **IStorage** that is then hex-encoded and written to the RTF stream. On other platforms, the custom data would be "flattened" using equivalent system functions. The format of the flattened data is unknown to RTF. Please refer to the documentation for the custom XML parts involved for definitions of the flattened data.

Custom XML parts can be loaded from RTF by decoding them and then using the **OleConvertOLESTREAMToIStorage** system call to convert the flattened stream in RTF to an **IStorage**.

The syntax of Custom XML Data Properties is:

| | |
|---|---|
| <datastore> | '{*' **\datastore** #SDATA '}' |

## Objects

Microsoft OLE links, Microsoft OLE embedded objects, and Macintosh Edition Manager subscriber objects are represented in RTF as objects. Objects are destinations that contain data and a result. The data is generally hidden to the application that produced the document. A separate application uses the data and supplies the appearance of the data. This appearance is the result of the object.

The representation of objects in RTF is designed to allow RTF readers that do not understand objects, or do not use a particular type of object, to use the current result in place of the object. This allows the appearance of the object to be maintained through the conversion even though the object functionality is lost. Each object comes with optional information about itself, a required destination that contains the object data, and an optional result that contains the current appearance of the object. This result contains standard RTF. The RTF writer is responsible for providing the result so that existing RTF readers that do not support objects, or do not support a particular type of object, are able to display the object.

When the object is an OLE embedded or linked object, the data part of the object is the structure produced by the **OLESaveToStream** function. Some OLE clients rely on the OLE system to render the object when a copy of the result is not available to the RTF writer for that application. In these cases, the object result can be extracted from the structure produced by the **OLESaveToStream** function. For information about the **OLESaveToStream** function, see the Microsoft Object Linking and Embedding Software Development Kit.

This destination has the following syntax:

| | |
|---|---|
| <obj> | ('{' **\object** (<objtype> & <objmod>? & <objclass>? & <objname>? & <objtime>? & <objsize>? & <rsltmod>?) <objclsid> ? <objdata> <result> '}' ) \| <pubobject> |
| <objtype> | **\objemb** \| **\objlink** \| **\objautlink** \| **\objsub** \| **\objpub** \| **\objicemb** \| **\objhtml** \| **\objocx** |
| <objmod> | **\linkself**? & **\objlock**? \| **\objupdate**? |
| <objclass> | '{*' **\objclass** #PCDATA '}' |
| <objname> | '{*' **\objname** #PCDATA '}' |
| <objtime> | '{*' **\objtime** <time> '}' |
| <rsltmod> | **\rsltmerge**? & <rslttype>? |
| <rslttype> | **\rsltrtf \| \rslttxt \| \rsltpict \| \rsltbmp \| \rslthtml** |
| <objsize> | **\objsetsize**? & **\objalign*N***? & **\objtransy*N***? & <objhw>? & **\objcropt*N***? & **\objcropb*N***? & **\objcropl*N***? & **\objcropr*N***? & **\objscalex*N***? & **\objscaley*N***? |
| <objhw> | **\objh*N*** & **\objw*N*** |
| <objclsid> | '{*' **\oleclsid** #PCDATA '}' |

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| | |
|---|---|
| <objdata> | '{*' **\objdata** (<objalias>? & <objsect>?) <data> '}' |
| <objalias> | '{*' **\objalias** <data> '}' |
| <objsect> | '{*' **\objsect** <data> '}' |
| <result> | '{' **\result** <para>+ '}' |

These control words are described in the following table.

| Control word | Meaning |
|---|---|
| **Object Type** | |
| \objemb | An object type of OLE embedded object. If no type is given for the object, the object is assumed to be of type **\objemb**. |
| \objlink | An object type of OLE link. |
| \objautlink | An object type of OLE autolink. |
| \objsub | An object type of Macintosh Edition Manager subscriber. |
| \objpub | An object type of Macintosh Edition Manager publisher. |
| \objicemb | An object type of MS Word for the Macintosh Installable Command (IC) Embedder. |
| \objhtml | An object type of Hypertext Markup Language (HTML) control. |
| \objocx | An object type of OLE control. |
| **Object Information** | |
| \linkself | The object is a link to another part of the same document. |
| \objlock | Locks the object from any updates. |
| \objupdate | Forces an update to the object before displaying it. Note that this will override any values in the <objsize> control words, but values should always be provided for these to maintain backward compatibility. |
| \objclass | The text argument is the object class to use for this object; ignore the class specified in the object data. This is a destination control word. |
| \objname | The text argument is the name of this object. This is a destination control word. |
| \objtime | Lists the time that the object was last updated. |
| **Object Size, Position, Cropping, and Scaling** | |
| \objh*N* | ***N*** is the original object height in twips, assuming the object has a graphical representation. |
| \objw*N* | ***N*** is the original object width in twips, assuming the object has a graphical representation. |
| \objsetsize | Forces the object server to set the object's dimensions to the size specified by the client. |
| \objalign*N* | ***N*** is the distance in twips from the left edge of the objects that should be aligned on a tab stop. This is needed to place Equation Editor equations correctly. |
| \objtransy*N* | ***N*** is the distance in twips the objects should be moved vertically with respect to the baseline. This is needed to place Math Type equations correctly. |
| \objcropt*N* | ***N*** is the top cropping value in twips. |
| \objcropb*N* | ***N*** is the bottom cropping value in twips. |
| \objcropl*N* | ***N*** is the left cropping value in twips. |
| \objcropr*N* | ***N*** is the right cropping value in twips. |
| \objscalex*N* | ***N*** is the horizontal scaling percentage. |
| \objscaley*N* | ***N*** is the vertical scaling percentage. |

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| Control word | Meaning |
|---|---|
| **Object Class ID** | |
| \oleclsid | This sub-destination contains the CLSID for an object for which no server is registered on the computer saving the given RTF file.<br>When reading an RTF file, if this destination is present, then readers should know to save the CLSID specified by the destination's argument, and stamp the next object that comes in the RTF stream with the specified CLSID.<br>When writing an RTF file, this destination may be instantiated for objects for which no server is registered. This destination's argument shall be constructed as follows:<br>1. Take the object's original CLSID<br>2. Write the CLSID as the argument for **\oleclsid**<br>3. Stamp the object with CLSID_SAXXMLReader50<br>4. Write the object in the **\objdata** destination<br>**Note:** If a reader ignores this destination but uses the corresponding **\objdata** destination, then it will end up with an object that believes it is a SAX XML Reader 5.0 object, even though it may be something else. |
| **Object Data** | |
| \objdata | This sub-destination contains the data for the object in the appropriate format; OLE objects are in **OLESaveToStream** format. This is a destination control word. |
| \objalias | This sub-destination contains the alias record of the publisher object for the Macintosh Edition Manager. This is a destination control word. |
| \objsect | This sub-destination contains the section record of the publisher object for the Macintosh Edition Manager. This is a destination control word. |
| **Object Result** | |
| \rsltrtf | Forces the result to be RTF, if possible. |
| \rsltpict | Forces the result to be a Windows metafile or MacPict image format, if possible. |
| \rsltbmp | Forces the result to be a bitmap, if possible. |
| \rslttxt | Forces the result to be plain text, if possible. |
| \rslthtml | Forces the result to be HTML, if possible. |
| \rsltmerge | Uses the formatting of the current result whenever a new result is obtained. |
| \result | The result destination is optional in the **\object** destination. The result destination contains the last update of the result of the object. The data of the result destination should be standard RTF. This allows RTF readers that do not understand objects or the type of object represented to use the current result, in place of the object, to maintain appearance. This is a destination control word. |

When Word or RichEdit is used as an editor for e-mail, the following control word can be emitted. Otherwise, it is not seen.

| Control word | Meaning |
|---|---|
| \objattph | Object attachment placeholder. Used in the RTF stream when Word or RichEdit is used as an e-mail editor and the message contains attachments. The control word marks where in the text stream the next attachment should appear. It does not define the actual attachment. Following the control word, a space (\'20) is inserted to act as a placeholder for the attachment. |

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## Macintosh Edition Manager Publisher Objects

Word for the Macintosh writes publisher objects for the Macintosh Edition Manager in terms of bookmarks (see the Bookmark section of this specification). The range of publisher objects are marked as bookmarks, so these controls are all used within the **\bkmkstart** destination. The RTF syntax for a publisher object is:

| | |
|---|---|
| <pubobject> | '{*' **\bkmkstart \bkmkpub \pubauto**? (<objalias>? & <objsect>) #PCDATA '}' |

These control words are described in the following table.

| Control word | Meaning |
|---|---|
| \bkmkpub | The bookmark identifies a Macintosh Edition Manager publisher object. |
| \pubauto | The publisher object updates all Macintosh Edition Manager subscribers of this object automatically, whenever it is edited. |

# Drawing Objects

### *Drawing Objects in Word 6.0/95 RTF*

Drawing objects and the drawing primitives enumerated within drawing object groups use the following syntax:

| | |
|---|---|
| <do> | '{*' **do** <dohead> <dpinfo> '}' |
| <dohead> | <dobx> <doby> <dodhgt> <dolock>? |
| <dobx> | **\dobxpage** \| **\dobxcolumn** \| **\dobxmargin** |
| <doby> | **\dobypage** \| **\dobypara** \| **\dobymargin** |
| <dodhgt> | **\dodhgt*N*** |
| <dolock> | **\dolock** |
| <dpinfo> | <dpgroup> \| <dpcallout> \| <dpsimple> |
| <dpgroup> | **\dpgroup \dpcount*N*** <dphead> <dpinfo>+ **\dpendgroup** <dphead> |
| <dpcallout> | **dpcallout** <cotype> <coangle>? <coaccent>? <cosmartattach>? <cobestfit>? <cominusx>? <cominusy>? <coborder>? <codescent>? **dpcooffset*N*** **dpcolength*N*** <dphead> <dppolyline> <dphead> <dpprops> <dptextbox> <dphead> <dpprops> |
| <dpsimple> | <dpsimpledpk> <dphead> <dpprops> |
| <dpsimpledpk> | <dpline> \| <dprect> \| <dptextbox> \| <dpellipse> \| <dppolyline> \| <dparc> |
| <dpline> | **dpline** <dppt> <dppt> |
| <dprect> | **\dprect** (**\dproundr**)? |
| <dptextbox> | **\dptxbx** (**\dptxlrtb** \| **\dptxtbrl** \| **\dptxbtlr** \| **\dptxlrtbv** \| **\dptxtbrlv**)? **\dptxbxmar*N*** '{' **\dptxbxtext** <para>+'}' |
| <dpellipse> | **\dpellipse** |
| <dparc> | **\dparc \dparcflipx**? **\dparcflipy**? |
| <dppolyline> | **\dppolyline** (**\dppolygon**)? **\dppolycount*N*** <dppt>+ |
| <dppt> | **\dpptx*N* \dppty*N*** |
| <dphead> | **\dpx*N* \dpy*N* \dpxsize*N* \dpysize*N*** |

**Note:** In <dpgroup> the number of <dpinfo> occurrences is equal to the argument of **\dpcount*N***. This means that in <dppolyline> the number of <dppt> occurrence is equal to the argument of **\dppolycount*N***.

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The following elements of the drawing-object syntax pertain specifically to callout objects:

| | |
|---|---|
| <cotype> | **\dpcotright** \| **\dpcotsingle** \| **\dpcotdouble** \| **\dpcottriple** |
| <coangle> | **\dpcoa** |
| <coaccent> | **\dpcoaccent** |
| <cosmartattach> | **\dpcosmarta** |
| <cobestfit> | **\dpcobestfit** |
| <cominusx> | **\dpcominusx** |
| <cominusy> | **\dpcominusy** |
| <coborder> | **\dpcoborder** |
| <codescent> | **\dpcodtop** \| **\dpcodcenter** \| **\dpcodbottom** \| **\dpcodabs** |

The remaining elements of the drawing object syntax are properties applied to individual drawn primitives. These remaining objects use the following syntax:

| | |
|---|---|
| <dpprops> | <lineprops>? <fillprops>? <endstylestart>? <endstyleend>? <shadow>? |
| <lineprops> | <linestyle> <linecolor> **dplinew*N*** |
| <linestyle> | **\dplinesolid** \| **\dplinehollow** \| **\dplinedash** \| **\dplinedot** \| **\dplinedado** \| **\dplinedadodo** |
| <linecolor> | <linegray> \| <linergb> |
| <linegray> | **\dplinegray** |
| <linergb> | **\dplinecor \dplinecog \dplinecob**<linepal>? |
| <linepal> | **\dplinepal** |
| <fillprops> | <fillcolorfg> <fillcolorbg> **dpfillpat*N*** |
| <fillcolorfg> | <fillfggray> \| <fillfgrgb> |
| <fillfggray> | **\dpfillfggray** |
| <fillfgrgb> | **\dpfillfgcr \dpfillfgcg \dpfillfgcb**<fillfgpal>? |
| <fillfgpal> | **\dpfillfgpal** |
| <fillcolorbg> | <fillbggray> \| <fillbgrgb> |
| <fillbggray> | **\dpfillbggray** |
| <fillbgrgb> | **\dpfillbgcr \dpfillbgcg \dpfillbgcb**<fillbgpal>? |
| <fillbgpal> | **\dpfillbgpal** |
| <endstylestart> | <arrowstartfill> **\dpastartl*N* \dpastartw*N*** |
| <arrowstartfill> | **\dpastartsol** \| **\dpastarthol** |
| <endstyleend> | <arrowendfill> **\dpaendl*N* \dpaendw*N*** |
| <arrowendfill> | **\dpaendsol** \| **\dpaendhol** |
| <shadow> | **\dpshadow \dpshadx \dpshady** |

The following table describes the control words for the drawing object group. All color values are **RGB** values from 0 through 255. All distances are in twips. All other values are as indicated.

| Control word | Meaning |
|---|---|
| \do | Indicates a drawing object is to be inserted at this point in the character stream. This is a destination control word. |

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| Control word | Meaning |
|---|---|
| \dolock | The drawing object's anchor is locked and cannot be moved. |
| \dobxpage | The drawing object is page relative in the x-direction. |
| \dobxcolumn | The drawing object is column relative in the x-direction. |
| \dobxmargin | The drawing object is margin relative in the x-direction. |
| \dobypage | The drawing object is page relative in the y-direction. |
| \dobypara | The drawing object is paragraph relative in the y-direction. |
| \dobymargin | The drawing object is margin relative in the y-direction. |
| \dodhgt*N* | The drawing object is positioned at the numeric position of the z-ordering. |
| **Drawing Primitives** | |
| \dpgroup | Begin group of drawing primitives. |
| \dpcount*N* | Number of drawing primitives in the current group. |
| \dpendgroup | End group of drawing primitives. |
| \dparc | Arc drawing primitive. |
| \dpcallout | Callout drawing primitive, which consists of both a polyline and a text box. |
| \dpellipse | Ellipse drawing primitive. |
| \dpline | Line drawing primitive. |
| \dppolygon | Polygon drawing primitive (closed polyline). |
| \dppolyline | Polyline drawing primitive. |
| \dprect | Rectangle drawing primitive. |
| \dptxbx | Text box drawing primitive. |
| **Position and Size** | |
| \dpx*N* | X-offset of the drawing primitive from its anchor. |
| \dpxsize*N* | X-size of the drawing primitive. |
| \dpy*N* | Y-offset of the drawing primitive from its anchor. |
| \dpysize*N* | Y-size of the drawing primitive. |
| **Callouts** | |
| \dpcoa*N* | Angle of callout's diagonal line is restricted to one of the following: 0, 30, 45, 60, or 90. If this control word is absent, the callout has an arbitrary angle, indicated by the coordinates of its primitives. |
| \dpcoaccent | Accent bar on callout (vertical bar between polyline and text box). |
| \dpcobestfit | Best fit callout (x-length of each line in callout is similar). |
| \dpcoborder | Visible border on callout text box. |
| \dpcodabs | Absolute distance-attached polyline. |
| \dpcodbottom | Bottom-attached polyline. |
| \dpcodcenter | Center-attached polyline. |
| \dpcodtop | Top-attached callout. |
| \dpcodescent*N* | Descent of the callout |
| \dpcolength*N* | Length of callout. |
| \dpcominusx | Text box falls in quadrants II or III relative to polyline origin. |
| \dpcominusy | Text box falls in quadrants III or IV relative to polyline origin. |
| \dpcooffset*N* | Offset of callout. This is the distance between the end of the polyline and the edge of the text box. |

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| Control word | Meaning |
|---|---|
| \dpcosmarta | Auto-attached callout. Polyline will attach to either the top or bottom of the text box depending on the relative quadrant. |
| \dpcotdouble | Double line callout. |
| \dpcotright | Right angle callout. |
| \dpcotsingle | Single line callout. |
| \dpcottriple | Triple line callout. |
| **Text Boxes and Rectangles** | |
| \dptxbxmar*N* | Internal margin of the text box. |
| \dptxbxtext | Group that contains the text of the text box. |
| \dptxlrtb | Text box flows from left to right and top to bottom (default). |
| \dptxtbrl | Text box flows from right to left and top to bottom. |
| \dptxbtlr | Text box flows from left to right and bottom to top. |
| \dptxlrtbv | Text box flows from left to right and top to bottom, vertically. |
| \dptxtbrlv | Text box flows from right to left and top to bottom, vertically. |
| \dproundr | Rectangle is a round rectangle. |
| **Lines and Polylines** | |
| \dpptx*N* | X-coordinate of the current vertex (only for lines and polylines). The coordinate order for a point must be x, y. |
| \dppty*N* | Y-coordinate of the current vertex (only for lines and polylines). The coordinate order for a point must be x, y. |
| \dppolycount*N* | Number of vertices in a polyline drawing primitive. |
| **Arcs** | |
| \dparcflipx | This indicates that the endpoint of the arc is to the right of the start point. Arcs are drawn counter-clockwise. |
| \dparcflipy | This indicates that the endpoint of the arc is below the start point. Arcs are drawn counter-clockwise. |
| **Line Style** | |
| \dplinecob*N* | Blue value for line color. |
| \dplinecog*N* | Green value for line color. |
| \dplinecor*N* | Red value for line color. |
| \dplinepal | Render line color using the **PALETTERGB** macro instead of the **RGB** macro in Windows. |
| \dplinedado | Dash-dotted line style. |
| \dplinedadodo | Dash-dot-dotted line style. |
| \dplinedash | Dashed line style. |
| \dplinedot | Dotted line style. |
| \dplinegray*N* | Grayscale value for line color (in half-percentages). |
| \dplinehollow | Hollow line style (no line color). |
| \dplinesolid | Solid line style. |
| \dplinew*N* | Thickness of line (in twips). |
| **Arrow Style** | |
| \dpaendhol | Hollow end arrow (lines only). |

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| Control word | Meaning |
|---|---|
| \dpaendl*N* | Length of end arrow, relative to pen width:<br>1 Small<br>2 Medium<br>3 Large |
| \dpaendsol | Solid end arrow (lines only). |
| \dpaendw*N* | Width of end arrow, relative to pen width:<br>1 Small<br>2 Medium<br>3 Large |
| \dpastarthol | Hollow start arrow (lines only). |
| \dpastartl*N* | Length of start arrow, relative to pen width:<br>1 Small<br>2 Medium<br>3 Large |
| \dpastartsol | Solid start arrow (lines only). |
| \dpastartw*N* | Width of start arrow, relative to pen width:<br>1 Small<br>2 Medium<br>3 Large |
| **Fill Pattern** | |
| \dpfillbgcb*N* | Blue value for background fill color. |
| \dpfillbgcg*N* | Green value for background fill color. |
| \dpfillbgcr*N* | Red value for background fill color. |
| \dpfillbgpal | Render fill background color using the **PALETTERGB** macro instead of the **RGB** macro in Windows. |
| \dpfillbggray*N* | Grayscale value for background fill (in half-percentages). |
| \dpfillfgcb*N* | Blue value for foreground fill color. |
| \dpfillfgcg*N* | Green value for foreground fill color. |
| \dpfillfgcr*N* | Red value for foreground fill color. |
| \dpfillfgpal | Render fill foreground color using the **PALETTERGB** macro instead of the **RGB** macro in Windows. |
| \dpfillfggray*N* | Grayscale value for foreground fill (in half-percentages). |
| \dpfillpat*N* | Index into a list of fill patterns. See the fill pattern table that follows for list. |
| **Shadow** | |
| \dpshadow | Current drawing primitive has a shadow. |
| \dpshadx*N* | X-offset of the shadow. |
| \dpshady*N* | Y-offset of the shadow. |

The following values are available for specifying fill patterns in drawing objects with the **\dpfillpat*N*** control word.

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| Value | Fill pattern |
|---|---|
| 0 | Clear (no pattern) |
| 1 | Solid (100%) |
| 2 | 5% |
| 3 | 10% |
| 4 | 20% |
| 5 | 25% |
| 6 | 30% |
| 7 | 40% |
| 8 | 50% |
| 9 | 60% |
| 10 | 70% |
| 11 | 75% |
| 12 | 80% |
| 13 | 90% |
| 14 | Dark horizontal lines |
| 15 | Dark vertical lines |
| 16 | Dark left-diagonal lines (\\\) |
| 17 | Dark right-diagonal lines (///) |
| 18 | Dark gridlines |
| 19 | Dark trellis lines |
| 20 | Light horizontal lines |
| 21 | Light vertical lines |
| 22 | Light left-diagonal lines (\\\) |
| 23 | Light right-diagonal lines (///) |
| 24 | Light gridlines |
| 25 | Light trellis lines |

## Word 97 Through Word 2007 RTF for Drawing Objects (Shapes)

### *Basic Format*

The basic syntax for drawing objects in RTF is as follows:

| | |
|---|---|
| <shape> | '{' **\shp** <shpinfo> <shpinst> <shprslt> '}' |
| <shpinfo> | **\shplefta***N*? **\shptop***N*? **\shpbottom***N*? **\shpright***N*? **\shplid***N*? **\shpz***N*? **\shpfhdr***N*? **\shpbxpage** ? **\shpbxmargin** ? **\shpbxcolumn**? **\shpbxignore**? **\shpbypage** ? **\shpbymargin** ? **\shpbypara**? **\shpbyignore**? **\shpwr***N*? **\shpwrk***N*? **\shpfblwtxt***N*? **\shplockanchor**? **\shptxt**? |
| <shpinst> | '{*' **\shpinst** <sp>+ '}' |
| <sp> | '{' **\sp** <sn> <sv> <hsv>? '}' |
| <sn> | '{' **\sn** ... '}' |
| <sv> | '{' **\sv** ... '}' |
| <shprslt> | '{*' **\shprslt** ... '}' |

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| | |
|---|---|
| <hsv> | '{*' **\hsv** <accent> & **\ctint*N*** & **\cshade*N*** '}' |
| <accent> | **\caccentone** \| **\caccenttwo** \| **\caccentthree** \| **\caccentfour** \| **\caccentfive** \| **\caccentsix** |

The first destination (**\shp**) is always present. This control word groups everything related to a shape together. Following the destination change is basic information regarding the shape. The following keywords with values can appear in any order after the "{**\shp**" control word.

| Control word | Meaning |
|---|---|
| **Shape Keywords** | |
| \shplefto*N* | Specifies position of shape from the left of the anchor. The value ***N*** is in twips. |
| \shptop*N* | Specifies position of shape from the top of the anchor. The value ***N*** is in twips. |
| \shpbottom*N* | Specifies position of shape from the bottom of the anchor. The value ***N*** is in twips. |
| \shpright*N* | Specifies position of shape from the right of the anchor. The value ***N*** is in twips. |
| \shplid*N* | A number that is unique to each shape. This keyword is primarily used for linked text boxes. The value ***N*** is a long integer. |
| \shpz*N* | Describes the z-order of the shape. It starts at 0 for the shape that is furthest from the top, and proceeds to the top most shape (***N***). The shapes that appear inside the header document will have a separate z-order, compared to the z-order of the shapes in the main document. For instance, both the back-most shape in the header and the back-most main-document shape will have a z-order of 0. |
| \shpfhdr*N* | Set to 0 if the shape is in the main document. Set to 1 if the shape is in the header document. |
| \shpbxpage | The shape is positioned relative to the page in the x (horizontal) direction. |
| \shpbxmargin | The shape is positioned relative to the margin in the x (horizontal) direction. |
| \shpbxcolumn | The shape is positioned relative to the column in the x (horizontal) direction. |
| \shpbxignore | Ignore **\shpbxpage**, **\shpbxmargin**, and **\shpbxcolumn**, in favor of the posrelh property. The ignored properties will be written for backward compatibility with older readers that do not understand **\posrelh**. |
| \shpbypage | The shape is positioned relative to the page in the y (vertical) direction. |
| \shpbymargin | The shape is positioned relative to the margin in the y (vertical) direction. |
| \shpbypara | The shape is positioned relative to the paragraph in the y (vertical) direction. |
| \shpbyignore | Ignore **\shpbypage**, **\shpbymargin**, and **\shpbxpara**, in favor of the posrelh property. The ignored properties will be written for backward compatibility with older readers that do not understand the posrelh property. |
| \shpwr*N* | Describes the type of wrap for the shape:<br>1 Wrap around top and bottom of shape (no text allowed beside shape)<br>2 Wrap around shape<br>3 None (wrap as if shape isn't present)<br>4 Wrap tightly around shape<br>5 Wrap text through shape |
| \shpwrk*N* | Wrap on side (for types 2 and 4 for **\shpwr*N*** ):<br>0 Wrap both sides of shape<br>1 Wrap left side only<br>2 Wrap right side only<br>3 Wrap only on largest side |

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| Control word | Meaning |
|---|---|
| \shpfblwtxt*N* | Describes relative z-ordering:<br>0 Text is below shape<br>1 Shape is below text |
| \shplockanchor | Lock anchor for a shape. |
| \shptxt | Text for a shape. The text must follow all of the other properties for the shape (inside the **\shpinst** destination) and must appear in the following format:<br>{\shptxt Any valid RTF for the current text box }<br>**Note** For linked text boxes, the first text box of the linked set has the entire story, so all following text boxes will not have a **\shptxt** field. |
| \shpinst | Shape instruction destination containing the shape description |
| \shprslt | This is where the Word 6.0 and Word 95 drawn object RTF can be placed. |
| \shpgrp | Specifies a group shape. The parameters following this keyword are the same as those following **\shp**. The order of the shapes inside a group is from bottom to top in z-order.<br>Inside a **\shpgrp**, no {\shprslt …} fields would be generated (that is, only the root-level shape can have a **\shprslt** field (this field describes the entire group). For example:<br>{\shpgrp … {\shp … (and all sub-items as usual) }<br>{\shp … (and all sub-items as usual) }<br>**Note** {\shpgrp …} can be substituted for {\shp …} to create groups inside groups. |
| \sn | Destination for a drawing property name (see table in Drawing Object Properties) |
| \sp | Destination for a drawing property and takes a '{' \sn…'}{' \sv…'}' group pair. |
| \sv | Destination for a drawing property value |
| \svb | Destination containing binary ink information. Used within the value of the **pInkData** property:<br>Example:<br>{\sp{\sn pInkData}{\sv {*\svb00ad021d04ba06dc02012000680c0000000000c00000000000004658cf548ae697c54f8f06f8bad2e19b22032164063e80440ff00000481144ff0145351b0200adff46351b0200adff570d0000000503380b65191f320800b07102e4d4c44333090096970102a0d6c443380800fe03000000807f15673d33406d3a33400 }} |
| \hsv | Destination for theme color information. |

With the exception of **\shplid*N*,** the control words listed in the preceding table do not apply for shapes that are within a group. For more information about groups, see the Introduction section of this specification.

## Drawing Object Properties

The bulk of a drawing object is defined as a series of properties. The `{\shp …` control word is followed by `{\*\shpinst`, followed, in turn, by a list of all the properties of a shape. Each of the properties is in the following format:

```
{\sp{\sn PropertyName}{\sv PropertyValueInformation}{\*\hsv AccentandTintandShadeInformation}}
```

The control word for the drawing object property is **\sp.** Each property has a pairing of the name (**\sn**) and value (**\sv**) control words placed in the shape property group. For example, the vertical flip property is represented as:

```
{\sp{\sn fFlipV}{\sv 1}}
```

Here, the name of the property is **fFlipV** and the value is 1, which indicates **True**. All shape properties follow this basic format. Only properties that have been explicitly set for a shape are

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written out in RTF. Other properties assume the default values (a property may be set to the default value explicitly).

The ***\hsv** destination holds the theme information for a shape color (color, tint, and shade). If the value is not a color or the shape color is not a themed color, this control word will not be written. This control word is always preceded by a non-theme equivalent color, so that theme-unaware applications can read what the given color evaluates to while safely ignoring the theme control words new to Word 2007.

For example, consider the partial RTF for a rectangle filled with the pink color. In this example, pink is also a theme color so **\hsv** is also written with the theme color information, consisting of which theme color (**\caccentone**), and the tint (**\ctint*N***), and shade (**\cshade*N***).

```
{\shp{\*\shpinst{\sp{\sn shapeType}{\sv 1}}{\sp{\sn fillColor}{\sv 9189631}{\*\hsv
\caccentone\ctint255\cshade255}}{\shprslt}}}
```

The drawing object properties are grouped into the categories:

| | | |
|---|---|---|
| Position | Relative Positioning Properties | Rehydration |
| Object Type | Lock | Text Box |
| Ink Information | Signature Lines | WordArt Effects |
| Picture | Geometry | Grouped Shapes |
| Fill | Line | Shadow |
| 3D Effects | Perspective | Callout |
| Connectors | Drawing Canvases & Diagrams | Black and White Modes |
| Horizontal Line | | |

These properties are defined in the following table along with their value types.

| Property | Meaning | Type of value | Default |
|---|---|---|---|
| **Position** | | | |
| posh | Horizontal alignment:<br>0 Absolute<br>1 Left<br>2 Center<br>3 Right<br>4 Inside<br>5 Outside<br>This overrides the absolute position specified in **\shplefttN** and **\shprightN**. | Not applicable | Absolute position as specified in **\shplefttN** and **\shprightN**. |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| posrelh | Position horizontally relative to:<br>0 Margin<br>1 Page<br>2 Column<br>3 Character<br>4 Left margin<br>5 Right margin<br>6 Inside margin<br>7 Outside margin | Not applicable | 2, if **posh** is present |
| posv | Vertical alignment:<br>0 Absolute<br>1 Top<br>2 Center<br>3 Bottom<br>4 Inside<br>5 Outside<br>This overrides the absolute position specified in **\shptop*N*** and **\shpbottom*N*.** | Not applicable | Absolute position as specified in **\shptop*N*** and **\shpbottom*N***. |
| posrelv | Position horizontally relative to:<br>0 Margin<br>1 Page<br>2 Paragraph<br>3 Line<br>4 Top margin<br>5 Bottom margin<br>6 Inside margin<br>7 Outside margin<br>2 is the assumed value if the property is not explicitly written. | Not applicable | 2, if **posv** is present |
| fLayoutInCell | Allows shape to anchor and position inside table cells. | Boolean | FALSE |
| fAllowOverlap | Allows shape to overlap other shapes unless it is a shape with None wrapping (**\shpwr3**), in which case it can always overlap an object with other types of wrapping and vice-versa. | Boolean | TRUE |
| fChangePage | Anchor may change page. | Boolean | FALSE |
| fPseudoInline | The shape is pseudo-inline, meaning it behaves like an inline image as far as positioning goes, but has the features of shapes. | Boolean | FALSE |
| fUseShapeAnchor | Use shape anchor | Boolean | FALSE |
| **Relative Positioning Properties** | | | |
| pctHoriz | Percentage width for a shape | Integer | ? |
| pctVert | Percentage height for a shape | Integer | ? |
| pctHorizPos | Percentage horizontal position for a shape | Integer | Application specific |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| pctVertPos | Percentage vertical position for a shape | Integer | Application specific |
| sizerelh | Relative size horizontal relation<br>0 Margin<br>1 Page<br>2 Left Margin<br>3 Right Margin<br>4 Inside Margin<br>5 Outside Margin | Not applicable | Application specific |
| sizerelv | Relative size vertical relation<br>0 Margin<br>1 Page<br>2 Top Margin<br>3 Bottom Margin<br>4 Inside Margin<br>5 Outside Margin | Not applicable | Application specific |
| colStart | Starting column | Integer | Application specific |
| colSpan | Number of columns to span | Integer | Application specific |
| **Rehydration** | | | |
| wzEquationXML | XML representation for a picture of a math zone | String | NA |
| metroBlob | Specifies application-specific data used to convert a shape to other formats. It is an encoded byte stream. | String | NA |
| **Object Type** | | | |
| fIsBullet | Indicates whether a picture was inserted as a picture bullet. | Boolean | FALSE |
| rotation | Rotation of the shape. | Angle | 0 |
| fFlipV | Vertical flip, applied after the rotation. | Boolean | FALSE |
| fFlipH | Horizontal flip, applied after the rotation. | Boolean | FALSE |
| shapeType | See below for values. 0 indicates user-drawn freeforms and polygons. | Not applicable | Not applicable |
| pWrapPolygonVertices | Points of the text wrap polygon. | Array | NULL |
| dxWrapDistLeft | Left wrapping distance from text. | EMU | 114,305 |
| dyWrapDistTop | Top wrapping distance from text. | EMU | 0 |
| dxWrapDistRight | Right wrapping distance from text. | EMU | 114,305 |
| dyWrapDistBottom | Bottom wrapping distance from text. | EMU | 0 |
| fBehindDocument | Place the shape behind text. | Boolean | FALSE |
| fIsButton | A button shape (That is, clicking performs an action). Set for shapes with attached hyperlinks or macros. | Boolean | FALSE |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| fHidden | Do not display or print (only set through Visual Basic for Applications). | Boolean | FALSE |
| pihlShape | The hyperlink in the shape. | Hyperlink | NULL |
| fArrowheadsOK | Allow arrowheads. | Boolean | FALSE |
| fBackground | This is the background shape. | Boolean | FALSE |
| fDeleteAttachedObject | Delete object attached to shape. | Boolean | FALSE |
| fEditedWrap | The shape's wrap polygon has been edited. | Boolean | FALSE |
| fHidden | Do not display. | Boolean | FALSE |
| fHitTestFill | Hit test fill. | Boolean | TRUE |
| fHitTestLine | Hit test lines. | Boolean | TRUE |
| fBottomHitTestLine | Hit test lines. | Boolean | TRUE |
| fLeftHitTestLine | Hit test lines. | Boolean | TRUE |
| fRightHitTestLine | Hit test lines. | Boolean | TRUE |
| fTopHitTestLine | Hit test lines. | Boolean | TRUE |
| fInitiator | Set by the solver. | Boolean | NULL |
| fNoFillHitTest | Hit test a shape as though filled. | Boolean | FALSE |
| fNoHitTestPicture | Do not hit test the picture. | Boolean | FALSE |
| fNoLineDrawDash | Draw dashed line if no line exists. | Boolean | FALSE |
| fBottomNoLineDrawDash | Draw dashed line if no line exists. | Boolean | FALSE |
| fLeftNoLineDrawDash | Draw dashed line if no line exists. | Boolean | FALSE |
| fTopNoLineDrawDash | Draw dashed line if no line exists. | Boolean | FALSE |
| fRightNoLineDrawDash | Draw dashed line if no line exists. | Boolean | FALSE |
| fOleIcon | For OLE objects, indicates whether the object is in icon form or not. | Boolean | FALSE |
| fOnDblClickNotify | Notify client on a double-click. | Boolean | FALSE |
| fOneD | 1D adjustment. | Boolean | FALSE |
| fPreferRelativeResize | For UI only. Prefer relative resizing. | Boolean | FALSE |
| fPrint | Print this shape. | Boolean | TRUE |
| hspMaster | Master shape. | Shape ID | NULL |
| hspNext | ID of the next shape (used by Word for linked text boxes). | Shape ID | NULL |
| xLimo | Defines the limo stretch point. | Long integer | Not applicable |
| yLimo | Defines the limo stretch point. | Long integer | Not applicable |
| fPolicyLabel | A shape policy label | Boolean | FALSE |
| fPolicyBarcode | A shape policy barcode | Boolean | FALSE |
| **Lock** | | | |
| fLockRotation | Lock rotation. | Boolean | FALSE |
| fLockAspectRatio | Lock aspect ratio. | Boolean | FALSE |
| fLockAgainstSelect | Lock against selection. | Boolean | FALSE |
| fLockCropping | Lock against cropping. | Boolean | FALSE |
| fLockVerticies | Lock against edit mode. | Boolean | FALSE |
| fLockText | Lock text against editing. | Boolean | FALSE |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| fLockAdjustHandles | Lock adjust handles. | Boolean | FALSE |
| fLockAgainstGrouping | Lock against grouping. | Boolean | FALSE |
| fLockShapeType | Lock the shape type (Do not allow Change Shape). | Boolean | FALSE |
| **Text Box** | | | |
| dxTextLeft | Left internal margin of the text box. | EMU | 91,440 |
| dyTextTop | Top internal margin of the text box. | EMU | 45,720 |
| dxTextRight | Right internal margin of the text box. | EMU | 91,440 |
| dyTextBottom | Bottom internal margin of the text box. | EMU | 45,720 |
| WrapText | Wrap text at shape margins: | Not applicable | 0 |
| | 0 Square | | |
| | 1 Tight | | |
| | 2 None | | |
| | 3 Top bottom | | |
| | 4 Through | | |
| anchorText | Text anchor point: | Not applicable | 0 |
| | 0 Top | | |
| | 1 Middle | | |
| | 2 Bottom | | |
| | 3 Top centered | | |
| | 4 Middle centered | | |
| | 5 Bottom centered | | |
| | 6 Top baseline | | |
| | 7 Bottom baseline | | |
| | 8 Top centered baseline | | |
| | 9 Bottom centered baseline | | |
| txflTextFlow | Text flow: | Not applicable | 0 |
| | 0 Horizontal non-ASCII font | | |
| | 1 Top to bottom ASCII font | | |
| | 2 Bottom to top non-ASCII font | | |
| | 3 Top to bottom non-ASCII font | | |
| | 4 Horizontal ASCII font | | |
| | 5 Vertical non-ASCII | | |
| cdirFont | Font rotation: | Direction | 0 |
| | 0 Right | | |
| | 1 Down | | |
| | 2 Left | | |
| | 3 Up | | |
| txdir | BiDi Text direction | BiDi text dir | Context |
| ccol | Count of columns in frame | Long integer | 1 |
| dzColMargin | Column margin on both sides(emu values) | Long integer | 91440 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| fAutoTextMargin | Use host's margin calculations. | Boolean | FALSE |
| scaleText | Text zoom and scale. | Long integer | 0 |
| lTxid | ID for the text. The value is determined by the host. | Long integer | 0 |
| fRotateText | Rotate text with shape. | Boolean | FALSE |
| fSelectText | TRUE if single click selects text, FALSE if two clicks select text. | Boolean | TRUE |
| fFitShapeToText | Adjust shape to fit text size. | Boolean | FALSE |
| fFitTextToShape | Adjust text to fit shape size. | Boolean | FALSE |
| **Ink Information** | | | |
| pInkData | The Ink information for the object, as a binary blob contained inside the ***\svb** destination. | Not Applicable | NULL |
| fInsetPen | Draw line inside shape. | Boolean | FALSE |
| fLeftInsetPen | Draw line inside shape. | Boolean | FALSE |
| fRightInsetPen | Draw line inside shape. | Boolean | FALSE |
| fTopInsetPen | Draw line inside shape. | Boolean | FALSE |
| fBottomInsetPen | Draw line inside shape. | Boolean | FALSE |
| fInsetPenOK | Allow inset pen if property is set. | Boolean | FALSE |
| fLeftInsetPenOK | Left inset | Boolean | FALSE |
| fRightInsetPenOK | Right inset | Boolean | FALSE |
| fTopInsetPenOK | Top inset | Boolean | FALSE |
| fBottomInsetPenOK | Bottom inset | Boolean | FALSE |
| fColumnInsetPenOK | Column inset | Boolean | FALSE |
| fArrowheadsOK | Arrowheads | Boolean | FALSE |
| fBottomArrowheadsOK | Arrowheads | Boolean | FALSE |
| fLeftArrowheadsOK | Arrowheads | Boolean | FALSE |
| fRightArrowheadsOK | Arrowheads | Boolean | FALSE |
| fTopArrowheadsOK | Arrowheads | Boolean | FALSE |
| fBorderlessCanvas | Borderless Canvas | Boolean | FALSE |
| fColumnHitTestLine | Column hit test line | Boolean | FALSE |
| fInkAnnotation | TRUE if current shape is an ink annotation | Boolean | FALSE |
| fNonStickyInkCanvas | Canvas doesn't accept ink | Boolean | FALSE |
| fRenderInk | TRUE to render ink | Boolean | FALSE |
| **Signature Lines** | | | |
| wzSigSetupId | Signature Spot ID | String | Empty string |
| wzSigSetupProvId | Third-party signature provider id | String | GUID_NULL |
| wzSigSetupSuggSigner | Signature suggested signer | String | Empty string |
| wzSigSetupSuggSigner2 | Signature suggested signer line 2 | String | Empty string |
| wzSigSetupSuggSignerEmail | Signature suggested signer emails | String | Empty string |
| wzSigSetupSignInst | Signature signing instructions | String | Empty string |
| wzSigSetupAddlXml | Additional third-party xml | String | Empty string |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| wzSigSetupProvUrl | Signature provider url | String | Empty string |
| fSigSetupShowSignDate | if sign date should be shown in signature | Boolean | TRUE |
| fSigSetupAllowComments | if comments are allowed at sign time | Boolean | FALSE |
| fSigSetupSignInstSet | if suggested signer is set | Boolean | FALSE |
| fIsSignatureLine | if current shape is signature line | Boolean | TRUE for signature lines; FALSE for non-visible digital signatures |
| **WordArt Effects** | | | |
| gtextUNICODE | Unicode text string. | String | NULL |
| gtextAlign | Alignment on curve:<br>0 Stretch each line of text to fit width<br>1 Center text on width<br>2 Left justify<br>3 Right justify<br>4 Spread letters out to fit width<br>5 Spread words out to fit width | Not applicable | 1 |
| gtextSize | Default point size. | Fixed | 2,359,296 |
| gtextSpacing | Adjust the spacing between characters (1.0 is normal). | Fixed | 65,536 |
| gtextFont | Font name. | String | NULL |
| fGtext | **True** if the text effect properties (**gtext***) are used. **False** if these properties are ignored. | Boolean | FALSE |
| gtextFVertical | If available, an @ font should be used. Otherwise, rotate individual characters 90 degrees counter-clockwise. | Boolean | FALSE |
| gtextFKern | Use character pair kerning if it is supported by the font. | Boolean | FALSE |
| gtextFTight | Adjust the spacing between characters rather than the character advance by the **gtextSpacingratio**. | Boolean | FALSE |
| gtextFStretch | Stretch the text to fit the shape. | Boolean | FALSE |
| gtextFShrinkFit | When laying out the characters, consider the glyph bounding box rather than the nominal font character bounds. | Boolean | FALSE |
| gtextFBestFit | Scale text laid out on a path to fit the path. | Boolean | FALSE |
| gtextFNormalize | Stretch individual character heights independently to fit. | Boolean | FALSE |
| gtextFDxMeasure | When laying out characters, measure the distances along the x-axis rather than along the path. | Boolean | FALSE |
| gtextFBold | Bold font (if available). | Boolean | FALSE |
| gtextFItalic | Italic font (if available). | Boolean | FALSE |
| gtextFUnderline | Underline font (if available). | Boolean | FALSE |
| gtextFShadow | Shadow font (if available). | Boolean | FALSE |
| gtextFSmallcaps | Small caps font (if available). | Boolean | FALSE |
| gtextFStrikethrough | Strikethrough font (if available). | Boolean | FALSE |
| fGtextOK | Text effect (WordArt) supported. | Boolean | FALSE |
| gtextFReverseRows | Reverse row order. | Boolean | FALSE |
| gtextRTF | RTF text string. | String | NULL |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| **Picture** | | | |
| cropFromTop | Top cropping percentage. | Fixed | 0 |
| cropFromBottom | Bottom cropping percentage. | Fixed | 0 |
| cropFromLeft | Left cropping percentage. | Fixed | 0 |
| cropFromRight | Right cropping percentage. | Fixed | 0 |
| pib | Binary picture data. | Picture | NULL |
| pibFlags | Flags for linked pictures (see lineFillBlipFlags for more values):<br>0 No links (default)<br>10 Link to file; save with document<br>14 Link to file; do not save picture with document | Not applicable | 0 |
| pibName | Picture file name that is used to link to file pictures. | String | NULL |
| pibPrint | Blip to display when printing. | Picture | NULL |
| pibPrintFlags | Flags:<br>0 No links (default)<br>10 Link to file; save with document<br>14 Link to file; do not save picture with document | Not applicable | 0 |
| pibPrintName | Blip file name. | String | NULL |
| pictureActive | Server is active (OLE objects only). | Boolean | FALSE |
| pictureBiLevel | Display bi-level. | Boolean | 0 |
| pictureBrightness | Brightness setting. | Fixed | 0 |
| pictureContrast | Contrast setting. | Fixed | 65,536 |
| pictureDblCrMod | Modification used if shape has double shadow. | Color | No change |
| pictureFillCrMod | Modification for BW views. | Color | Undefined |
| pictureGamma | Gamma correction setting. | Fixed | 0 |
| pictureGray | Display grayscale. | Boolean | 0 |
| pictureId | Host-defined ID for OLE objects (usually a pointer). | Long integer | 0 |
| pictureLineCrMod | Modification for BW views. | Color | Undefined |
| picturePreserveGrays | Skip grays when doing color modification. | Boolean | FALSE |
| pictureRecolor | Recolor black to this color. | Color | None |
| pictureRecolorExt | Extended recolor color. | Color | None |
| pictureRecolorExtCMY | Extended recolor color CMY channels of CMYK. | Color | None |
| pictureRecolorExtK | Extended recolor color K channel of CMYK. | Color | None |
| pictureRecolorExtMod | Extended recolor color modification. | Color | Undefined |
| pictureRecolorExtWzName | Extended recolor color CMS, CID, name. | String | NULL |
| pictureTransparent | Transparent color. | Color | 0 |
| **Geometry** | | | |
| geoLeft | Left edge of the bounds of a user-drawn shape. | Long integer | 0 |
| geoTop | Top edge of the bounds of a user-drawn shape. | Long integer | 0 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| geoRight | Right edge of the bounds of a user-drawn shape. | Long integer | 21,600 |
| geoBottom | Bottom edge of the bounds of a user-drawn shape. | Long integer | 21,600 |
| pAdjustHandles | The adjust handle definitions – an array of values corresponding to the VML <handles> element. | Array | NULL |
| pConnectionSites | Connection Site definition | Array | NULL |
| pConnectionSitesDir | Connection Site definition | Array | NULL |
| pFragments | Fragments are optional, additional parts to the shape. They allow the shape to contain multiple paths and parts. This property lists the fragments of the shape. | Array | NULL |
| pGuides | Guide formulas—an array of elements that correspond to the VML <formulas> element, where each array entry is a single <f> entry. | Array | NULL |
| pInscribe | The inscribed rectangle definition. | Array | NULL |
| pSegmentInfo | The segment information. | Array | NULL |
| pVerticies | The points of the shape. | Array | NULL |
| shapePath | If the pSegmentInfo array is empty or missing the shapePath property is used to generate appropriate information for a figure which is either closed or open with sides composed solely of straight lines or Bezier curves. | | |
| adjustValue | First adjust value from an adjust handle. The interpretation varies with the shape type. Adjust values alter the geometry of the shape in smart ways. | Integer | 0 |
| adjust2Value | Second adjust value. | Long integer | 0 |
| adjust3Value | Third adjust value. | Long integer | 0 |
| adjust4Value | Fourth adjust value. | Long integer | 0 |
| adjust5Value | Fifth adjust value. | Long integer | 0 |
| adjust6Value | Sixth adjust value. | Long integer | 0 |
| adjust7Value | Seventh adjust value. | Long integer | 0 |
| adjust8Value | Eighth adjust value. | Long integer | 0 |
| adjust9Value | Ninth adjust value. | Long integer | 0 |
| adjust10Value | Tenth adjust value. | Long integer | 0 |
| **Grouped Shapes** | | | |
| borderBottomColor | Bottom border color. | Color | None |
| borderLeftColor | Left border color. | Color | None |
| borderRightColor | Right border color. | Color | None |
| borderTopColor | Top border color. | Color | None |
| dhgt | Word 2007 Z-order position of shape(s) on a page. Shapes with small **dhgt**s are further back than shapes with large **dhgt**s. | Unsigned long | 0 |
| fClipToWrap | | Boolean | FALSE |
| fLockAgainstUngrouping | Do not ungroup this shape | Boolean | FALSE |
| fLockPosition | Lock position | Boolean | FALSE |
| fReallyHidden | TRUE if fHidden set by user | Boolean | FALSE |
| fRelChangePage | Anchor may change page. | Boolean | FALSE |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| fRelFlipH | Vertical flip of an object inside a group, relative to its container and applied after the rotation. | Boolean | FALSE |
| fRelFlipV | Horizontal flip of an object inside a group, relative to its container and applied after the rotation. | Boolean | FALSE |
| fScriptAnchor | Visual cue to indicate presence of script block | Boolean | FALSE |
| fUserDrawn | TRUE if UserDrawn shape on PPT master | Boolean | FALSE |
| groupBottom | Defines the height of the group rectangle, but does not necessarily indicate position on the page. The difference between groupBottom and groupTop should match the dimensions specified by **\shptop*N*** and **\shpbottom*N***. | Twips | 20,000 |
| groupLeft | Defines the width of the group rectangle, but does not necessarily indicate position on the page. The difference between groupLeft and groupRight should match the dimensions specified by **\shpleft*N*** and **\shpright*N***. | Twips | 0 |
| groupRight | See meaning for **groupLeft**. | Twips | 20,000 |
| groupTop | See meaning for **groupBottom**. | Twips | 0 |
| lidRegroup | Regroup ID. | Long integer | 0 |
| relBottom | Defines the bottom of a shape within its parent shape (used for shapes in a group). The measurement is relative to the position of the parent group or drawing. | Twips | 1 |
| relLeft | Defines the left of a shape within its parent shape (used for shapes in a group). The measurement is relative to the position of the parent group or drawing. | Twips | 0 |
| relRight | Defines the right of a shape within its parent shape (used for shapes in a group). The measurement is relative to the position of the parent group or drawing. | Twips | 1 |
| relRotation | Represents the information stored in the site of a shape, which defines the size and location of the shape in the parent group or drawing. The coordinates are relative to the position of the parent group or drawing. The units are relative to the m_rcg of the parent. | Fixed | 0 |
| relTop | Defines the top of a shape within its parent shape (used for shapes in a group). The measurement is relative to the position of the parent group or drawing. | Twips | 0 |
| scriptLang | Script Language of script attached to shape<br>***N*** **Script Language**<br>1 JavaScript<br>2 VBScript<br>3 ASP<br>4 Other given by wzScriptLangAttr | Long integer | 1 |
| tableProperties | Table flags with nonzero bit meanings<br>**Bit** **Nonzero meaning**<br>0 Group is a PowerPoint table<br>1 Table is a placeholder<br>2 Right-to-left table (Middle East) | Long integer | 0 |
| tableRowProperties | Array of integers which are the minimal heights for each row; used when resizing the table as a reaction to text changes. | Array | NULL |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| wzApplet | Applet Body - not really a shape - visual cue to indicate presence of an applet block. | String | NULL |
| wzAppletArg | Applet tag arguments. | String | NULL |
| wzDescription | Alternate text. | String | NULL |
| wzName | Shape name (only set through Microsoft Visual® Basic for Applications). | String | NULL |
| wzScript | Script (JavaScript, VBScript etc) attached to shape. | String | NULL |
| wzScriptExtAttr | Extended Script Attributes (other than Lang, Id) of script(VBScript etc) attached to shape. | String | NULL |
| wzScriptIdAttr | Unicode null-terminated string name of the scripting language used for the script on a shape. | String | NULL |
| wzScriptLangAttr | Lang Script Attribute of script(VBScript etc) attached to shape. | String | NULL |
| wzTooltip | Tooltip for the hyperlink in the shape. | String | NULL |
| wzWebBot | If shape represents a FrontPage webbot, this is the content attached. | Strin | NULL |
| **Fill** | | | |
| fillType | Type of fill:<br>0 Solid color<br>1 Pattern (bitmap)<br>2 Texture (pattern with its own color map)<br>3 Picture centered in the shape<br>4 Shade from start to endpoints<br>5 Shade from bounding rectangle to endpoint<br>6 Shade from shape outline to endpoint<br>7 Shade using the fillAngle<br>8 Shade to title (for PowerPoint)<br>9 Background fill color/pattern | Fill type | 0 |
| fillColor | Foreground color. | Color | White |
| fillColorExt | Extended fill color. | Color | None |
| fillColorExtCMY | Extended fill color CMY channels of CMYK. | Color | None |
| fillColorExtK | Extended fill color K channel of CMYK. | Color | None |
| fillColorExtMod | Extended line color modification. | Color | Undefined |
| fillColorExtWzName | Extended foreground color CMS, CID, Name | String | NULL |
| fillBackColor | Background color. | Color | White |
| fillBackColorExt | Extended fill background color. | Color | None |
| fillBackColorExtCMY | Extended fill background color CMY channels of CMYK. | Color | None |
| fillBackColorExtK | Extended fill background color K channel of CMYK. | Color | None |
| lfillBackColorExtMod | Extended fill background color modification. | Color | Undefined |
| fillBackColorExtWzName | Extended background color CMS, CID, Name | String | NULL |
| fillOpacity | Opacity. | Fixed | 65,536 |
| fillBackOpacity | Opacity for shades only. | Fixed | 65,536 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| fillBlip | Pattern or texture picture for the fill. | Picture | NULL |
| fillBlipName | Picture file name for custom fills. | String | NULL |
| fillBlipflags | Flags for fills (see lineFillBlipFlags for more values):<br>0 No links (default)<br>10 Link to file; save picture with document<br>14 Link to file; do not save picture with document | Not applicable | 0 |
| fillWidth | Exand the pattern or tile to approximately this size. | EMU | 0 |
| fillHeight | Expand the pattern or tile to approximately this size. | EMU | 0 |
| fillAngle | Fade angle specified in 1/65536ths of a degree. | Fixed | 0 |
| fillFocus | Linear shaded fill focus percent. | Not applicable | 0 |
| fillToLeft | The **fillToLeft**, **fillToTop**, **fillToRight**, and **fillToBottom** values define the "focus" rectangle for concentric shapes; they are specified as a fraction of the outer rectangle of the shade. | Fixed | 0 |
| fillToTop | See meaning for **fillToLeft**. | Fixed | 0 |
| fillToRight | See meaning for **fillToLeft**. | Fixed | 0 |
| fillToBottom | See meaning for **fillToLeft**. | Fixed | 0 |
| fillShadeColors | Custom or preset color ramps for graduated fills on shapes. | Array | NULL |
| fillOriginX | When a textured fill is used, the texture may be aligned with the shape (**fFillShape**)—if this is done, the default alignment is to the upper left. The values **FillOriginY**, **FillShapeOriginX**, and **fillShapeOriginY** allow an arbitrary position in the texture (relative to the upper left proportion of the texture's height and width) to be aligned with an arbitrary position on the shape (relative to the upper-left proportion of the width and height of the bounding box).<br>**Note** all these values are fixed point fractions of the relevant width or height. | Fixed | 0 |
| fillOriginY | See meaning for **fillOriginX**. | Fixed | 0 |
| fillShapeOriginX | See meaning for **fillOriginX**. | Fixed | 0 |
| fillShapeOriginY | See meaning for **fillOriginX**. | Fixed | 0 |
| fFilled | The shape is filled. | Boolean | TRUE |
| fillCrMod | Modification for BW views | Color | Undefined |
| fillDztype | Measurement type:<br>0 Default size, ignore the values<br>1 Values are in EMUs<br>2 Values are in pixels<br>3 Values are fixed fractions of the shape size<br>4 Aspect ratio is fixed<br>5 EMUs, fixed aspect ratio<br>6 Pixels, fixed aspect ratio<br>7 Proportion of shape, fixed aspect ratio<br>8 Aspect ratio is fixed, favor larger size<br>9 EMUs, fixed aspect ratio | Measurement type | 0 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| | 10 Pixels, fixed aspect ratio | | |
| | 11 Proportion of shape, fixed aspect ratio | | |
| fillRectBottom | For shaded fills, use the specified rectangle instead of the shape's bounding rectangle to define how large the fade will be. | EMU | 0 |
| fillRectLeft | For shaded fills, use the specified rectangle instead of the shape's bounding rectangle to define how large the fade will be. | EMU | 0 |
| fillRectRight | For shaded fills, use the specified rectangle instead of the shape's bounding rectangle to define how large the fade will be. | EMU | 0 |
| fillRectTop | For shaded fills, use the specified rectangle instead of the shape's bounding rectangle to define how large the fade will be. | EMU | 0 |
| fillShadeColors | Preset array of colors. | Array | NULL |
| fillShadePreset | Special shades. | Long integer | 0 |
| fillShadeType | Type of shading, if using a shaded (gradient) fill. | Shade type | Default |
| fillShape | Register pattern on shape. | Boolean | TRUE |
| fillUseRect | Use the large rectangle. | Boolean | FALSE |
| fillWidth | Size of a metafile texture. | EMU | 0 |
| fFillOK | Define whether the shape can be filled through the user interface (UI) or Visual Basic for Applications. | Boolean | TRUE |
| fFillShadeShapeOK | If TRUE, a concentric shade (repeatedly drawing the shape at a decreasing size) is permitted for this path. If FALSE, a concentric shade is not permitted (generally because the repeated drawing will overwrite the shape boundary). | Boolean | FALSE |
| fRecolorFillAsPicture | Recolor a picture fill from picture fill properties | Boolean | FALSE |
| **Line** | | | |
| fLine | Has a line. | Boolean | TRUE |
| fLineOK | Line style may be set. | Boolean | TRUE |
| fLineRecolorFillAsPicture | Recolor a picture fill from picture fill properties | Boolean | FALSE |
| fLineUseShapeAnchor | Fit fill to the shape anchor, not the bounds | Boolean | FALSE |
| fColumnLine | Has a line. | Boolean | FALSE |
| fColumnLineOK | Column style may be set | Boolean | FALSE |
| fBottomLine... | See fLine... | Boolean | TRUE |
| fLeftLine... | See fLine... | Boolean | TRUE |
| fRightLine... | See fLine... | Boolean | TRUE |
| fTopLine... | See fLine... | Boolean | TRUE |
| lineColor | Color of the line. | Color | Black |
| lineColorExt | Extended line color. | Color | None |
| lineColorExtCMY | Extended line color CMY channels of CMYK. | Color | None |
| lineColorExtK | Extended line color K channel of CMYK. | Color | None |
| lineColorExtMod | Extended line color modification. | Color | Undefined |
| lineBackColor | Background color of the pattern. | Color | White |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| lineBackColorExt | Extended background color. | Color | None |
| lineBackColorExtCMY | Extended background color CMY channels of CMYK. | Color | None |
| lineBackColorExtK | Extended background color K channel of CMYK. | Color | None |
| lineBackColorExtMod | Extended background color modification. | Color | Undefined |
| lineType | Type of line: | Line type | 0 |
| | 0 Solid fill with the line color | | |
| | 1 Patterned fill with the **lineFillBlip** | | |
| | 2 Textured fill with the **lineFillBlip** | | |
| | 3 Picture fill with the **lineFillBlip** | | |
| lineFillBlip | Pattern for the line. | Picture | NULL |
| lineFillBlipFlags | Flags for patterned lines: | Not applicable | 0 |
| | 0 No links (default) | | |
| | 2 Blip name is a URL | | |
| | 4 Do not save picture | | |
| | 8 Link to file | | |
| | 10 Link to file; save picture with document | | |
| | 14 Link to file; do not save picture with document | | |
| | 32 No send (link is from suspicious source) | | |
| | 64 Safe to send (link is from safe source) | | |
| lineFillWidth | Width of the pattern. | EMU | 0 |
| lineFillHeight | Height of the pattern. | EMU | 0 |
| lineFillShape | Register pattern on shape. | Boolean | TRUE |
| lineWidth | Width of the line. | EMU | 9,525 (0.75pt) |
| lineStyle | Line style: | Line style | 0 |
| | 0 Single line (of width **lineWidth**) | | |
| | 1 Double lines of equal width | | |
| | 2 Double lines, one thick, one thin | | |
| | 3 Double lines, reverse order | | |
| | 4 Three lines, thin, thick, thin | | |
| lineDashing | Dashing: | Dash style | 0 |
| | 0 Solid line | | |
| | 1 Dashed line (Windows) | | |
| | 2 Dotted line (Windows) | | |
| | 3 Dash-dotted line (Windows) | | |
| | 4 Dash-dot-dotted line (Windows) | | |
| | 5 Dotted line | | |
| | 6 Dashed line | | |
| | 7 Long dashed line | | |
| | 8 Dash-dotted line | | |
| | 9 Long dash-dotted line | | |
| | 10 Long dash-dot-dotted line | | |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| lineStartArrowhead | Start arrow type:<br>0 Nothing<br>1 Arrow<br>2 Stealth arrow<br>3 Diamond<br>4 Oval<br>5 Open arrow<br>6 Chevron arrow<br>7 Double chevron arrow | Arrow type | 0 |
| lineEndArrowhead | End arrow type (for acceptable values see meaning for **lineStartArrowhead**). | Arrow type | 0 |
| lineStartArrowWidth | Start arrow width:<br>0 Narrow<br>1 Medium<br>2 Wide | Arrow width | 1 |
| lineStartArrowLength | Start arrow length:<br>0 Short<br>1 Medium<br>2 Long | Arrow length | 1 |
| lineEndArrowWidth | End arrow width (for acceptable values see meaning for **lineStartArrowWidth**). | Arrow width | 1 |
| lineEndArrowLength | End arrow length (for acceptable values see meaning for **lineStartArrowLength**). | Arrow length | 1 |
| lineCrMod | Modification for Black and White views. | Color | undefined |
| lineDashStyle | Line dash style. | Array | NULL |
| lineEndCapStyle | Line cap style for shape:<br>0 Round<br>1 Square<br>2 Flat | Line cap style | 2 |
| lineFillBlipName | Blip file name. | String | NULL |
| lineFillDztype | fillWidth/Height numbers:<br>0 Default size, ignore the values<br>1 Values are in EMUs<br>2 Values are in pixels<br>3 Values are fixed fractions of shape size<br>4 Aspect ratio is fixed<br>5 EMUs, fixed aspect ratio<br>6 Pixels, fixed aspect ratio<br>7 Proportion of shape, fixed aspect ratio<br>8 Aspect ratio is fixed, favor larger size<br>9 EMUs, fixed aspect ratio<br>10 Pixels, fixed aspect ratio | Measurement type | 0 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| | 11 Proportion of shape, fixed aspect ratio | | |
| lineFillHeight | Size of a metafile texture. | EMU | 0 |
| lineJoinStyle | Line join style for shape: | Line join style | 2 |
| | 0 Join edges by a straight line | | |
| | 1 Extend edges until they join | | |
| | 2 Draw an arc between the two edges | | |
| lineMiterLimit | Ratio of width. | Fixed | 524,288 |
| lineOpacity | Opacity level of foreground color ranging from 0 (completely transparent) to 65536 (completely opaque). | Long integer | 65536 |
| lineBottom... | Bottom border properties: see corresponding line... entry for definition | | |
| lineColumn... | Column properties: see corresponding line... entry for definition | | |
| lineLeft... | Left border properties: see corresponding line... entry for definition | | |
| lineRight... | Right border properties: see corresponding line... entry for definition | | |
| lineTop... | Top border properties: see corresponding line... entry for definition | | |
| **Shadow** | | | |
| shadowType | Type of shadow: | Not applicable | 0 |
| | 0 Offset shadow | | |
| | 1 Double offset shadow | | |
| | 2 Rich perspective shadow (cast relative to shape) | | |
| | 3 Rich perspective shadow (cast in shape space) | | |
| | 4 Perspective shadow (cast in drawing space) | | |
| | 6 Emboss or engrave | | |
| shadowColor | Foreground color. | Color | RGB (128,128,128) |
| shadowColorExt | Extended shadow color. | Color | None |
| shadowColorExtCMY | Extended shadow color CMY channels of CMYK. | Color | None |
| shadowColorExtK | Extended shadow color K channel of CMYK. | Color | None |
| shadowColorExtMod | Extended shadow color modification. | Color | Undefined |
| shadowHighlight | Embossed color. | Color | RGB (203,203,203) |
| shadowHighlightExt | Extended highlight color. | Color | None |
| shadowHighlightExtCMY | Extended highlight color CMY channels of CMYK. | Color | None |
| shadowHighlightExtK | Extended highlight color K channel of CMYK. | Color | None |
| shadowHighlightExtMod | Extended highlight color modification. | Color | Undefined |
| shadowOpacity | Opacity of the shadow. | Fixed | 65,536 |
| shadowOffsetX | Shadow offset toward the right. | EMU | 0 |
| shadowOffsetY | Shadow offset toward the bottom. | EMU | 0 |
| shadowSecondOffsetX | Double shadow offset toward the right. | EMU | 25,400 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| shadowSecondOffsetY | Double shadow offset toward the bottom. | EMU | 25,400 |
| shadowScaleXToX | The **shadowScaleXToX** to **shadowWeight** define a 3x2 transform matrix that is applied to the shape to generate the shadow. | Fixed | 65,536 |
| shadowScaleYToX | See meaning for **shadowScaleXToX**. | Fixed | 0 |
| shadowScaleXToY | See meaning for **shadowScaleXToX**. | Fixed | 0 |
| shadowScaleYToY | See meaning for **shadowScaleXToX**. | Fixed | 65,536 |
| shadowPerspectiveX | See meaning for **shadowScaleXToX**. | Fixed | 0 |
| shadowPerspectiveY | See meaning for **shadowScaleXToX**. | Fixed | 0 |
| shadowWeight | See meaning for **shadowScaleXToX**. | Fixed | 32,768 |
| shadowOriginX | Defines the position of the origin relative to the center of the shape— this position is determined based on a proportion of the *rotated* shape width and height. The shape is rotated and then positioned such that the point is at (0,0) before the transformation is applied. | Fixed | 0 |
| ShadowOriginY | See meaning for **shadowOriginX.** | Fixed | 0 |
| fShadow | Turns the shadow on or off. | Boolean | FALSE |
| shadowCrMod | Modification for BW views. | Color | Undefined |
| fshadowObscured | Microsoft Excel® 5 style shadow. | Boolean | FALSE |
| fShadowOK | Shadow may be set. | Boolean | TRUE |
| **3D Effects** | | | |
| c3DSpecularAmt | Specular amount for the material. | Fixed | 0 |
| c3DDiffuseAmt | Diffusion amount for the material. | Fixed | 65,536 |
| c3DShininess | Shininess of the material. | Long integer | 5 |
| c3DEdgeThickness | Specular edge thickness. | EMU | 12,700 |
| c3DExtrudeForward | Extrusion amount forward. | EMU | 0 |
| c3DExtrudeBackward | Extrusion amount backward. | EMU | 457,200 |
| c3DExtrudePlane | This allows extrusion from planes orthogonal to the screen plane. It is not used in Office 97 or later. Valid values are 0, 1 and 2 for no-extrusion, forward extrusion, and backward extrusion, respectively. If nonzero, c3DExtrudeForward and c3DExtrudeBackward are specified in drawing units instead of EMUs. Recommendation: omit or use 0. | Long integer | 0 |
| c3DExtrusionColor | Extrusion color. | Color | |
| c3DExtrusionColorExt | Extended extrusion color. | Color | None |
| c3DExtrusionColorExtCMY | Extended extrusion color CMY channels of CMYK. | Color | None |
| c3DExtrusionColorExtK | Extended extrusion color K channel of CMYK. | Color | None |
| c3DExtrusionColorExtMod | Extended extrusion color modification. | Color | Undefined |
| f3D | **True** if shape has a three-dimensional (3D) effect, **False** if it does not. | Boolean | FALSE |
| fc3DMetallic | **True** if shape uses metallic specularity, **False** if it does not. | Boolean | FALSE |
| fc3DUseExtrusionColor | Extrusion color is set explicitly. | Boolean | FALSE |
| fc3DLightFace | Light the face of the shape. | Boolean | TRUE |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| c3DYRotationAngle | Degrees about y-axis.<br>If **fc3DConstrainRotation** (a Boolean property which defaults to **True**) is **True**, then the rotation is restricted to x-y rotation. In addition, the final rotation results from first rotating by **c3DYRotationAngle** degrees about the y-axis and then by **c3DXRotationAngle** degrees about the z-axis.<br>If **fc3DConstrainRotation** is **False**, then the final rotation results from a single rotation of **c3DRotationAngle** about the axis specified by **c3DRotationAxisX**, **c3DRotationAxisY**, and **c3DRotationAxisZ**. | Angle | 0 |
| c3DXRotationAngle | Degrees about x-axis. | Angle | 0 |
| c3DRotationAxisX | These keywords specify the rotation axis. Only their relative magnitudes matter. | Long integer | 100 |
| c3DRotationAxisY | See meaning for c3DYRotationAxisX. | Long integer | 0 |
| c3DRotationAxisZ | See meaning for c3DYRotationAxisX. | Long integer | 0 |
| c3DRotationAngle | The rotation about the axis (defined previously in the **c3DRotationAxisX**, **Y**, and **Z** parameter sections) | Angle | 0 |
| fc3DRotationCenterAuto | If **fC3DRotationCenterAuto** is **True**, then the rotation will be about the center of the 3-D bounding cube of the 3-D group; otherwise, the rotation center will be about **c3DRotationCenterX**, **c3DRotationCenterY**, and **c3DRotationCenterZ**. | Boolean | FALSE |
| c3DRotationCenterX | Rotation center (X).<br>The **X** and **Y** values are a 16.16 fraction of the geometry width and height, with (0,0) being at the center of the geometry. The **Z** value must be in absolute units (EMUs). | Fixed | 0 |
| c3DRotationCenterY | Rotation center (Y).<br>If **fC3DRotationCenterAuto** is **True**, then the rotation will be about the center of the 3-D bounding cube of the 3-D group; otherwise, the rotation center will be about **c3DRotationCenterX**, **c3DRotationCenterY**, and **c3DRotationCenterZ**.<br>The **X** values and **Y** values are a fraction of the geometry width and height, with (0,0) being at the center of the geometry. The **Z** value is in absolute units. | Fixed | 0 |
| c3DRotationCenterZ | See meaning for c3DRotationCenterY. | EMU | 0 |
| c3DRenderMode | 0 Render with full detail<br>1 Render as a wireframe<br>2 Render a bounding cube | Long integer | Not applicable |
| c3DXViewpoint | X view point. | EMU | 1,250,000 |
| c3DYViewpoint | Y view point. | EMU | -1,250,000 |
| c3DZViewpoint | Z view distance. | EMU | 9,000,000 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| c3DOriginX | The following **c3DOriginY** and **c3DSkewAngle** values define the origin relative to the viewpoint origin measured.<br><br>These values are 16.16 numbers that specify the position of the origin within the shape bounding box, as multiples of the width and height of that bounding box and relative to the center (that is, they are displaced from the center). When these values are applied the actual transformed shape path is used, rather than the shape geometry (compare with the shadow and perspective values that work on the geometry bounding box, not the actual points). This means that a shape that extends outside the geometry bounding box (such as a text effect) is handled "correctly" for the calculation of the 3-D origin. | Fixed | 32,768 |
| c3DOriginY | See meaning for **c3DOriginX**. | Fixed | -32,768 |
| c3DSkewAngle | Skew angle. | Fixed | -8,847,360 |
| c3DSkewAmount | Percentage skew amount. | Long integer | 50 |
| c3DAmbientIntensity | Ambient intensity should be low (0 to .1) to avoid washed out appearance. | Fixed | 20,000 |
| c3DKeyX | Key light source direction. Values may be any number; only their relative magnitudes matter. | Long integer | 50,000 |
| c3DKeyY | See meaning for **c3DKeyX**. | Long integer | 0 |
| c3DKeyZ | See meaning for **c3DKeyX**. | Long integer | 10,000 |
| c3DKeyIntensity | Fixed point intensity. Theoretical maximum is 1, but may be higher. | Fixed | 38,000 |
| c3DFillX | Fill light source direction; only the relative magnitude matters. This direction defines a second light source arbitrarily called the "fill light." Generally this is positioned 90-180 degrees away from the key light and very roughly in front of the scene to fill in any harsh shadows. This fill is dim compared to the first light source. Theoretically it should be non-harsh, but harsh fill lighting looks better sometimes. | Long integer | -50,000 |
| c3DFillY | See meaning for **c3DFillX**. | Long integer | 0 |
| c3DFillZ | See meaning for **c3DFillX**. | Long integer | 10,000 |
| c3DFillIntensity | Theoretical maximum is 1, but may be higher. | Fixed | 38,000 |
| fc3DParallel | **True** if the fill has parallel projection, **False** if it does not. If **fc3DParallel** is **True**, the **fc3DKeyHarsh** and **fc3DFillHarsh** properties determine the parallel projection used. A skew amount of 0 means the projection is orthographic. | Boolean | TRUE |
| fc3DKeyHarsh | **True** if key lighting is harsh, **False** if it is not. | Boolean | TRUE |
| fc3DFillHarsh | **True** if fill lighting harsh, **False** if it is not. | Boolean | FALSE |
| c3DCrMod | Modification for BW views. | Color | Undefined |
| c3DTolerance | 3D tolerance. | Fixed | 30,000 |
| f3DOK | 3D can be set. | Boolean | TRUE |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| fc3DConstrainRotation | If TRUE, then, the rotation is restricted to x-y rotation and the final rotation results from first rotating by c3DYRotation degrees about the y-axis and then by rotating c3DXRotation degrees about the z-axis. If FALSE, then the final rotation results from a single rotation of c3DRotationAngle about the axis specified by c3DRotationAxisX,Y,and Z. | Boolean | TRUE |
| **Perspective** | | | |
| perspectiveOffsetX | The values define a transformation matrix. Each value is scaled by the *perspectiveWeight* parameter. | Fixed | 0 |
| perspectiveOffsetY | See meaning for perspectiveOffsetX. | Fixed | 0 |
| perspectiveOriginX | Perspective x origin. | Fixed | 32,768 |
| perspectiveOriginY | Perspective y origin. | Fixed | 32,768 |
| perspectivePerspectiveX | See meaning for perspectiveOffsetX. | Fixed | 0 |
| perspectivePerspectiveY | See meaning for perspectiveOffsetX. | Fixed | 0 |
| perspectiveScaleXToX | See meaning for perspectiveOffsetX. | Fixed | 65,536 |
| perspectiveScaleXToY | See meaning for perspectiveOffsetX. | Fixed | 0 |
| perspectiveScaleYToX | See meaning for perspectiveOffsetX. | Fixed | 0 |
| perspectiveScaleYToY | See meaning for perspectiveOffsetX. | Transform type | 65,536 |
| perspectiveType | Where transform applies:<br>0 Absolute<br>1 Shape<br>2 Drawing | Fixed | 1 |
| perspectiveWeight | Scaling factor. | Boolean | 256 |
| fPerspective | On/off. | | Not applicable |
| **Callout** | | | |
| spcot | Callout type:<br>1 Right angle<br>2 One segment<br>3 Two segments<br>4 Three segments | Not applicable | 3 |
| dxyCalloutGap | Distance from box to first point. | EMU | 76,200 |
| spcoa | Callout angle:<br>0 Any angle<br>1 30 degrees<br>2 45 degrees<br>3 60 degrees<br>4 90 degrees | Not applicable | 1 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| spcod | Callout drop type:<br>0 Top<br>1 Center<br>2 Bottom<br>3 Specified by **dxyCalloutDropSpecified** | | 3 |
| dxyCalloutDropSpecified | If **spcod** is 3, then this holds the actual drop distance. | EMU | 114,300 |
| dxyCalloutLengthSpecified | In the case where **fCalloutLengthSpecified** is **True**, this holds the actual distance. | EMU | 0 |
| fCallout | This is a callout. | Boolean | FALSE |
| fCalloutAccentBar | Callout has an accent bar. | Boolean | FALSE |
| fCalloutTextBorder | Callout has a text border. | Boolean | TRUE |
| fCalloutDropAuto | **True** if Auto attach is on. **False** if it is off. If this is **True**, then the converter should occasionally invert the drop distance. | Boolean | FALSE |
| fCalloutLengthSpecified | **True** if the callout length is specified; **False** if it is not. If **True**, use **dxyCalloutLengthSpecified.** If **False**, the **Best Fit** option is on. | Boolean | FALSE |
| fCalloutMinusX | The polyline of the callout is to the right | Boolean | FALSE |
| fCalloutMinusY | The polyline of the callout is down. | Boolean | FALSE |
| fCalloutTextBorder | Callout has a text border | Boolean | TRUE |
| **Connectors** | | | |
| cxk | Connection site type:<br>0 None<br>1 Segments<br>2 Custom<br>3 Rect | Connector style | 1 |
| cxstyle | Connector style:<br>0 Straight<br>1 Bent<br>2 Curved<br>3 None | | 3 |
| **Drawing Canvases and Diagrams** | | | |
| dgmt | Diagram type:<br>0 Drawing Canvas<br>1 Organizational Chart<br>2 Radial Diagram<br>3 Cycle Diagram<br>4 Pyramid Diagram<br>5 Venn Diagram<br>6 Target Diagram | Diagram style | Not applicable |
| dgmStyle | Diagram style, which is dependent on Diagram type:<br>Organization Chart Styles<br>0 Default | Complex | Not applicable |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| | 1 Outline | | |
| | 2 Double Outline | | |
| | 3 Thick Outline | | |
| | 4 Primary Colors | | |
| | 5 Shaded | | |
| | 6 Fire | | |
| | 7 3-D Color | | |
| | 8 Gradient | | |
| | 9 Brackets | | |
| | 10 Braces | | |
| | 11 Bookend Fills | | |
| | 12 Stripes | | |
| | 13 Beveled | | |
| | 14 Beveled Gradient | | |
| | 15 Square Shadows | | |
| | 16 Wireframe | | |
| | Radial Diagram Styles | | |
| | 0 Default | | |
| | 1 Outline | | |
| | 2 Double Outline | | |
| | 3 Thick Outline | | |
| | 4 Primary Colors | | |
| | 5 Shaded | | |
| | 6 Fire | | |
| | 7 3-D Color | | |
| | 8 Gradient | | |
| | 9 Square Shadows | | |
| | Cycle Diagram Styles | | |
| | 0 Default | | |
| | 1 Outline | | |
| | 2 Double Outline | | |
| | 3 Thick Outline | | |
| | 4 Primary Colors | | |
| | 5 Shaded | | |
| | 6 Fire | | |
| | 7 3-D Color | | |
| | 8 Gradient | | |
| | 9 Square Shadows | | |
| | 10 Default (counterclockwise) | | |
| | 11 Outline (counterclockwise) | | |
| | 12 Double Outline (counterclockwise) | | |
| | 13 Thick Outline (counterclockwise) | | |
| | 14 Primary Colors (counterclockwise) | | |
| | 15 Shaded (counterclockwise) | | |
| | 16 Fire (counterclockwise) | | |
| | 17 3-D Color (counterclockwise) | | |
| | 18 Gradient (counterclockwise) | | |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| | 19 Square Shadows (counterclockwise) | | |
| | Pyramid Diagram Styles | | |
| | 0 Default | | |
| | 1 Outline | | |
| | 2 Double Outline | | |
| | 3 Thick Outline | | |
| | 4 Primary Colors | | |
| | 5 Shaded | | |
| | 6 Fire | | |
| | 7 3-D Color | | |
| | 8 Gradient | | |
| | 9 Square Shadows | | |
| | Venn Diagram Styles | | |
| | 0 Default | | |
| | 1 Outline | | |
| | 2 Double Outline | | |
| | 3 Thick Outline | | |
| | 4 Primary Colors | | |
| | 5 Shaded | | |
| | 6 Fire | | |
| | 7 3-D Color | | |
| | 8 Gradient | | |
| | 9 Square Shadows | | |
| | Target Diagram Styles | | |
| | 0 Default | | |
| | 1 Outline | | |
| | 2 Double Outline | | |
| | 3 Thick Outline | | |
| | 4 Primary Colors | | |
| | 5 Shaded | | |
| | 6 Fire | | |
| | 7 3-D Color | | |
| | 8 Gradient | | |
| | 9 Square Shadows | | |
| pRelationTbl | Complex property specifies table of relationships. | Fixed | Not applicable |
| dgmScaleX | The scale factor for width of a diagram. | Long integer | 65,536 |
| dgmScaleY | The scale factor for height of a diagram. | Long integer | 65,536 |
| dgmDefaultFontSize | Specifies text font size in points for new nodes in diagram. | Complex | Not applicable |
| dgmConstrainBounds | Specifies bounds that diagram nodes are constrained to | Boolean | Not applicable |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| dgmLayout | This property specifies the node layout in a diagram, which is dependent on the Diagram type:<br>Organization Chart Node Layout<br>0 Standard<br>1 Both Hanging<br>2 Right Hanging<br>3 Left Hanging | Long integer | 0 |
| dgmLayoutMRU | Most recently used layout | Long integer | 0 |
| dgmNodeKind | This property specifies kind of node in a diagram and is exposed in the RTF format. The following Diagram node kinds are currently supported:<br>0 Node<br>1 Root<br>2 Assistant,<br>3 CoWorker,<br>4 Subordinate,<br>5 Auxiliary Node,<br>6 Default | Long integer | |
| fDoFormat | Specifies if auto formatting of a diagram is turned on. | Layout Type | 0 |
| fDoLayout | TRUE if layout needs to be done | Boolean | TRUE |
| fReverse | TRUE to reverse diagram layout | Boolean | FALSE |
| **Black and White Modes** | | | |
| bWMode | Settings for modifications to be made when in different forms of black and white mode:<br>0 Color<br>1 Automatic<br>2 Grayscale<br>3 Light grayscale<br>4 Inverse gray<br>5 Gray outline<br>6 Black TextLine<br>7 High contrast<br>8 Black<br>9 White<br>10 Do not show<br>11 Number of black and white modes | Black and white mode | 1 |
| bWModeBW | See meaning for **bWMode**. | Black and White Mode | 1 |
| bWModePureBW | See meaning for **bWmode**. | | 1 |

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| Property | Meaning | Type of value | Default |
|---|---|---|---|
| **Horizontal Line** | | | |
| alignHR | Horizontal alignment:<br>0 Left<br>1 Center<br>2 Right | Integer | 0 |
| dxHeightHR | Height of a horizontal line in twips | Integer | 0 |
| dxWidthHR | Width of a horizontal line in twips | Integer | 0 |
| fHorizRule | Specifies that a shape is a horizontal rule. | Boolean | FALSE |
| fStandardHR | Specifies whether a shape is displayed as a standard horizontal rule. | Boolean | FALSE |
| fNoShadeHR | Specifies that the horizontal rule does not have 3D shading. | Boolean | FALSE |
| pctHR | Percentage width for a horizontal line in (in 10ths of a percent). | Integer | 0 |

Word's RTF reader recognizes **\hrule** to mean insert a horizontal rule with default properties at the end of the document. It is ignored elsewhere in the document and Word writes a horizontal line shape instead of **\hrule**.

The format of the value depends on the property name it is paired with. Many values are simple single numbers. Distances are expressed in EMU units (English-metric units). Fractional or fixed values are expressed using units that are 1/65536th of a whole. Angles are expressed as fractions of a degree. Colors are 24-bit color values. Booleans have two possible values: 1 for **True** and 0 for **False**.

Arrays are formatted as a sequence of numbers separated by semicolons. The first number tells the size of each element in the array in bytes. The number of bytes per element may be 2, 4, or 8. When the size of the element is 8, each element is represented as a group of two numbers. The second number tells the number of elements in the array. For example, the points of a square polygon are written as:

```
{sv 8;4;{0,0};{100,0};{100,100};{0,100}}
```

The **ShapeType** property can have the following possible values.

| Value | Meaning | Value | Meaning |
|---|---|---|---|
| 0 | Freeform or non-autoshape | 102 | Curved right arrow |
| 1 | Rectangle | 103 | Curved left arrow |
| 2 | Round rectangle | 104 | Curved up arrow |
| 3 | Ellipse | 105 | Curved down arrow |
| 4 | Diamond | 106 | Cloud callout |
| 5 | Isosceles triangle | 107 | Ellipse ribbon |
| 6 | Right triangle | 108 | Ellipse ribbon 2 |
| 7 | Parallelogram | 109 | Flow chart process |
| 8 | Trapezoid | 110 | Flow chart decision |
| 9 | Hexagon | 111 | Flow chart input output |
| 10 | Octagon | 112 | Flow chart predefined process |
| 11 | Plus Sign | 113 | Flow chart internal storage |

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| Value | Meaning | Value | Meaning |
|---|---|---|---|
| 12 | Star | 114 | Flow chart document |
| 13 | Arrow | 115 | Flow chart multidocument |
| 14 | Thick arrow | 116 | Flow chart terminator |
| 15 | Home plate | 117 | Flow chart preparation |
| 16 | Cube | 118 | Flow chart manual input |
| 17 | Balloon | 119 | Flow chart manual operation |
| 18 | Seal | 120 | Flow chart connector |
| 19 | Arc | 121 | Flow chart punched card |
| 20 | Line | 122 | Flow chart punched tape |
| 21 | Plaque | 123 | Flow chart summing junction |
| 22 | Can | 124 | Flow chart or |
| 23 | Donut | 125 | Flow chart collate |
| 24 | Text simple | 126 | Flow chart sort |
| 25 | Text octagon | 127 | Flow chart extract |
| 26 | Text hexagon | 128 | Flow chart merge |
| 27 | Text curve | 129 | Flow chart offline storage |
| 28 | Text wave | 130 | Flow chart online storage |
| 29 | Text ring | 131 | Flow chart magnetic tape |
| 30 | Text on curve | 132 | Flow chart magnetic disk |
| 31 | Text on ring | 133 | Flow chart magnetic drum |
| 32 | Straight connector1 | 134 | Flow chart display |
| 33 | Bent connector 2 | 135 | Flow chart delay |
| 34 | Bent connector 3 | 136 | Text plain text |
| 35 | Bent connector 4 | 137 | Text stop |
| 36 | Bent connector 5 | 138 | Text triangle |
| 37 | Curved connector 2 | 139 | Text triangle inverted |
| 38 | Curved connector 3 | 140 | Text chevron |
| 39 | Curved connector 4 | 141 | Text chevron inverted |
| 40 | Curved connector 5 | 142 | Text ring inside |
| 41 | Callout 1 | 143 | Text ring outside |
| 42 | Callout 2 | 144 | Text arch up curve |
| 43 | Callout 3 | 145 | Text arch down curve |
| 44 | Accent callout 1 | 146 | Text circle curve |
| 45 | Accent callout 2 | 147 | Text button curve |
| 46 | Accent callout 3 | 148 | Text arch up pour |
| 47 | Border callout 1 | 149 | Text arch down pour |
| 48 | Border callout 2 | 150 | Text circle pour |
| 49 | Border callout 3 | 151 | Text button pour |
| 50 | Accent border callout 1 | 152 | Text curve up |
| 51 | Accent border callout 2 | 153 | Text curve down |
| 52 | Accent border callout 3 | 154 | Text cascade up |

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| Value | Meaning | Value | Meaning |
|---|---|---|---|
| 53 | Ribbon | 155 | Text cascade down |
| 54 | Ribbon2 | 156 | Text wave1 |
| 55 | Chevron | 157 | Text wave2 |
| 56 | Pentagon | 158 | Text wave3 |
| 57 | No smoking | 159 | Text wave4 |
| 58 | Seal8 | 160 | Text inflate |
| 59 | Seal16 | 161 | Text deflate |
| 60 | Seal32 | 162 | Text inflate bottom |
| 61 | Wedge rectangle callout | 163 | Text deflate bottom |
| 62 | Wedge RRect callout | 164 | Text inflate top |
| 63 | Wedge ellipse callout | 165 | Text deflate top |
| 64 | Wave | 166 | Text deflate inflate |
| 65 | Folded corner | 167 | Text deflate inflate deflate |
| 66 | Left arrow | 168 | Text fade right |
| 67 | Down arrow | 169 | Text fade left |
| 68 | Up arrow | 170 | Text fade up |
| 69 | Left right arrow | 171 | Text fade down |
| 70 | Up down arrow | 172 | Text slant up |
| 71 | IrregularSeal1 | 173 | Text slant down |
| 72 | IrregularSeal2 | 174 | Text can up |
| 73 | Lightning bolt | 175 | Text can down |
| 74 | Heart | 176 | Flow chart alternate process |
| 75 | Picture frame | 177 | Flow chart off-page connector |
| 76 | Quad arrow | 178 | Callout 90 |
| 77 | Left arrow callout | 179 | Accent callout 90 |
| 78 | Right arrow callout | 180 | Border callout 90 |
| 79 | Up arrow callout | 181 | Accent border callout 90 |
| 80 | Down arrow callout | 182 | Left right up arrow |
| 81 | Left right arrow callout | 183 | Sun |
| 82 | Up down arrow callout | 184 | Moon |
| 83 | Quad arrow callout | 185 | Bracket pair |
| 84 | Bevel | 186 | Brace pair |
| 85 | Left bracket | 187 | Seal4 |
| 86 | Right bracket | 188 | Double wave |
| 87 | Left brace | 189 | Action button blank |
| 88 | Right brace | 190 | Action button home |
| 89 | Left up arrow | 191 | Action button help |
| 90 | Bent up arrow | 192 | Action button information |
| 91 | Bent arrow | 193 | Action button forward next |
| 92 | Seal24 | 194 | Action button back previous |
| 93 | Striped right arrow | 195 | Action button end |

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| Value | Meaning | Value | Meaning |
|---|---|---|---|
| 94 | Notched right arrow | 196 | Action button beginning |
| 95 | Block arc | 197 | Action button return |
| 96 | Smiley face | 198 | Action button document |
| 97 | Vertical scroll | 199 | Action button sound |
| 98 | Horizontal scroll | 200 | Action button movie |
| 99 | Circular arrow | 201 | Host control |
| 100 | Notched circular arrow | 202 | Text box |
| 101 | U-turn arrow | | |

The following keywords are related to defining a hyperlink hanging off a shape, that is, all of them are inside a `{\sp{\sn …}{\sv …}}`. These specifically can occur in the **\sp** to define a property that is a hyperlink. They are used in the following way:

```
{\hl {\hlloc RTF-string }{\hlsrc RTF-string}{\hlfr RTF-string}}
```

The three groups can be in any order and provide the three strings needed to fully describe a hyperlink. The control words are described in the following table.

| Control word | Meaning |
|---|---|
| \hl | Destination for hyperlink attached to a shape. |
| \hlloc | Location string for hyperlink. |
| \hlsrc | Source string for hyperlink. |
| \hlfr | Display name for hyperlink. |

## Footnotes

The **\footnote** control word introduces a footnote. Footnotes are destinations in RTF. A footnote is anchored to the character that immediately precedes the footnote destination (that is, the footnote moves with the character to which it is anchored). If automatic footnote numbering is defined, the destination can be preceded by a footnote reference character, identified by the control word **\chftn**. Microsoft products do not support footnotes within headers, footers, or comments (annotations). Placing a footnote within headers, footers, or comments will often result in a corrupted document.

Footnotes have the following syntax:

<footnote> '{' **\footnote \ftnalt**? <para>+ '}'

Here is an example of a destination containing footnotes:

```
\ftnbj\ftnrestart \sectd \linemod0\linex0\endnhere \pard\plain

\ri1170 \fs20 {\pu6 Mead's landmark study has been amply annotated.\chftn

{\footnote \pard\plain \s246 \fs20 {\up6\chftn }See Sahlins, Bateson, and

Geertz for a complete bibliography.}

It was her work in America during the Second World War, however, that forms

the basis for the paper. As others have noted, \chftn
```

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```
{\footnote \pard\plain \s246 \fs20 {\up6\chftn}
A complete bibliography will be found at the end of this chapter.}
this period was a turning point for Margaret Mead.}
\par
```

To indicate endnotes, the following combination is emitted: **\footnote\ftnalt.** Existing readers will ignore the **\ftnalt** control word and treat everything as a footnote.

For other control words relating to footnotes, see the sections titled Document Formatting Properties, Section Formatting Properties, and Special Characters in this specification.

## Comments (Annotations)

RTF comments (annotations) have two parts; the author ID (introduced by the control word **\atnid**) and the comment text (introduced by the control word **\annotation**); there is no group enclosing both parts. Microsoft products do not support comments within headers, footers, or footnotes. Placing a comment within headers, footers, or footnotes may result in a corrupted document. Each part of the comment is an RTF destination. Comments are anchored to the character that immediately precedes the comment.

If an annotation is associated with an annotation bookmark, the following two destination control words precede and follow the bookmark. The alphanumeric string ***N***, such as a long integer, represents the bookmark name.

| | |
|---|---|
| <atrfstart> | '{*' **\atrfstart *N*** '}' |
| <atrfend> | '{*' **\atrfend *N*** '}' |

Comments have the following syntax:

| | |
|---|---|
| <annot> | <annotid> <atnauthor> <atntime>? **\chatn** <atnicn>? <annotdef> |
| <annotid> | '{*' **\atnid** #PCDATA '}' |
| <atnauthor> | '{*' **\atnauthor** #PCDATA '}' |
| <annotdef> | '{*' **\annotation** <atndate>? <atnref> <atnparent> <para>+ '}' |
| <atnref> | '{*' **\atnref*N*** '}' |
| <atntime> | '{*' **\atntime** <time> '}' |
| <atndate> | '{*' **\atndate** <date> '}' |
| <atnparent> | '{*' **\atnparent** <annotid of parent> '}' |
| <atnicn> | '{*' **\atnicn** <pict> '}' |

The following is an example of annotation text:

```
{\insrsid8729657 An example of a paradigm might be Darwinian biology.}{\cs15\v\fs16\insrsid8729657
{\*\atnid JD}{\*\atnauthor John Doe}\chatn {\*\annotation{\*\atndate 1180187342}\pard\plain \s16\ql
\li0\ri0\widctlpar\aspalpha\aspnum\faauto\adjustright\rin0\lin0\itap0
\fs20\lang1033\langfe1033\cgrid\langnp1033\langfenp1033 {\cs15\fs16\insrsid8729657 \chatn
}{\insrsid9244585 How about some examples that deal with social science? That is what this paper is
about.}}}
```

Comments may have optional time stamps (contained in the **\atntime** destination), date stamps (contained in the **\atndate** destination), or icons (contained in the **\atnicn** destination).

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## Fields

The **\field** control word introduces a field destination, which contains the text of fields. Fields have the following syntax:

| | |
|---|---|
| <field> | '{' **\field** <fieldmod>? <fieldinst> <fieldrslt> '}' |
| <fieldmod> | **\flddirty**? & **\fldedit**? & **\fldlock**? & **\fldpriv**? |
| <fieldinst> | '{*' **\fldinst** <fieldtype><para>+ **\fldalt**? <datafield>? <formfield>? '}' |
| <fieldrslt> | '{' **\fldrslt** <para>+ '}' |
| <datafield> | '{' ***\datafield** #SDATA '}' |
| <fieldtype> | <datetime> \| <docauto> \| <docinfo> \| <form> \| <formulas> \| <indextables> \| <links> \| <mailmerge> \| <numbering> \| <userinfo> |
| <datetime> | 'CREATEDATE' \| 'DATE' \| 'EDITTIME' \| 'PRINTDATE' \| 'SAVEDATE' \| 'TIME' |
| <docauto> | 'COMPARE' \| 'DOCVARIABLE' \| 'GOTOBUTTON' \| 'IF' \| 'MACROBUTTON' \| 'PRINT' |
| <docinfo> | 'AUTHOR' \| 'COMMENTS' \| 'DOCPROPERTY' \| 'FILENAME' \| 'FILESIZE' \| 'INFO' \| 'KEYWORDS' \| 'LASTSAVEDBY' \| 'NUMCHARS' \| 'NUMPAGES' \| 'NUMWORDS' \| 'SUBJECT' \| 'TEMPLATE' \| 'TITLE' |
| <form> | 'FORMTEXT' \| 'FORMCHECKBOX' \| 'FORMDROPDOWN' |
| <formulas> | ('=' <formula>) \| 'ADVANCE' \| 'EQ' \| 'SYMBOL' |
| <indextables> | 'INDEX' \| 'RD' \| 'TA' \| 'TC' \| 'TOA' \| 'TOC' \| 'XE' |
| <links> | 'AUTOTEXT' \| 'AUTOTEXTLIST' \| 'HYPERLINK' \| 'INCLUDEPICTURE' \| 'INCLUDETEXT' \| 'LINK' \| 'NOTEREF' \| 'PAGEREF' \| 'QUOTE' \| 'REF' \| 'STYLEREF' |
| <mailmerge> | 'ADDRESSBLOCK' \| 'ASK' \| 'COMPARE' \| 'DATABASE' \| 'FILLIN' \| 'GREETINGLINE' \| 'IF' \| 'MERGEFIELD' \| 'MERGEREC' \| 'MERGESEQ' \| 'NEXT' \| 'NEXTIF' \| 'SET' \| 'SKIPIF' |
| <numbering> | 'AUTONUM' \| 'AUTONUMLGL' \| 'AUTONUMOUT' \| 'BARCODE' \| 'LISTNUM' \| 'PAGE' \| 'REVNUM' \| 'SECTION' \| 'SECTIONPAGES' \| 'SEQ' |
| <userinfo> | 'USERADDRESS' \| 'USERINITIALS' \| 'USERNAME' |
| <formula> | See Office Open XML, Section 2.15.3. |

For detailed discussion of the <para>+ content in <fieldinst>, please see Office Open XML, Section 2.15. There are several control words that alter the interpretation of the field. These control words are listed in the following table.

| Control word | Meaning |
|---|---|
| \field | Destination for a field. |
| \flddirty | A formatting change has been made to the field result since the field was last updated. |
| \fldedit | Text has been added to, or removed from, the field result since the field was last updated. |
| \fldlock | Field is locked and cannot be updated. |
| \fldpriv | Result is not in a form suitable for display (for example, binary data used by fields whose result is a picture). |

Two sub destinations are required within the **\field** destination. They must be enclosed in braces ({ }) and begin with the following control words.

| Control word | Meaning |
|---|---|
| *\fldinst | Field instructions. This is a destination control word. |
| \fldrslt | Most recent calculated result of the field. This is a destination control word. |

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If the instruction for a field contains a file name, then the **\cpg*N*** control can be used to define the character set of the file name. See Code Page Support in this specification for details.

The **\fldrslt** control word should be included even if a result was not calculated because most readers (even those readers that do not recognize fields) can generally include the value of the **\fldrslt** destination in the document. A field result should not start with a table, because it may break some RTF readers.

The following is an example of some field text:

```
{\field {\*\fldinst AUTHOR \\*MERGEFORMAT}{\fldrslt Joe Smith}}\par\pard
{\field{\*\fldinst time \\@ "h:mm AM/PM"}{\fldrslt 8:12 AM}}
```

You can use the **\fldalt** control word to specify that the given field reference is to an endnote. For example, the following field in RTF is a reference to a footnote

```
{\field{\*\fldinst NOTEREF _RefNumber }{\fldrslt 1}}
```

The following is an example of a reference to an endnote

```
{\field{\*\fldinst NOTEREF _RefNumber \fldalt}{\fldrslt I}}
```

If the specified field is a form field, the ***\datafield** destination appears as a part of <fieldinst> and contains the binary data of a form field instruction. For example:

```
{\field{\*\fldinst {\*\bkmkstart Text1} FORMTEXT {{\*\datafield
00000000000000000554657874310008476565207768697a00000000000000000000000}}}{\fldrslt Default
Result}}{\*\bkmkend Text1}
```

> **Note** the **\datafield** destination requires the ***** prefix. The **\fldtype**, **\date**, **\time,** and **\wpeqn** field keywords should be ignored.

An example of the AUTONUM field for ①. is

```
{\field{\*\fldinst AUTONUM \\* CircleNum}{\fldrslt \f31505 \u9312\'3f\f31506 .}}
```

An example of a HYPERLINK field is

```
{\field{\*\fldinst HYPERLINK "http://www.microsoft.com"}{\fldrslt Microsoft}}
```

This displays as Microsoft without any coloring since none is specified in the "friendly name" result portion of the field (in the `{\fldrslt …}`). But you can click on it to go to Microsoft's web site. More detailed discussion of the HYPERLINK field is given in Office Open XML, Section 2.15.5.26.

# EQ field and East Asian Formatting

The EQ field is explained in Office Open XML, 2.15.5.20. For the most part, this field is seldom used, since the Equation Editor and Word 2007 math editing and display facilities are far superior. But it's still used for three East Asian formatting constructs: phonetic guide, enclose, and combine. The two other East Asian formatting constructs that Word supports, **\twoinone*N*** (sometimes called Warichu) and **\horzvert*N*** (sometimes called tatenakayoko) have their own RTF and underlying implementations.

This subsection discusses how the phonetic-guide, enclose and combine constructs are created using the Word EQ field using the EQ function \o(<this>,<that>), which displays <this> over

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<that>. The major difference between the three constructs is the displacement of the <this> relative to the <that>.

Consider first the phonetic guide, which is often call ruby. This displays a ruby-text annotation (<ruby>) in a smaller type size above, below, or to the side of a base text (<base>). The ruby text is used to clarify the base text in some way, typically how the base text is pronounced. When Japanese text is displayed from left to right (instead of vertically), the ruby text is displayed above or below the base text. The ruby text can have various justifications.

For example, the ruby construct にほんご,日本語 displays the Japanese for the term "Japanese language", 日本語, together with the Hiragana ruby text にほんご, which is how to pronounce "Japanese language" in Japanese.

To display this construct with the EQ field, add the field switches and EQ functions

* jc*N* * "Font:MS Mincho" * hps*N* \o\ad(\s\up*N*(<ruby>),<base>)

Here the *N* of the jc*N* switch specifies the kind of ruby justification as defined in the table

| ***N*** | **Meaning** |
|---|---|
| 0 | Center <ruby> with respect to <base> |
| 1 | Distribute difference in space between longer and shorter text in the latter, evenly between each character |
| 2 | Distribute difference in space between longer and shorter text in the latter using a ratio of 1:2:1 which corresponds to lead : inter-character : end |
| 3 | Align <ruby> with the left of <base> |
| 4 | Align <ruby> with the right of <base> |
| 5 | Display <ruby> vertically to the right of <base>, regardless of the <base> alignment |

The * "Font:..." specifies the font and the * hps*N* specifies the number of half points to use for the ruby text size. The \ad switch for the \o function says to use the distributed justification defined by the jc*N* entry. The \s\up*N*(...) is the EQ shift function that shifts its argument up if the \up*N* switch is used and down if the \do*N* switch is used. To display <ruby> above <base>, use \up*N* and to display <ruby> below <base>, use \do*N*. Here *N* is the number of points to shift. Note that (half) points don't scale with the text size, so the parameters have to be recalculated if a change in text size is desired.

For the combine formatting construct, the characters to be combined are split into two groups, <above> and <below>. The corresponding Word EQ field contains something like

\o(\s\up5(<above>),\s\do2(<below>))

where the font size is chosen to be 6 pts (\fs12). This construct displays <above> over <below>, sort of the way ruby displays <ruby> over <base>, but for the combine construct <above> isn't shifted up so far and <below> is shifted down a bit. As for the ruby construct, since the shifts are in points, the combine structure doesn't scale with text size correctly. For example, combining abcd, we get $^{ab}{}_{,cd}$, which has the EQ field "eq \o(\s\up 5(ab),\s\do 2(cd))".

For the enclose construct that looks like Ⓠ, the EQ field can contain

\o\ac(\uc0\u9675,Q)

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where $9675_{10}$ = $25CB_{16}$, i.e., a white circle. Here \ac switch means center align one argument over the other (note that there's no \s() object and hence no vertical shift) and we include \uc0 to get rid of the multibyte translation that would otherwise follow \u9675.

When encoding these EQ fields in RTF, one has to duplicate every backslash, so that the backslash is taken literally instead of the start of a control word. For example, the "enclose" EQ field above could be represented by the RTF

```
{\field{\*\fldinst EQ \\o\\ac(\\fs24\\uc0\\u9675,\\fs16 Q)}{\fldrslt}}
```

This structure also doesn't scale with font size, since the white circle and the Q must have appropriate relative font sizes.

> **Note:** Word's RTF for EQ fields always has a null field result (empty **\fldrslt**), so if a reader of the RTF doesn't understand the EQ **\fldinst**, it displays nothing for the field.

## Form Fields

Form fields occur inside the field **\fldinst** group and describe the properties of form controls. They have the syntax

| | |
|---|---|
| <formfield> | '{*' **\formfield** '{' <formparams> <formstrings> '}}' |
| <formparams> | **\fftype*N***? **\ffownhelp*N***? **\ffownstat*N***? **\ffprot*N***? **\ffsize*N***? **\fftypetxt*N***? **\ffrecalc*N***? **\ffhaslistbox*N***? **\ffhaslistbox*N***? **\ffmaxlen*N***? **\ffhps*N***? **\ffdefres*N***? **\ffres*N***? |
| <formstrings> | <ffname>? <ffdeftext>? <ffformat>? <ffhelptext>? <ffstattext>? <ffentrymcr>? <ffexitmcr>? <ffl>* |
| <ffl> | '{*' **\ffl** #PCDATA '}' |
| <ffname> | '{' **\ffname** #PCDATA '}' |
| <ffdeftext> | '{' **\ffdeftext** #PCDATA '}' |
| <ffformat> | '{' **\ffformat** #PCDATA '}' |
| <ffhelptext> | '{' **\ffhelptext** #PCDATA '}' |
| <ffstattext> | '{' **\ffstattext** #PCDATA '}' |
| <ffentrymcr> | '{' **\ffentrymcr** #PCDATA '}' |
| <ffexitmcr> | '{' **\ffexitmcr** #PCDATA '}' |

| **Control word** | **Meaning** |
|---|---|
| *\formfield | Group destination keyword indicating start of form field data. |
| \fftype*N* | Form field type:<br>0 Text<br>1 Check box<br>2 List |
| \ffownhelp*N* | 1 if there is associated Help text (defined under **\ffhelptext**), 0 otherwise. |
| \ffownstat*N* | 1 if there is associated status line text (defined under **\ffstattext**), 0 otherwise. |
| \ffprot*N* | 1 if this field is protected, 0 otherwise. |
| \ffsize*N* | Type of size selected for check box field:<br>0 Auto<br>1 Exact |

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| Control word | Meaning |
|---|---|
| \fftypetxt*N* | Type of text field:<br>0 Regular text<br>1 Number<br>2 Date<br>3 Current date<br>4 Current time<br>5 Calculation |
| \ffrecalc*N* | 1 if the field should be calculated on exit, 0 otherwise. |
| \ffhaslistbox*N* | 1 if this field has list box attached to it, 0 otherwise. |
| \ffmaxlen*N* | Number of characters for text field. |
| \ffhps*N* | Check box size (half-point sizes). |
| \ffdefres*N* | Default item for list field (for example 0 = first list item, 1 = second list item). |
| \ffres*N* | Result item for list field. Values from 0 to *n* - 1, where *n* is the number of <ffl> entries. |
| *\ffl | Text of an item in a drop down list. This is a destination control word. |
| *\ffname | Form field name (string). This is a destination control word. |
| *\ffdeftext | Default text for text field (string). This is a destination control word. |
| *\ffformat | Format for text field (string). This is a destination control word. |
| *\ffhelptext | Help text (string). This is a destination control word. |
| *\ffstattext | Status line text (string). This is a destination control word. |
| *\ffentrymcr | Macro to execute upon entry into this form field (string). This is a destination control word. |
| *\ffexitmcr | Macro to execute upon exit from this form field (string). This is a destination control word. |

## Index Entries

The **\xe** control word introduces an index entry. Index entries in RTF are destinations. An index entry has the following syntax:

| | |
|---|---|
| <idx> | '{' **\xe** (**\xef*N***? & **\bxe**? & **\ixe**?) <entry> (<txe> \| <rxe>)? '}' |
| <entry> | (<char>+ <yxe>?) \| ('{' <char>+ <yxe>? '}') |
| <yxe> | **\yxe** <char>+ #PCDATA |
| <txe> | '{' **\txe** <char>+ #PCDATA '}' |
| <rxe> | '{' **\rxe** #PCDATA '}' |
| <pxe> | '*' **\pxe** <char>+ #PCDATA |

If the text of the index entry is not formatted as hidden text with the **\v** control word, then the text is put into the document as well as into the index. Similarly, the text of the **\txe** sub destination, described later in this section, becomes part of the document if it is not formatted as hidden text. For more information on the **\v** control word, see Font/Character Formatting Properties in this specification.

The following control words may also be used.

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| Control word | Meaning |
|---|---|
| \xef*N* | Allows multiple indexes within the same document. ***N*** is an integer that corresponds to the ASCII value of a letter between A and Z. |
| \bxe | Formats page number or cross-reference in bold. |
| \ixe | Formats page number or cross-reference in italic. |
| \txe | Text argument to be used instead of a page number. This is a destination control word. |
| \rxe | Text argument is a bookmark for the range of page numbers. This is a destination control word. |
| \yxe | Pronunciation (or heading) for index entry, used in phonetic sorting. |
| *\pxe | "Yomi" (pronunciation) for index entry. |

## Table of Contents Entries

The **\tc** control word introduces a table of contents entry, which can be used to build the actual table of contents. The **\tcn** control word marks a table of contents entry that will not have a page number associated with it; this is used in place of **\tc** for such entries. Table of contents entries are destinations, and they have the following syntax:

<toc> '{' **\tc** | **\tcn** (**\tcf*N***? & **\tcl*N***?) <char>+ '}'

As with index entries, text that is not formatted as hidden with the **\v** character-formatting control word is put into the document. The following control words can also be used in this destination.

| Control word | Meaning |
|---|---|
| \tcf*N* | Type of table being compiled. ***N*** is mapped by existing Microsoft software to a letter between A and Z (default is 67, which maps to C, used for tables of contents). |
| \tcl*N* | Level number (default is 1). |

## Bidirectional Language Support

RTF supports bidirectional writing orders for languages such as Arabic. The controls are described in the following table (as well as in the appropriate sections throughout this specification). Also refer to the associated character properties defined in Associated Character Properties in this specification.

All the control words relating to bidirectional language support are repeated here for convenience.

| Control word | Meaning |
|---|---|
| \rtlch | The character data following this control word will be treated as a right-to-left run. |
| \ltrch | The character data following this control word will be treated as a left-to-right run (the default). |
| \lin*N* | Left indent for left-to-right paragraphs; right indent for right-to-left paragraphs (default is 0). |
| \rin*N* | Right indent for left-to-right paragraphs; left indent for right-to-left paragraphs (default is 0). |
| \pgnbidia | Page-number format is Abjad Jawaz if language is Arabic and Biblical Standard if language is Hebrew. |
| \pgnbidib | Page number format is Alif Ba Tah if language is Arabic and Non-standard Decimal if language is Hebrew. |
| \rtlmark | The following characters should be displayed from right to left. |
| \ltrmark | The following characters should be displayed from left to right. |
| \rtlpar | Text in this paragraph will be displayed with right-to-left precedence. |

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| Control word | Meaning |
|---|---|
| \ltrpar | Text in this paragraph will be displayed with left-to-right precedence (the default). |
| \rtlrow | Cells in this table row will have right-to-left precedence. |
| \ltrrow | Cells in this table row will have left-to-right precedence (the default). |
| \rtlsect | This section will thread columns from right to left. |
| \ltrsect | This section will thread columns from left to right (the default). |
| \rtldoc | Text in this document will be displayed from right to left unless overridden by a more specific control. |
| \ltrdoc | Text in this document will be displayed from left to right unless overridden by a more specific control (the default). |
| \levelnfcn*N* | Same values as **\levelnfc*N***. Takes priority over it if both are present (see definition in List Table). |
| \leveljcn*N* | 0 Left justified for left-to-right paragraphs and right justified for right-to-left paragraphs<br>1 Center justified<br>2 Right justified for left-to-right paragraphs and left justified for right-to-left paragraphs<br>Takes priority over **\leveljc*N*** if both are present. |
| \rtlgutter | Gutter is positioned on the right. |
| \taprtl | Indicates that the table direction is right-to-left. |
| \zwj | Zero-width joiner. This is used for ligating characters. |
| \zwnj | Zero-width nonjoiner. This is used for unligating characters. |

# East Asian Support

Word 2000 and subsequent releases provide full support for all East Asian features introduced in all previous Asian versions of Word and they have the ability to read and write RTF keywords related to such features. This section provides details on the handling of East Asian characters. For more information on handling East Asian features, see the appropriate subsection in the Contents of an RTF File section in this document. See also EQ field and East Asian Formatting.

## *Escaped Expressions*

An escaped expression (for example, **\'hh**, ****, or **\{**) is usable in all RTF control words.

In general RTF should be written out with all characters above 0x7F in the escaped form, **\'hh** or the **\u*N*** form if an ANSI version doesn't exist. The following table shows values for character codes.

| Character code | Write out as |
|---|---|
| 0x00 <= ch < 0x20 | Escaped (\'hh) |
| 0x20 <= ch < 0x80 | Raw (non-escaped) character |
| 0x80 <= ch <= 0xFF | Escaped (\'hh) |
| 0x5C, 0x7B, 0x7D (special RTF characters \,{, }) | Escaped (\'hh) |

When an RTF reader encounters raw characters in the leading-byte range of the double-byte character, it regards the next character as the trailing byte of the double-byte character and combines the two characters into one double-byte character. The following table shows possible byte combinations.

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| Leading byte | Trailing byte | Validity |
|---|---|---|
| Escaped | Raw (0x20 <= ch <= 0x7f) | Valid (standard format for double-byte character) |
| Escaped | Escaped (other) | Valid (standard format for double-byte character) |
| Raw | Raw | Valid (RTF-J format for double-byte character) |
| Raw | Escaped | Invalid |

**Note:** Characters that are special RTF symbols (\,{, or }) should always be escaped, preferably using the \'hh syntax, since some readers may have trouble with \\, \{, or \}.

## *Character Set and Mapping*

Word specifies the character set in the font table using **\fcharset*N***. Word interprets **\cpg437** as **\fcharset0** and **\cpg932** as **\fcharset128** if it encounters these control words when reading RTF.

Word maps single-byte characters according to character set information (for example, Macintosh to ANSI) and leaves double-byte characters unmapped.

## Font Family

| RTF control words | Definition and interpretation in Word |
|---|---|
| \jis | RTF uses **\jis** as a control word for character set. Word interprets this as **\ansi**, which is the default character set used if the character set is not defined. |
| \fjminchou and \fjgothic | RTF uses **\fjminchou** and **\fjgothic** to specify font family. Word interprets these as **\fnil**, which is the default font family. |

## ShiftJIS Font Without \cpg*N* or \fcharset*N*

If **\cpg*N*** or **\fcharset*N*** control words are not present, Word uses the text metrics of the font to determine the character set of these fonts.

## Composite Fonts (Associated Fonts for International Runs)

Word defines control words to specify composite fonts as associated character properties. These control words follow the rule of associated character properties and understand font designation (**\af*N***). All other <aprops> are ignored in Word. In an East Asian context (see Associated Character Properties for the general case) composite fonts have the following syntax:

| | |
|---|---|
| <atext> | <losbrun> \| <hisbrun> \| <dbrun> |
| <losbrun> | **\hich \af*N*** & <aprops> **\dbch \af*N*** & <aprops> **\loch** <ptext> |
| <hisbrun> | **\loch \af*N*** & <aprops> **\dbch \af*N*** & <aprops> **\hich** <ptext> |
| <dbrun> | **\loch \af*N*** & <aprops> **\hich \af*N*** & <aprops> **\dbch** <ptext> |

These control words are described in the following table.

| Control word | Meaning |
|---|---|
| \loch | Specifies a run of the characters in the low-ANSI (0x00–0x7F) area. |
| \hich | For the characters in the high-ANSI (0x80–-0xFF) area. |
| \dbch | Specifies a run of the double-byte characters. |

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Word writes out associated character properties in the styles. In the style sheet, the <dbrun> definition should be used for compatibility with applications that have transparent readers.

```
{\stylesheet{\loch\af5\hich\af5\dbch\f27\fs20\snext0 Normal;}}
```

If the composite font definition matches the style, only the control word (**\loch**, **\hich**, or **\dbch**) is used to distinguish the type of run, along with the font information for transparent readers.

```
{\fonttbl{\f5\fswiss\fcharset0\fprq2 Arial;}{\f27\froman\fcharset128\fprq1 Mincho;}}

{\stylesheet{\loch\af5\hich\af5\dbch\f27\fs20\snext0 Normal;}}

\pard\plain

{\dbch\f27\fs20 \'82\'b1\'82\'ea\'82\'cd}

{\loch\f5 Test }

{\dbch\f27\'82\'c5\'82\'b7\'81B}

\par}
```

If one or all of **\loch**, **\hich**, and **\dbch** are missing from the style sheet definition (or the character set does not match), Word applies the following fonts to each character run in the style using the bulleted rules in the next paragraph.

| Control word | Font Word J applies |
|---|---|
| \loch | Same font as ***\fN***. |
| \hich | Any font whose character set is ANSI_CHARSET. |
| \dbch | Any font whose character set is SHIFTJIS_CHARSET. |

If the composite font control words are missing from the character run, Word will interpret all characters below 0x80 as a **\loch** run. Characters above or equal to 0x80 are determined using the following rules:

- If the character is in the leading-byte range and the next character is in the trailing-byte range of a double-byte character, it is treated as a **\dbch** run (one double-byte character). For example,

\'99\'47 → 僖

- If the character is in the leading-byte range of a double-byte character but the next character is not in the trailing-byte range, it is treated as a **\hich** run (two high-ANSI or low-ANSI characters). For example,

\'99\'FF → ÿ

- If the character is in the leading-byte range of a double-byte character and is the last character in the run, it is treated as a **\hich** run (one high-ANSI character). For example,

\'99\par →

- If the character is not in the leading-byte range of a double-byte character, it is treated as a **\hich** run (one high-ANSI character). For example,

\'FF → ÿ

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## East Asian Control Words Created by Word 6J

These control words have been integrated into the appropriate main tables earlier in this document.

| Control word | Meaning |
|---|---|
| **Associated Character Properties** | |
| \loch | The text consists of single-byte low-ANSI (0x00–0x7F) characters. |
| \hich | The text consists of single-byte high-ANSI (0x80–0xFF) characters. |
| \dbch | The text consists of double-byte characters. |
| **Character Properties** | |
| \uldash | Dashed underline. |
| \uldashd | Dash-dotted underline. |
| \uldashdd | Dash-dot-dotted underline. |
| \ulhair | Hairline underline. |
| \ulth | Thick underline. |
| \ulwave | Wave underline. |
| \accnone | No accent characters (over dot / over comma). |
| \accdot | Over dot accent. |
| \acccomma | Over comma accent. |
| \charscalex | Character width scaling. |
| \striked1 | Double strikethrough. **\striked0** turns it off. |
| **Document Formatting Properties** | |
| \horzdoc | Horizontal rendering. |
| \vertdoc | Vertical rendering. |
| *\fchars | List of following Kinsoku characters. |
| *\lchars | List of leading Kinsoku characters. |
| \jcompress | Compressing justification (default). |
| \jexpand | Expanding justification. |
| \gutterprl | Parallel gutter. |
| \dgsnap | Snap to drawing grid. |
| \dghspace*N* | Drawing grid horizontal spacing in twips (default is 120). |
| \dgvspace*N* | Drawing grid vertical spacing in twips (default is 120). |
| \dghorigin*N* | Drawing grid horizontal origin in twips (default is 1,701). |
| \dgvorigin*N* | Drawing grid vertical origin in twips (default is 1,984). |
| \dghshow*N* | Show ***N***th horizontal drawing gridline (default is 3). |
| \dgvshow*N* | Show ***N***th vertical drawing gridline (default is 0). |
| \twoonone | Print two logical pages on one physical page. |
| \lnongrid | Define line based on the grid. |
| **Bullets and Numbering** | |
| \pndecd | Double-byte decimal numbering (Arabic DBCHAR). |
| \pndbnum | Kanji numbering without the digit character (DBNUM1). |
| \pnaiu | 46 phonetic katakana characters in “aiueo” order (AIUEO). |
| \pnaiud | 46 phonetic double-byte katakana characters (AIUEO DBCHAR). |

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| Control word | Meaning |
|---|---|
| \pniroha | 46 phonetic katakana characters in "iroha" order (iroha). |
| \pnirohad | 46 phonetic double-byte katakana characters (iroha DBCHAR). |
| \pncnum | 20 numbered list in circle (CIRCLENUM). |
| \pnuldash | Dashed underline. |
| \pnuldashd | Dash-dotted underline. |
| \pnuldashdd | Dash-dot-dotted underline. |
| \pnulhair | Hairline underline. |
| \pnulth | Thick underline. |
| \pnulwave | Wave underline. |
| **Drawing Objects** | |
| \dptxlrtb | Text box flows from left to right and top to bottom (default). |
| \dptxtbrl | Text box flows from right to left and top to bottom. |
| \dptxbtlr | Text box flows from left to right and bottom to top. |
| \dptxlrtbv | Text box flows from left to right and top to bottom, vertically. |
| \dptxtbrlv | Text box flows from top to bottom and right to left, vertically. |
| **Frame Properties** | |
| \frmtxlrtb | Frame box flows from left to right and top to bottom (default). |
| \frmtxtbrl | Frame box flows right to left and top to bottom. |
| \frmtxbtlr | Frame box flows left to right and bottom to top. |
| \frmtxlrtbv | Frame box flows left to right and top to bottom, vertical. |
| \frmtxtbrlv | Frame box flows top to bottom and right to left, vertical. |
| **Index Entries** | |
| *\pxe | "Yomi" (pronunciation) for index entry. |
| **Paragraph Properties** | |
| \nocwrap | No character wrapping. |
| \nowwrap | No word wrapping. |
| \qd | Distributed. |
| \nooverflow | No overflow period and comma. |
| \aspalpha | Auto spacing between DBC and English. |
| \aspnum | Auto spacing between DBC and numbers. |
| \fahang | Font alignment – Hanging. |
| \facenter | Font alignment – Center. |
| \faroman | Font alignment – Roman (default). |
| \favar | Font alignment – Upholding variable. |
| \fafixed | Font alignment – Upholding fixed. |
| **Section Formatting Properties** | |
| \horzsect | Horizontal rendering. |
| \vertsect | Vertical rendering. |
| \pgndecd | Double-byte decimal numbering. |
| \pgndbnum | Kanji numbering without the digit character. |

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| Control word | Meaning |
|---|---|
| \pgndbnumd | Kanji numbering with the digit character. |
| **Special Characters** | |
| \zwbo | Zero-width break opportunity. Used to insert break opportunity between two characters. |
| \zwnbo | Zero-width nonbreak opportunity. Used to remove break opportunity between two characters. |
| \qmspace | One-quarter em space. |
| **Table Formatting** | |
| \cldglu | Diagonal line (upper left to lower right). Followed by <brdr>, which defines the properties of the diagonal border (**\cldglu** <brdr>). |
| \cldgll | Diagonal line (upper right to lower left). Followed by <brdr>, which defines the properties of the diagonal border (**\cldgll** <brdr>). |
| \cltxlrtb | Text in a cell flows from left to right and top to bottom (default). |
| \cltxtbrl | Text in a cell flows right to left and top to bottom. |
| \cltxbtlr | Text in a cell flows left to right and bottom to top. |
| \cltxlrtbv | Text in a cell flows left to right and top to bottom, vertical. |
| \cltxtbrlv | Text in a cell flows top to bottom and right to left, vertical. |
| \clvmgf | The first cell in a range of table cells to be vertically merged. |
| \clvmrg | Contents of the table cell are vertically merged with those of the preceding cell. |
| \clvertalt | Cell top align. |
| \clvertalc | Cell vertically center align. |
| \clvertalb | Cell bottom align. |
| **Tabs** | |
| \tlmdot | Leader middle dots. |

## East Asian Control Words

| Control word | Meaning |
|---|---|
| **Character Formatting Properties** | |
| \cgrid*N* | Character grid. |
| \g | Destination related to character grids (not emitted by Word). |
| \gcw*N* | Grid column width. |
| \gridtbl | Destination keyword related to character grids (not emitted by Word). |
| \nosectexpand | Disable character space basement. |
| **Paragraph Formatting Properties** | |
| \adjustright | Automatically adjust right indent when document grid is defined. |
| \nosnaplinegrid | Disable snap line to grid. |
| \faauto | Font alignment the default setting for this is "Auto." |
| **Borders** | |
| \brdrframe | Border resembles a frame. |
| **Bullets and Numbers** | |
| \pnaiueo | 46 phonetic katakana characters in "aiueo" order (AIUEO). |
| \pnaiueod | 46 phonetic double-byte katakana characters (AIUEO DBCHAR). |
| \pndbnumd | Kanji numbering with the digit character (DBNUM2). |

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| Control word | Meaning |
|---|---|
| \pndbnumt | Kanji numbering 3 (DBNUM3). |
| \pndbnuml | Kanji numbering 3 (DBNUM3). |
| \pndbnumk | Kanji numbering 4 (DBNUM4). |
| \pnganada | Korean numbering 2 (GANADA). |
| \pngbnum | Chinese numbering 1 (GB1). |
| \pngbnumd | Chinese numbering 2 (GB2). |
| \pngbnuml | Chinese numbering 3 (GB3). |
| \pngbnumk | Chinese numbering 4 (GB4). |
| \pnzodiac | Chinese Zodiac numbering 1 (ZODIAC1). |
| \pnzodiacd | Chinese Zodiac numbering 2 (ZODIAC2). |
| \pnzodiacl | Chinese Zodiac numbering 3 (ZODIAC3). |
| \pnchosung | Korean numbering 1 (CHOSUNG). |

**Endnotes and Footnotes**

| | |
|---|---|
| \ftnnchosung | Footnote Korean numbering 1 (CHOSUNG). |
| \ftnncnum | Footnote Circle numbering (CIRCLENUM). |
| \ftnndbnum | Footnote kanji numbering without the digit character (DBNUM1). |
| \ftnndbnumd | Footnote kanji numbering with the digit character (DBNUM2). |
| \ftnndbnumt | Footnote kanji numbering 3 (DBNUM3). |
| \ftnndbnumk | Footnote kanji numbering 4 (DBNUM4). |
| \ftnndbar | Footnote double-byte numbering (DBCHAR). |
| \ftnnganada | Footnote Korean numbering 2 (GANADA). |
| \ftnngbnum | Footnote Chinese numbering 1 (GB1). |
| \ftnngbnumd | Footnote Chinese numbering 2 (GB2). |
| \ftnngbnuml | Footnote Chinese numbering 3 (GB3). |
| \ftnngbnumk | Footnote Chinese numbering 4 (GB4). |
| \ftnnzodiac | Footnote numbering—Chinese Zodiac numbering 1 (ZODIAC1) 甲、乙、丙… |
| \ftnnzodiacd | Footnote numbering—Chinese Zodiac numbering 2 (ZODIAC2) 子、丑、寅… |
| \ftnnzodiacl | Footnote numbering—Chinese Zodiac numbering 3 (ZODIAC3). |
| \aftnnchosung | Endnote Korean numbering 1 (CHOSUNG). |
| \aftnncnum | Endnote Circle numbering (CIRCLENUM). |
| \aftnndbnum | Endnote kanji numbering without the digit character (DBNUM1). |
| \aftnndbnumd | Endnote kanji numbering with the digit character (DBNUM2). |
| \aftnndbnumt | Endnote kanji numbering 3 (DBNUM3). |
| \aftnndbnumk | Endnote kanji numbering 4 (DBNUM4). |
| \aftnndbar | Endnote double-byte numbering (DBCHAR). |
| \aftnnganada | Endnote Korean numbering 2 (GANADA). |
| \aftnngbnum | Endnote Chinese numbering 1 (GB1). |
| \aftnngbnumd | Endnote Chinese numbering 2 (GB2). |
| \aftnngbnuml | Endnote Chinese numbering 3 (GB3). |
| \aftnngbnumk | Endnote Chinese numbering 4 (GB4). |
| \aftnnzodiac | Endnote numbering—Chinese Zodiac numbering 1 (ZODIAC1) 甲、乙、丙… |

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| Control word | Meaning |
|---|---|
| \aftnnzodiacd | Endnote numbering—Chinese Zodiac numbering 2 (ZODIAC2) 子、丑、寅… |
| \aftnnzodiacl | Endnote numbering—Chinese Zodiac numbering 3 (ZODIAC3). |
| **Section Formatting Properties** | |
| \pgnchosung | Korean numbering 1 (CHOSUNG). |
| \pgncnum | Circle numbering (CIRCLENUM). |
| \pgndbnumt | Kanji numbering 3 (DBNUM3). |
| \pgndbnumk | Kanji numbering 4 (DBNUM4). |
| \pgnganada | Korean numbering 2 (GANADA). |
| \pgngbnum | Chinese numbering 1 (GB1). |
| \pgngbnumd | Chinese numbering 2 (GB2). |
| \pgngbnuml | Chinese numbering 3 (GB3). |
| \pgngbnumk | Chinese numbering 4 (GB4). |
| \pgnzodiac | Chinese Zodiac numbering 1 (ZODIAC1). |
| \pgnzodiacd | Chinese Zodiac numbering 2 (ZODIAC2). |
| \pgnzodiacl | Chinese Zodiac numbering 3 (ZODIAC3). |
| \sectexpand*N* | Character space basement (character pitch minus font size) ***N*** in device independent units (a device independent unit is 1/294912th of an inch). |
| \sectlinegrid*N* | Line grid, where ***N*** is the line pitch in 20ths of a point (twips). |
| \sectdefaultcl | Default state of section. Indicates **\sectspecifycl** and **\sectspecifyl** are not emitted. |
| \sectspecifycl | Specify number of characters per line only. |
| \sectspecifyl | Specify both number of characters per line and number of lines per page. |
| **Document Formatting Properties** | |
| \dgmargin | Grid to follow margins. |
| **Index Entries** | |
| \yxe | Pronunciation (or heading) for index entry, used in phonetic sorting. |

## East Asian Control Words Created by Word 2000

| Control word | Meaning |
|---|---|
| **Document Formatting Properties** | |
| \jsksu | Indicates that the strict Kinsoku set must be used for Japanese; **\jsku** should not be present if **\ksulang*N*** is present *and* the language *N* is Japanese. |
| \ksulang*N* | Indicates what language ***N*** the customized Kinsoku characters defined in the **\fchars** and **\lchars** destinations belong to. |
| **Section Formatting Properties** | |
| \sectspecifygenN | Indicates that text should snap to the character grid. Note that the N is part of the keyword. |
| **Paragraph Formatting Properties** | |
| \cufi*N* | First-line indent in hundredths of a character unit; overrides **\fi*N***, although they should both be emitted with equivalent values. |
| \culi*N* | Left indent (space before) in character units. Behaves like **\lin*N*** and overrides **\li*N*** and **\lin*N***, although they should all be emitted with equivalent values. |
| \curi*N* | Right indent (space after) in character units. Behaves like **\rin*N*** and overrides **\ri*N*** and **\rin*N***, although they should all be emitted with equivalent values. |

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| Control word | Meaning |
|---|---|
| \lisb*N* | Space before in hundredths of a character unit. Overrides **\sb*N*** although they should both be emitted with equivalent values. |
| \lisa*N* | Space after in hundredths of a character unit. Overrides **\sa*N*** although they should both be emitted with equivalent values. |
| **Character Formatting Properties** | |
| \horzvert*N* | Text in the group flows in a direction opposite to that of the main document (Horizontal in vertical and vertical in horizontal):<br>0 Switched text is uncompressed.<br>1 Switched text is compressed to current line height. |
| \twoinone*N* | Text in the group is displayed as two half-height lines within a line:<br>0 Text is not enclosed.<br>1 Text is enclosed in parentheses.<br>2 Text is enclosed in square brackets ([]).<br>3 Text is enclosed in angled brackets (<>).<br>4 Text is enclosed in braces ({}). |
| \fittext*N* | Fit the text in the current group in ***N*** twips. When ***N*** is set to -1 (**\fittext-1**) it indicates a continuation of the previous **\fittext*N*** run. In other words {\fittext1000 Fit this} {\fittext-1 text} fits the string "Fit this text" in 1,000 twips. |

# Appendix A: Sample RTF Reader Application

This appendix gives the source code for a sample RTF reader program.

**Note** The sample RTF reader is not a for-sale product, and Microsoft does not provide technical or any other type of support for the sample RTF reader code or the RTF specification.

## *How to Write an RTF Reader*

There are three basic things that an RTF reader must do:

Separate text from RTF controls.

Parse an RTF control.

Dispatch an RTF control.

Separating text from RTF controls is relatively simple, because all RTF controls begin with a backslash. Therefore, any incoming character that is not a backslash is text and will be handled as text.

Parsing an RTF control is also relatively simple. An RTF control is either (a) a sequence of alphabetical characters followed by an optional numeric parameter, or (b) a single non-alphanumeric character.

Dispatching an RTF control, on the other hand, is relatively complicated. A recursive-descent parser tends to be overly strict because RTF is intentionally vague about the order of various properties relative to one another. However, whatever method you use to dispatch an RTF control, your RTF reader should do the following:

Ignore control words you do not understand or do not want to implement.
Many RTF readers fail when they come across an unknown RTF control. Because Microsoft is

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continually adding new RTF controls, this limits an RTF reader to working with the RTF from one particular product (usually some version of Word for Windows).

Always understand *
One of the most important things an RTF reader can do is to understand the * control. This control introduces a destination that is not part of the document. It tells the RTF reader that if the reader does not understand the next control word, then it should skip the entire enclosing group.

- Remember that binary data can occur when you're skipping RTF.
  A simple way to skip a group in RTF is to keep a running count of the opening braces the RTF reader has encountered in the RTF stream. When the RTF reader sees an opening brace, it increments the count. When the reader sees a closing brace, it decrements the count. When the count becomes negative, the end of the group was found. Unfortunately, this does not work when the RTF file contains a **\bin*N*** control; the reader must explicitly check each control word found to see if it is a **\bin*N*** control, and if found, skip that many bytes before resuming its scanning for braces.

## *A Sample RTF Reader Implementation*

This implementation uses a table-driven approach to reading RTF. The approach allows the most flexibility in reading RTF but makes it difficult to detect incorrect RTF. This reader works exactly as described in the RTF specification and uses the principles of operation described within the RTF specification. This reader is designed to be simple to understand but is not intended to be efficient or all inclusive. This RTF reader also implements the three design principles listed in the previous section.

The RTF reader consists of the following four files:

- rtfdecl.h, prototypes for all functions in the RTF reader
- rtftype.h, types used in the RTF reader
- rtfreadr.c, main program, the main loop of the RTF reader, and the RTF control parser
- rtfactn.c, dispatch routines for the RTF reader

### rtfdecl.h

rtfdecl.h is straightforward and requires little explanation.

rtfreadr.c

Like rtfdecl.h, rtfreadr.c is also reasonably straightforward. The function **ecRtfParse** separates text from RTF controls and handles text, and the function **ecParseRtfKeyword** parses an RTF control and also collects any parameter that follows the RTF control.

### rtftype.h

rtftype.h begins by declaring a sample set of character, paragraph, section, and document properties. These structures are present to demonstrate how the dispatch routines can modify any particular property and are not actually used to format text.

For example, the following enumeration describes the destination to which the text should be routed to:

```
typedef enum { rdsNorm, rdsSkip } RDS;
```

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Because this is just a sample RTF reader, there are only two destinations. A more complicated reader would add an entry to this enumeration for each destination supported [for example, headers, footnotes, endnotes, comments (annotations), bookmarks, and pictures].

The following enumeration describes the internal state of the RTF parser:

```
typedef enum { risNorm, risBin, risHex } RIS;
```

This is entirely separate from the state of the dispatch routines and the destination state; other RTF readers may not necessarily have anything similar to this.

The following structure encapsulates the state that must be saved at a group start and restored at a group end:

```
typedef struct save

{

struct save *pNext;

CHP chp;

PAP pap;

SEP sep;

DOP dop;

RDS rds;

RIS ris;

} SAVE;
```

The following enumeration describes a set of classes for RTF controls:

```
typedef enum {kwdChar, kwdDest, kwdProp, kwdSpec} KWD;
```

- Use **kwdChar** for controls that represent special characters (such as **\-**, **\{**, or **\}**).
- Use **kwdDest** for controls that introduce RTF destinations.
- Use **kwdProp** for controls that modify some sort of property.
- Use **kwdSpec** for controls that need to run some specialized code.

The following enumeration defines the number of PROP structures (described later) that will be used. There will typically be an **iprop** for every field in the character, paragraph, section, and document properties.

```
typedef enum {ipropBold, ipropItalic, ipropUnderline, ipropLeftInd,

ipropRightInd, ipropFirstInd, ipropCols, ipropPgnX, ipropPgnY,

ipropXaPage, ipropYaPage, ipropXaLeft, ipropXaRight,

ipropYaTop, ipropYaBottom, ipropPgnStart, ipropSbk,

ipropPgnFormat, ipropFacingp, ipropLandscape, ipropJust,

ipropPard, ipropPlain,

ipropMax} IPROP;
```

The following structure is a very compact way to describe how to locate the address of a particular value in one of the property structures:

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```
typedef enum {actnSpec, actnByte, actnWord} ACTN;

typedef enum {propChp, propPap, propSep, propDop} PROPTYPE;

typedef struct propmod

{

ACTN actn;

PROPTYPE prop;

int offset;

} PROP;
```

The **actn** field describes the width of the value being described: if the value is a byte, then **actn** is **actnByte**; if the value is a word, then **actn** is **actnWord**; if the value is neither a byte nor a word, then you can use **actnSpec** to indicate that some C code needs to be run to set the value. The **prop** field indicates the property structure that is being described; **propChp** indicates that the value is located within the CHP structure; **propPap** indicates that the value is located within the PAP structure. Finally, the offset field contains the offset of the value from the start of the structure. The **offsetof()** macro is usually used to initialize this field.

The following structure describes how to parse a particular RTF control:

```
typedef enum {ipfnBin, ipfnHex, ipfnSkipDest } IPFN;

typedef enum {idestPict, idestSkip } IDEST;

typedef struct symbol

{

char *szKeyword;

int dflt;

bool fPassDflt;

KWD kwd;

int idx;

} SYM;
```

**szKeyword** points to the RTF control being described; **kwd** describes the class of the particular RTF control (described earlier); **dflt** is the default value for this control, and **fPassDflt** should be nonzero if the value in **dflt** should be passed to the dispatch routine.

**Note: fPassDflt** is only nonzero for control words that normally set a particular value. For example, the various section break controls typically have nonzero **fPassDflt** controls, but controls that take parameters should not.

**Idx** is a generalized index; its use depends on the **kwd** being used for this control.

- If **kwd** is **kwdChar,** then **idx** is the character that should be output.
- If **kwd** is **kwdDest,** then **idx** is the **idest** for the new destination.
- If **kwd** is **kwdProp,** then **idx** is the **iprop** for the appropriate property.
- If **kwd** is **kwdSpec,** then **idx** is an **ipfn** for the appropriate function.

With this structure it is very simple to dispatch an RTF control word. Once the reader isolates the RTF control word and its (possibly associated) value, the reader then searches an array of

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SYM structures to find the RTF control word. If the control word is not found, the RTF reader ignores it, unless the previous control was *****, in which case the reader must scan past an entire group.

If the control word is found, the reader then uses the **kwd** value from the SYM structure to determine what to do. This is, in fact, exactly what the function **ecTranslateKeyword** in the file RTFACTN.C does.

## rtfactn.c

Rtfactn.c contains the tables describing the properties and control words, and the routines to evaluate properties (**ecApplyPropChange**) and to dispatch control words (**ecTranslateKeyword**).

The tables are the keys to understanding the RTF dispatch routines. The following are some sample entries from both tables, along with a brief explanation of each entry.

Property Table

This table must have an entry for every **iprop.**

```
actnByte,   propChp,    offsetof(CHP, fBold),       // ipropBold
```

This property says that the ***ipropBold*** property is a byte parameter bound to **chp.fBold**.

```
actnWord,   propPap,    offsetof(PAP, xaRight),     // ipropRightInd
```

This property says that ***ipropRightInd*** is a word parameter bound to **pap.xaRight**.

```
actnWord,   propSep,    offsetof(SEP, cCols),       // ipropCols
```

This property says that ***ipropCols*** is a word parameter bound to **sep.cCols**.

```
actnSpec,   propChp,    0,                          // ipropPlain
```

This property says that ***ipropPlain*** is a special parameter. Instead of directly evaluating it, **ecApplyPropChange** will run some custom C code to apply a property change.

Control Word Table

```
"b",        1,      fFalse,     kwdProp,    ipropBold,
```

This structure says that the control **\b** sets the ipropBold property. Because **fPassDflt** is **False**, the RTF reader only uses the default value if the control does not have a parameter. If no parameter is provided, the RTF reader uses a value of 1.

```
"sbknone",  sbkNon, fTrue,      kwdProp,    ipropSbk,
```

This entry says that the control **\sbknone** sets the **ipropSbk** property. Because **fPassDflt** is **True**, the RTF reader always uses the default value of **\sbknone**, even if the control has a parameter.

```
"par",      0,      fFalse,     kwdChar,    0x0a,
```

This entry says that the control **\par** is equivalent to a 0x0a (line feed) character.

```
"tab",      0,      fFalse,     kwdChar,    0x09,
```

This entry says that the control **\tab** is equivalent to a 0x09 (tab) character.

```
"bin",      0,      fFalse,     kwdSpec,    ipfnBin,
```

This entry says that the control **\bin** should run some C code. The particular piece of C code can be located by the **ipfnBin** parameter.

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```
"fonttbl",  0,      fFalse,     kwdDest,    idestSkip,
```

This entry says that the control **\fonttbl** should change to the destination **idestSkip**.

## *Notes on Implementing Other RTF Features*

The table-driven approach to dispatching RTF controls used by the sample converter does not implement any syntax checking. For most controls this is not a problem; a control modifies the appropriate property. However, some controls, such as those for tabs and borders, are dependent on other control words either before or after the current control word.

There are some standard techniques for handling these features.

### Tabs and Other Control Sequences Terminating in a Fixed Control

The best way to implement these types of control sequences is to have a global structure that represents the current state of the tab descriptor (or other entity). As the modifiers come in, they modify the various fields of the global structure. When the fixed control at the end of the sequence is dispatched, it adds the entire descriptor and reinitializes the global variable.

### Borders and Other Control Sequences Beginning with a Fixed Control

The best way to implement these types of control sequences is to have a global pointer that is initialized when the fixed control is dispatched. The controls that modify the fixed control then modify fields pointed to by the global pointer.

## *Other Problem Areas in RTF*

### Style Sheets

Style sheets can be handled as destinations. However, styles have default values, just as every other control does. RTF readers should be sure to handle a missing style control as the default style value (that is, 0).

### Property Changes

Some RTF readers use various bits of RTF syntax to mark property changes. In particular, they assume that property changes will occur only after a group start, which is not correct. Because there is a variety of ways to represent identical property changes in RTF, RTF readers should review the changes in the properties and not at any particular way of representing a property change. In particular, properties can be changed explicitly with a control word or implicitly at the end of a group. For example, these three sequences of RTF have exactly the same semantics, and should be translated identically:

```
{\b bold \i Bold Italic \i0 Bold again}

{\b bold {\i Bold Italic }Bold again}

{\b bold \i Bold Italic \plain\b Bold again}
```

### Fields

All versions of Microsoft Word for Windows and version 6.0 and later of Microsoft Word for the Macintosh have fields. If you are writing an RTF reader and expect to do anything with fields, keep the following notes in mind:

- Field instructions may have arbitrary amounts of character formatting and arbitrarily nested groups. While the groups will be properly nested within the field instructions, you may already be inside an arbitrary number of groups by the time

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you know the field you are working with. If you then expect to be able to skip to the end of the field instructions, you'll have to know how many groups have started so that you can skip to the end properly.

- Some fields, the INCLUDE field in particular, can have section breaks in the field results. If this occurs, then the text after the end of the field does not have the same section properties as the text at the start of the field. Therefore, the section properties must not be restored when the field results contain section breaks.

### Tables

Tables are probably the hardest part of RTF to read and write correctly. Because of the way Microsoft word processors implement tables, and the table-driven approach of many Microsoft RTF readers, it is very easy to write tables in RTF that are not compatible with Microsoft word processors when you try to read the RTF. Here are some guidelines to reduce problems with tables in RTF:

- Place the entire table definition before any paragraph properties, including **\pard**.
- Verify that the number of cells in the RTF matches the number of cell definitions.
- Some controls must be the same in all paragraphs in a row. In particular, all paragraphs in a row must have the same positioning controls, and all paragraphs in a row must have **\intbl** specified.
- Do not use the **\sbys** control inside a table. **\sbys** is a holdover from Word for MS-DOS and early versions of Word for the Macintosh. Word for Windows and current versions of Word for the Macintosh translate **\sbys** as a table.
- Cell definitions starting before the left margin of the paper begins (that is, the parameter plus the left margin is negative) are always in error.

## *Program Listings*

### rtfdecl.h

```
// RTF parser declarations
int ecRtfParse(FILE *fp);
int ecPushRtfState(void);
int ecPopRtfState(void);
int ecParseRtfKeyword(FILE *fp);
int ecParseChar(int c);
int ecTranslateKeyword(char *szKeyword, int param, bool fParam);
int ecPrintChar(int ch);
int ecEndGroupAction(RDS rds);
int ecApplyPropChange(IPROP iprop, int val);
int ecChangeDest(IDEST idest);
int ecParseSpecialKeyword(IPFN ipfn);
int ecParseSpecialProperty(IPROP iprop, int val);
int ecParseHexByte(void);

// RTF variable declarations
extern int cGroup;
```

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```
extern RDS rds;
extern RIS ris;
extern CHP chp;
extern PAP pap;
extern SEP sep;
extern DOP dop;
extern SAVE *psave;
extern long cbBin;
extern long lParam;
extern bool fSkipDestIfUnk;
extern FILE *fpIn;

// RTF parser error codes
#define ecOK 0                      // Everything's fine!
#define ecStackUnderflow    1       // Unmatched '}'
#define ecStackOverflow     2       // Too many '{' - memory exhausted
#define ecUnmatchedBrace    3       // RTF ended during an open group.
#define ecInvalidHex        4       // invalid hex character found in data
#define ecBadTable          5       // RTF table (sym or prop) not valid
#define ecAssertion         6       // Assertion failure
#define ecEndOfFile         7       // End of file reached while reading RTF
#define ecInvalidKeyword    8       // Invalid keyword
#define ecInvalidParam      9       // Invalid parameter
```

## rtftype.h

```
typedef char bool;
#define fTrue 1
#define fFalse 0

typedef struct char_prop
{
    char fBold;
    char fUnderline;
    char fItalic;
} CHP;                  // Character Properties

typedef enum {justL, justR, justC, justF } JUST;
typedef struct para_prop
{
    int xaLeft;                 // left indent in twips
    int xaRight;                // right indent in twips
    int xaFirst;                // first line indent in twips
    JUST just;                  // justification
```

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```
} PAP;                  // Paragraph Properties

typedef enum {sbkNon, sbkCol, sbkEvn, sbkOdd, sbkPg} SBK;
typedef enum {pgDec, pgURom, pgLRom, pgULtr, pgLLtr} PGN;
typedef struct sect_prop
{
    int cCols;                  // number of columns
    SBK sbk;                    // section break type
    int xaPgn;                  // x position of page number in twips
    int yaPgn;                  // y position of page number in twips
    PGN pgnFormat;              // how the page number is formatted
} SEP;                  // Section Properties
typedef struct doc_prop
{
    int xaPage;                 // page width in twips
    int yaPage;                 // page height in twips
    int xaLeft;                 // left margin in twips
    int yaTop;                  // top margin in twips
    int xaRight;                // right margin in twips
    int yaBottom;               // bottom margin in twips
    int pgnStart;               // starting page number in twips
    char fFacingp;              // facing pages enabled?
    char fLandscape;            // landscape or portrait?
} DOP;                  // Document Properties

typedef enum { rdsNorm, rdsSkip } RDS;              // Rtf Destination State
typedef enum { risNorm, risBin, risHex } RIS;       // Rtf Internal State

typedef struct save             // property save structure
{
    struct save *pNext;         // next save
    CHP chp;
    PAP pap;
    SEP sep;
    DOP dop;
    RDS rds;
    RIS ris;
} SAVE;

// What types of properties are there?
typedef enum {ipropBold, ipropItalic, ipropUnderline, ipropLeftInd,
              ipropRightInd, ipropFirstInd, ipropCols, ipropPgnX,
              ipropPgnY, ipropXaPage, ipropYaPage, ipropXaLeft,
```

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```
              ipropXaRight, ipropYaTop, ipropYaBottom, ipropPgnStart,
              ipropSbk, ipropPgnFormat, ipropFacingp, ipropLandscape,
              ipropJust, ipropPard, ipropPlain, ipropSectd,
              ipropMax } IPROP;

typedef enum {actnSpec, actnByte, actnWord} ACTN;
typedef enum {propChp, propPap, propSep, propDop} PROPTYPE;

typedef struct propmod
{
    ACTN actn;              // size of value
    PROPTYPE prop;          // structure containing value
    int  offset;            // offset of value from base of structure
} PROP;

typedef enum {ipfnBin, ipfnHex, ipfnSkipDest } IPFN;
typedef enum {idestPict, idestSkip } IDEST;
typedef enum {kwdChar, kwdDest, kwdProp, kwdSpec} KWD;
typedef struct symbol
{
    char *szKeyword;        // RTF keyword
    int  dflt;              // default value to use
    bool fPassDflt;         // true to use default value from this table
    KWD  kwd;               // base action to take
    int  idx;               // index into property table if kwd == kwdProp
                            // index into destination table if kwd == kwdDest
                            // character to print if kwd == kwdChar
} SYM;
```

## rtfreadr.c

```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include "rtftype.h"
#include "rtfdecl.h"

int cGroup;
bool fSkipDestIfUnk;
long cbBin;
long lParam;
RDS rds;
RIS ris;
```

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```
CHP chp;
PAP pap;
SEP sep;
DOP dop;
SAVE *psave;
FILE *fpIn;

// %%Function: main
//
// Main loop. Initialize and parse RTF.
main(int argc, char *argv[])
{
    FILE *fp;
    int ec;

    fp = fpIn = fopen("test.rtf", "r");
    if (!fp)
    {
        printf ("Can't open test file!\n");
        return 1;
    }
    if ((ec = ecRtfParse(fp)) != ecOK)
        printf("error %d parsing rtf\n", ec);
    else
        printf("Parsed RTF file OK\n");
    fclose(fp);
    return 0;
}

// %%Function: ecRtfParse
//
// Step 1:
// Isolate RTF keywords and send them to ecParseRtfKeyword;
// Push and pop state at the start and end of RTF groups;
// Send text to ecParseChar for further processing.

int ecRtfParse(FILE *fp)
{
    int ch;
    int ec;
    int cNibble = 2;
    int b = 0;
    while ((ch = getc(fp)) != EOF)
```

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```
    {
        if (cGroup < 0)
            return ecStackUnderflow;
        if (ris == risBin)                      // if we're parsing binary data, handle it directly
        {
            if ((ec = ecParseChar(ch)) != ecOK)
                return ec;
        }
        else
        {
            switch (ch)
            {
            case '{':
                if ((ec = ecPushRtfState()) != ecOK)
                    return ec;
                break;
            case '}':
                if ((ec = ecPopRtfState()) != ecOK)
                    return ec;
                break;
            case '\\':
                if ((ec = ecParseRtfKeyword(fp)) != ecOK)
                    return ec;
                break;
            case 0x0d:
            case 0x0a:          // cr and lf are noise characters...
                break;
            default:
                if (ris == risNorm)
                {
                    if ((ec = ecParseChar(ch)) != ecOK)
                        return ec;
                }
                else
                {               // parsing hex data
                    if (ris != risHex)
                        return ecAssertion;
                    b = b << 4;
                    if (isdigit(ch))
                        b += (char) ch - '0';
                    else
                    {
                        if (islower(ch))
```

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```
                        {
                            if (ch < 'a' || ch > 'f')
                                return ecInvalidHex;
                            b += (char) ch - 'a' + 10;
                        }
                        else
                        {
                            if (ch < 'A' || ch > 'F')
                                return ecInvalidHex;
                            b += (char) ch - 'A' + 10;
                        }
                    }
                    cNibble--;
                    if (!cNibble)
                    {
                        if ((ec = ecParseChar(b)) != ecOK)
                            return ec;
                        cNibble = 2;
                        b = 0;
                        ris = risNorm;
                    }
                }                   // end else (ris != risNorm)
                break;
            }       // switch
        }           // else (ris != risBin)
    }               // while
    if (cGroup < 0)
        return ecStackUnderflow;
    if (cGroup > 0)
        return ecUnmatchedBrace;
    return ecOK;
}

// %%Function: ecPushRtfState
//
// Save relevant info on a linked list of SAVE structures.

int ecPushRtfState(void)
{
    SAVE *psaveNew = malloc(sizeof(SAVE));
    if (!psaveNew)
        return ecStackOverflow;
```

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```
    psaveNew -> pNext = psave;
    psaveNew -> chp = chp;
    psaveNew -> pap = pap;
    psaveNew -> sep = sep;
    psaveNew -> dop = dop;
    psaveNew -> rds = rds;
    psaveNew -> ris = ris;
    ris = risNorm;
    psave = psaveNew;
    cGroup++;
    return ecOK;
}

// %%Function: ecPopRtfState
//
// If we're ending a destination (that is, the destination is changing),
// call ecEndGroupAction.
// Always restore relevant info from the top of the SAVE list.

int ecPopRtfState(void)
{
    SAVE *psaveOld;
    int ec;

    if (!psave)
        return ecStackUnderflow;

    if (rds != psave->rds)
    {
        if ((ec = ecEndGroupAction(rds)) != ecOK)
            return ec;
    }
    chp = psave->chp;
    pap = psave->pap;
    sep = psave->sep;
    dop = psave->dop;
    rds = psave->rds;
    ris = psave->ris;

    psaveOld = psave;
    psave = psave->pNext;
    cGroup--;
    free(psaveOld);
```

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```
    return ecOK;
}

// %%Function: ecParseRtfKeyword
//
// Step 2:
// get a control word (and its associated value) and
// call ecTranslateKeyword to dispatch the control.

int ecParseRtfKeyword(FILE *fp)
{
    int ch;
    char fParam = fFalse;
    char fNeg = fFalse;
    int param = 0;
    char *pch;
    char szKeyword[30];
    char *pKeywordMax = &szKeyword[30];
    char szParameter[20];
    char *pParamMax = &szParameter[20];

    lParam = 0;
    szKeyword[0] = '\0';
    szParameter[0] = '\0';
    if ((ch = getc(fp)) == EOF)
        return ecEndOfFile;
    if (!isalpha(ch))           // a control symbol; no delimiter.
    {
        szKeyword[0] = (char) ch;
        szKeyword[1] = '\0';
        return ecTranslateKeyword(szKeyword, 0, fParam);
    }
    for (pch = szKeyword; pch < pKeywordMax && isalpha(ch); ch = getc(fp))
        *pch++ = (char) ch;
    if (pch >= pKeywordMax)
        return ecInvalidKeyword;      // Keyword too long
    *pch = '\0';
    if (ch == '-')
    {
        fNeg  = fTrue;
        if ((ch = getc(fp)) == EOF)
            return ecEndOfFile;
    }
```

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```
    if (isdigit(ch))
    {
        fParam = fTrue;         // a digit after the control means we have a parameter
        for (pch = szParameter; pch < pParamMax && isdigit(ch); ch = getc(fp))
            *pch++ = (char) ch;
        if (pch >= pParamMax)
            return ecInvalidParam;    // Parameter too long
        *pch = '\0';
        param = atoi(szParameter);
        if (fNeg)
            param = -param;
        lParam = param;
    }
    if (ch != ' ')
        ungetc(ch, fp);
    return ecTranslateKeyword(szKeyword, param, fParam);
}

// %%Function: ecParseChar
//
// Route the character to the appropriate destination stream.

int ecParseChar(int ch)
{
    if (ris == risBin && --cbBin <= 0)
        ris = risNorm;
    switch (rds)
    {
    case rdsSkip:
        // Toss this character.
        return ecOK;
    case rdsNorm:
        // Output a character. Properties are valid at this point.
        return ecPrintChar(ch);
    default:
    // handle other destinations....
        return ecOK;
    }
}
//
// %%Function: ecPrintChar
//
// Send a character to the output file.
```

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```
int ecPrintChar(int ch)
{
    // unfortunately, we do not do a whole lot here as far as layout goes...
    putchar(ch);
    return ecOK;
}
```

## rtfactn.c

```
#include <stdio.h>
#include <string.h>
#include <stddef.h>
#include <ctype.h>
#include "rtftype.h"
#include "rtfdecl.h"

// RTF parser tables
// Property descriptions
PROP rgprop [ipropMax] = {
    actnByte,   propChp,    offsetof(CHP, fBold),       // ipropBold
    actnByte,   propChp,    offsetof(CHP, fItalic),     // ipropItalic
    actnByte,   propChp,    offsetof(CHP, fUnderline),  // ipropUnderline
    actnWord,   propPap,    offsetof(PAP, xaLeft),      // ipropLeftInd
    actnWord,   propPap,    offsetof(PAP, xaRight),     // ipropRightInd
    actnWord,   propPap,    offsetof(PAP, xaFirst),     // ipropFirstInd
    actnWord,   propSep,    offsetof(SEP, cCols),       // ipropCols
    actnWord,   propSep,    offsetof(SEP, xaPgn),       // ipropPgnX
    actnWord,   propSep,    offsetof(SEP, yaPgn),       // ipropPgnY
    actnWord,   propDop,    offsetof(DOP, xaPage),      // ipropXaPage
    actnWord,   propDop,    offsetof(DOP, yaPage),      // ipropYaPage
    actnWord,   propDop,    offsetof(DOP, xaLeft),      // ipropXaLeft
    actnWord,   propDop,    offsetof(DOP, xaRight),     // ipropXaRight
    actnWord,   propDop,    offsetof(DOP, yaTop),       // ipropYaTop
    actnWord,   propDop,    offsetof(DOP, yaBottom),    // ipropYaBottom
    actnWord,   propDop,    offsetof(DOP, pgnStart),    // ipropPgnStart
    actnByte,   propSep,    offsetof(SEP, sbk),         // ipropSbk
    actnByte,   propSep,    offsetof(SEP, pgnFormat),   // ipropPgnFormat
    actnByte,   propDop,    offsetof(DOP, fFacingp),    // ipropFacingp
    actnByte,   propDop,    offsetof(DOP, fLandscape),  // ipropLandscape
    actnByte,   propPap,    offsetof(PAP, just),        // ipropJust
    actnSpec,   propPap,    0,                          // ipropPard
    actnSpec,   propChp,    0,                          // ipropPlain
    actnSpec,   propSep,    0,                          // ipropSectd
```

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```
};

// Keyword descriptions
SYM rgsymRtf[] = {
//  keyword     dflt    fPassDflt   kwd         idx
    "b",        1,      fFalse,     kwdProp,    ipropBold,
    "u",        1,      fFalse,     kwdProp,    ipropUnderline,
    "i",        1,      fFalse,     kwdProp,    ipropItalic,
    "li",       0,      fFalse,     kwdProp,    ipropLeftInd,
    "ri",       0,      fFalse,     kwdProp,    ipropRightInd,
    "fi",       0,      fFalse,     kwdProp,    ipropFirstInd,
    "cols",     1,      fFalse,     kwdProp,    ipropCols,
    "sbknone",  sbkNon, fTrue,      kwdProp,    ipropSbk,
    "sbkcol",   sbkCol, fTrue,      kwdProp,    ipropSbk,
    "sbkeven",  sbkEvn, fTrue,      kwdProp,    ipropSbk,
    "sbkodd",   sbkOdd, fTrue,      kwdProp,    ipropSbk,
    "sbkpage",  sbkPg,  fTrue,      kwdProp,    ipropSbk,
    "pgnx",     0,      fFalse,     kwdProp,    ipropPgnX,
    "pgny",     0,      fFalse,     kwdProp,    ipropPgnY,
    "pgndec",   pgDec,  fTrue,      kwdProp,    ipropPgnFormat,
    "pgnucrm",  pgURom, fTrue,      kwdProp,    ipropPgnFormat,
    "pgnlcrm",  pgLRom, fTrue,      kwdProp,    ipropPgnFormat,
    "pgnucltr", pgULtr, fTrue,      kwdProp,    ipropPgnFormat,
    "pgnlcltr", pgLLtr, fTrue,      kwdProp,    ipropPgnFormat,
    "qc",       justC,  fTrue,      kwdProp,    ipropJust,
    "ql",       justL,  fTrue,      kwdProp,    ipropJust,
    "qr",       justR,  fTrue,      kwdProp,    ipropJust,
    "qj",       justF,  fTrue,      kwdProp,    ipropJust,
    "paperw",   12240,  fFalse,     kwdProp,    ipropXaPage,
    "paperh",   15480,  fFalse,     kwdProp,    ipropYaPage,
    "margl",    1800,   fFalse,     kwdProp,    ipropXaLeft,
    "margr",    1800,   fFalse,     kwdProp,    ipropXaRight,
    "margt",    1440,   fFalse,     kwdProp,    ipropYaTop,
    "margb",    1440,   fFalse,     kwdProp,    ipropYaBottom,
    "pgnstart", 1,      fTrue,      kwdProp,    ipropPgnStart,
    "facingp",  1,      fTrue,      kwdProp,    ipropFacingp,
    "landscape",1,      fTrue,      kwdProp,    ipropLandscape,
    "par",      0,      fFalse,     kwdChar,    0x0a,
    "\0x0a",    0,      fFalse,     kwdChar,    0x0a,
    "\0x0d",    0,      fFalse,     kwdChar,    0x0a,
    "tab",      0,      fFalse,     kwdChar,    0x09,
    "ldblquote",0,      fFalse,     kwdChar,    '“',
    "rdblquote",0,      fFalse,     kwdChar,    '”',
```

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```
    "bin",       0,      fFalse,     kwdSpec,    ipfnBin,
    "*",         0,      fFalse,     kwdSpec,    ipfnSkipDest,
    "'",         0,      fFalse,     kwdSpec,    ipfnHex,
    "author",    0,      fFalse,     kwdDest,    idestSkip,
    "buptim",    0,      fFalse,     kwdDest,    idestSkip,
    "colortbl",  0,      fFalse,     kwdDest,    idestSkip,
    "comment",   0,      fFalse,     kwdDest,    idestSkip,
    "creatim",   0,      fFalse,     kwdDest,    idestSkip,
    "doccomm",   0,      fFalse,     kwdDest,    idestSkip,
    "fonttbl",   0,      fFalse,     kwdDest,    idestSkip,
    "footer",    0,      fFalse,     kwdDest,    idestSkip,
    "footerf",   0,      fFalse,     kwdDest,    idestSkip,
    "footerl",   0,      fFalse,     kwdDest,    idestSkip,
    "footerr",   0,      fFalse,     kwdDest,    idestSkip,
    "footnote",  0,      fFalse,     kwdDest,    idestSkip,
    "ftncn",     0,      fFalse,     kwdDest,    idestSkip,
    "ftnsep",    0,      fFalse,     kwdDest,    idestSkip,
    "ftnsepc",   0,      fFalse,     kwdDest,    idestSkip,
    "header",    0,      fFalse,     kwdDest,    idestSkip,
    "headerf",   0,      fFalse,     kwdDest,    idestSkip,
    "headerl",   0,      fFalse,     kwdDest,    idestSkip,
    "headerr",   0,      fFalse,     kwdDest,    idestSkip,
    "info",      0,      fFalse,     kwdDest,    idestSkip,
    "keywords",  0,      fFalse,     kwdDest,    idestSkip,
    "operator",  0,      fFalse,     kwdDest,    idestSkip,
    "pict",      0,      fFalse,     kwdDest,    idestSkip,
    "printim",   0,      fFalse,     kwdDest,    idestSkip,
    "private1",  0,      fFalse,     kwdDest,    idestSkip,
    "revtim",    0,      fFalse,     kwdDest,    idestSkip,
    "rxe",       0,      fFalse,     kwdDest,    idestSkip,
    "stylesheet",0,      fFalse,     kwdDest,    idestSkip,
    "subject",   0,      fFalse,     kwdDest,    idestSkip,
    "tc",        0,      fFalse,     kwdDest,    idestSkip,
    "title",     0,      fFalse,     kwdDest,    idestSkip,
    "txe",       0,      fFalse,     kwdDest,    idestSkip,
    "xe",        0,      fFalse,     kwdDest,    idestSkip,
    "{",         0,      fFalse,     kwdChar,    '{',
    "}",         0,      fFalse,     kwdChar,    '}',
    "\\",        0,      fFalse,     kwdChar,    '\\'
    };
int isymMax = sizeof(rgsymRtf) / sizeof(SYM);

// %%Function: ecApplyPropChange
```

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```
// Set the property identified by _iprop_ to the value _val_.

int ecApplyPropChange(IPROP iprop, int val)
{
    char *pb;
    if (rds == rdsSkip)                 // If we're skipping text,
        return ecOK;                    // Do not do anything.

    switch (rgprop[iprop].prop)
    {
    case propDop:
        pb = (char *)&dop;
        break;
    case propSep:
        pb = (char *)&sep;
        break;
    case propPap:
        pb = (char *)&pap;
        break;
    case propChp:
        pb = (char *)&chp;
        break;
    default:
        if (rgprop[iprop].actn != actnSpec)
            return ecBadTable;
        break;
    }
    switch (rgprop[iprop].actn)
    {
    case actnByte:
        pb[rgprop[iprop].offset] = (unsigned char) val;
        break;
    case actnWord:
        (*(int *) (pb+rgprop[iprop].offset)) = val;
        break;
    case actnSpec:
        return ecParseSpecialProperty(iprop, val);
        break;
    default:
        return ecBadTable;
    }
    return ecOK;
}
```

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```
// %%Function: ecParseSpecialProperty
// Set a property that requires code to evaluate.

int ecParseSpecialProperty(IPROP iprop, int val)
{
    switch (iprop)
    {
    case ipropPard:
        memset(&pap, 0, sizeof(pap));
        return ecOK;
    case ipropPlain:
        memset(&chp, 0, sizeof(chp));
        return ecOK;
    case ipropSectd:
        memset(&sep, 0, sizeof(sep));
        return ecOK;
    default:
        return ecBadTable;
    }
    return ecBadTable;
}

// %%Function: ecTranslateKeyword
// Step 3.
// Search rgsymRtf for szKeyword and evaluate it appropriately.
// Inputs:
// szKeyword:   The RTF control to evaluate.
// param:       The parameter of the RTF control.
// fParam:      fTrue if the control had a parameter; (that is, if param is valid)
//              fFalse if it did not.

int ecTranslateKeyword(char *szKeyword, int param, bool fParam)
{
    int isym;

    // search for szKeyword in rgsymRtf
    for (isym = 0; isym < isymMax; isym++)
        if (strcmp(szKeyword, rgsymRtf[isym].szKeyword) == 0)
            break;
    if (isym == isymMax)            // control word not found
    {
        if (fSkipDestIfUnk)         // if this is a new destination
```

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```
            rds = rdsSkip;          // skip the destination
                                    // else just discard it
        fSkipDestIfUnk = fFalse;
        return ecOK;
    }

    // found it!  Use kwd and idx to determine what to do with it.
    fSkipDestIfUnk = fFalse;
    switch (rgsymRtf[isym].kwd)
    {
    case kwdProp:
        if (rgsymRtf[isym].fPassDflt || !fParam)
            param = rgsymRtf[isym].dflt;
        return ecApplyPropChange(rgsymRtf[isym].idx, param);
    case kwdChar:
        return ecParseChar(rgsymRtf[isym].idx);
    case kwdDest:
        return ecChangeDest(rgsymRtf[isym].idx);
    case kwdSpec:
        return ecParseSpecialKeyword(rgsymRtf[isym].idx);
    default:
        return ecBadTable;
    }
    return ecBadTable;
}

// %%Function: ecChangeDest
// Change to the destination specified by idest.
// There's usually more to do here than this...

int ecChangeDest(IDEST idest)
{
    if (rds == rdsSkip)             // if we're skipping text,
        return ecOK;                // Do not do anything

    switch (idest)
    {
    default:
        rds = rdsSkip;              // when in doubt, skip it...
        break;
    }
    return ecOK;
}
```

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```
// %%Function: ecEndGroupAction
// The destination specified by rds is coming to a close.
// If there's any cleanup that needs to be done, do it now.

int ecEndGroupAction(RDS rds)
{
    return ecOK;
}

// %%Function: ecParseSpecialKeyword
// Evaluate an RTF control that needs special processing.

int ecParseSpecialKeyword(IPFN ipfn)
{
    if (rds == rdsSkip && ipfn != ipfnBin)  // if we're skipping, and it is not
        return ecOK;                        // the \bin keyword, ignore it.
    switch (ipfn)
    {
    case ipfnBin:
        ris = risBin;
        cbBin = lParam;
        break;
    case ipfnSkipDest:
        fSkipDestIfUnk = fTrue;
        break;
    case ipfnHex:
        ris = risHex;
        break;
    default:
        return ecBadTable;
    }
    return ecOK;
}
```

## makefile

```
rtfreadr.exe: rtfactn.obj rtfreadr.obj
    link rtfreadr.obj rtfactn.obj <nul
rtfactn.obj: rtfactn.c rtfdecl.h rtftype.h
rtfreadr.obj: rtfreadr.c rtfdecl.h rtftype.h
```

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# Appendix B: Index of RTF Control Words

The control word table contains a list of each RTF control word, the name of the section where it may be found, and its type. The types are described in the following table.

| Type | Meaning |
|---|---|
| Flag | This control word ignores any parameter. |
| Destination | This control word starts a group or destination. It ignores any parameter. |
| Symbol | This control word represents a special character. |
| Toggle | This control word distinguishes between the ON and OFF states for the given property. The control word with no parameter or a nonzero parameter is used to turn on the property, while the control word with a zero parameter is used to turn it off. |
| Value | This control word requires a parameter. |

**Note:** In the following table, the names of all control words added in version 95 or later are flagged with the version number in which they were added (95, 97, 2000, 2002, 2003, 2007). Control words defined in the 1987 RTF Specification are flagged with 87. More control words were in Word 3.0 for the Apple Macintosh in 1987, but the basic destinations are defined in the specification. For the Word 2007 Compatibility Pack, many control words that were added by Word 2007 had to be ported back to Word 2003 and Word 2002 via patches. So there are quite a few control words flagged with 2007 that can now be recognized by the older Word versions.

| Control word | Described in section | Type |
|---|---|---|
| \' [87] | Special Characters | Symbol |
| \- [87] | Special Characters | Symbol |
| * | Special Characters | Symbol |
| \: | Special Characters | Symbol |
| \\ | Special Characters | Symbol |
| _ [87] | Special Characters | Symbol |
| \{ | Special Characters | Symbol |
| \\| [87] | Special Characters | Symbol |
| \} | Special Characters | Symbol |
| \~ [87] | Special Characters | Symbol |
| \ab | Associated Character Properties | Toggle |
| \absh*N* | Positioned Objects and Frames | Value |
| \abslock [95] | Positioned Objects and Frames | Flag |
| \absnoovrlp*N* [2000] | Positioned Objects and Frames | Toggle |
| \absw*N* | Positioned Objects and Frames | Value |
| \acaps | Associated Character Properties | Toggle |
| \acccircle [2003] | Font (Character) Formatting Properties | Toggle |
| \acccomma [95] | Font (Character) Formatting Properties | Toggle |

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| Control word | Described in section | Type |
|---|---|---|
| \accdot [95] | Font (Character) Formatting Properties | Toggle |
| \accnone [95] | Font (Character) Formatting Properties | Toggle |
| \accunderdot [2003] | Font (Character) Formatting Properties | Toggle |
| \acf*N* | Associated Character Properties | Value |
| \adeff*N* [2000] | Default Fonts | Value |
| \additive | Style Sheet | Flag |
| \adeflang*N* [2000] | Default Fonts | Value |
| \adjustright [97] | Section Formatting Properties | Flag |
| \adn*N* | Associated Character Properties | Value |
| \aenddoc | Document Formatting Properties | Flag |
| \aendnotes | Document formatting Properties | Flag |
| \aexpnd*N* | Associated Character Properties | Value |
| \af*N* | Associated Character Properties | Value |
| \afelev [2007] | Document Formatting Properties | Flag |
| \afs*N* | Associated Character Properties | Value |
| \aftnbj | Document Formatting Properties | Flag |
| \aftncn | Document Formatting Properties | Destination |
| \aftnnalc | Document Formatting Properties | Flag |
| \aftnnar | Document Formatting Properties | Flag |
| \aftnnauc | Document Formatting Properties | Flag |
| \aftnnchi | Document Formatting Properties | Flag |
| \aftnnchosung [97] | Document Formatting Properties | Flag |
| \aftnncnum [97] | Document Formatting Properties | Flag |
| \aftnndbar [97] | Document Formatting Properties | Flag |
| \aftnndbnum [97] | Document Formatting Properties | Flag |
| \aftnndbnumd [97] | Document Formatting Properties | Flag |
| \aftnndbnumk [97] | Document Formatting Properties | Flag |
| \aftnndbnumt [97] | Document Formatting Properties | Flag |
| \aftnnganada [97] | Document Formatting Properties | Flag |
| \aftnngbnum [97] | Document Formatting Properties | Flag |
| \aftnngbnumd [97] | Document Formatting Properties | Flag |
| \aftnngbnumk [97] | Document Formatting Properties | Flag |
| \aftnngbnuml [97] | Document Formatting Properties | Flag |
| \aftnnrlc | Document Formatting Properties | Flag |
| \aftnnruc | Document Formatting Properties | Flag |
| \aftnnzodiac [97] | Document Formatting Properties | Flag |
| \aftnnzodiacd [97] | Document Formatting Properties | Flag |
| \aftnnzodiacl [97] | Document Formatting Properties | Flag |
| \aftnrestart | Document Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \aftnrstcont | Document Formatting Properties | Flag |
| \aftnsep | Document Formatting Properties | Destination |
| \aftnsepc | Document Formatting Properties | Destination |
| \aftnstart*N* | Document Formatting Properties | Value |
| \aftntj | Document Formatting Properties | Flag |
| \ai | Associated Character Properties | Toggle |
| \alang*N* | Associated Character Properties | Value |
| \allowfieldendsel [2002] | Document Formatting Properties | Flag |
| \allprot | Document Formatting Properties | Flag |
| \alntblind [2000] | Document Formatting Properties | Flag |
| \alt | Style Sheet | Flag |
| \animtext*N* [97] | Font (Character) Formatting Properties | Value |
| \annotation | Comments (Annotations) | Destination |
| \annotprot | Document Formatting Properties | Flag |
| \ansi [87] | Character Set | Flag |
| \ansicpg*N* [97] | Character Set | Value |
| \aoutl | Associated Character Properties | Toggle |
| \ApplyBrkRules [2002] | Document Formatting Properties | Flag |
| \ascaps | Associated Character Properties | Toggle |
| \ashad | Associated Character Properties | Toggle |
| \asianbrkrule [2002] | Document Formatting Properties | Flag |
| \aspalpha [95] | Paragraph Formatting Properties | Toggle |
| \aspnum [95] | Paragraph Formatting Properties | Toggle |
| \astrike | Associated Character Properties | Toggle |
| \atnauthor [2002] | Comments (Annotations) | Destination |
| \atndate | Comments (Annotations) | Destination |
| \atnicn | Comments (Annotations) | Destination |
| \atnid | Comments (Annotations) | Destination |
| \atnparent [2002] | Comments (Annotations) | Destination |
| \atnref | Comments (Annotations) | Destination |
| \atntime | Comments (Annotations) | Destination |
| \atrfend | Comments (Annotations) | Destination |
| \atrfstart | Comments (Annotations) | Destination |
| \aul | Associated Character Properties | Toggle |
| \auld | Associated Character Properties | Toggle |
| \auldb | Associated Character Properties | Toggle |
| \aulnone | Associated Character Properties | Toggle |
| \aulw | Associated Character Properties | Toggle |
| \aup*N* | Associated Character Properties | Value |
| \author [87] | Information Group | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \autofmtoverride [2003] | Document Formatting Properties | Flag |
| \b [87] | Font (Character) Formatting Properties | Toggle |
| \background [97] | Document Formatting Properties | Destination |
| \bdbfhdr [97] | Document Formatting Properties | Flag |
| \bdrrlswsix [2000] | Document Formatting Properties | Flag |
| \bgbdiag | Paragraph Shading | Flag |
| \bgcross | Paragraph Shading | Flag |
| \bgdcross | Paragraph Shading | Flag |
| \bgdkbdiag | Paragraph Shading | Flag |
| \bgdkcross | Paragraph Shading | Flag |
| \bgdkdcross | Paragraph Shading | Flag |
| \bgdkfdiag | Paragraph Shading | Flag |
| \bgdkhoriz | Paragraph Shading | Flag |
| \bgdkvert | Paragraph Shading | Flag |
| \bgfdiag | Paragraph Shading | Flag |
| \bghoriz | Paragraph Shading | Flag |
| \bgvert | Paragraph Shading | Flag |
| \bin*N* [87] | Pictures | Value |
| \binfsxn*N* | Section Formatting Properties | Value |
| \binsxn*N* | Section Formatting Properties | Value |
| \bkmkcolf*N* | Bookmarks | Value |
| \bkmkcoll*N* | Bookmarks | Value |
| \bkmkend | Bookmarks | Destination |
| \bkmkpub | Macintosh Edition Manager Publisher Objects | Flag |
| \bkmkstart | Bookmarks | Destination |
| \bliptag*N* [97] | Pictures | Value |
| \blipuid [97] | Pictures | Destination |
| \blipupi*N* [97] | Pictures | Value |
| \blue*N* [87] | Color Table | Value |
| \bookfold [2002] | Document Formatting Properties | Flag |
| \bookfoldrev [2002] | Document Formatting Properties | Flag |
| \bookfoldsheets*N* [2002] | Document Formatting Properties | Value |
| \box [87] | Paragraph Borders | Flag |
| \brdrart*N* [97] | Document Formatting Properties | Value |
| \brdrb [87] | Paragraph Borders | Flag |
| \brdrbar | Paragraph Borders | Flag |
| \brdrbtw | Paragraph Borders | Flag |
| \brdrcf*N* | Paragraph Borders | Value |
| \brdrdash | Paragraph Borders | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \brdrdashd [97] | Paragraph Borders | Flag |
| \brdrdashdd [97] | Paragraph Borders | Flag |
| \brdrdashdot [97] | Paragraph Borders | Flag |
| \brdrdashdotdot [97] | Paragraph Borders | Flag |
| \brdrdashdotstr [97] | Paragraph Borders | Flag |
| \brdrdashsm [97] | Paragraph Borders | Flag |
| \brdrdb [87] | Paragraph Borders | Flag |
| \brdrdot | Paragraph Borders | Flag |
| \brdremboss [97] | Paragraph Borders | Flag |
| \brdrengrave [97] | Paragraph Borders | Flag |
| \brdrframe [97] | Paragraph Borders | Flag |
| \brdrhair | Paragraph Borders | Flag |
| \brdrinset [2000] | Paragraph Borders | Flag |
| \brdrl [87] | Paragraph Borders | Flag |
| \brdrnil [2002] | Paragraph Borders | Flag |
| \brdrnone | Paragraph Borders | Flag |
| \brdroutset [2000] | Paragraph Borders | Flag |
| \brdrr [87] | Paragraph Borders | Flag |
| \brdrs [87] | Paragraph Borders | Flag |
| \brdrsh [87] | Paragraph Borders | Flag |
| \brdrt [87] | Paragraph Borders | Flag |
| \brdrtbl [2002] | Paragraph Borders | Flag |
| \brdrth [87] | Paragraph Borders | Flag |
| \brdrthtnlg [97] | Paragraph Borders | Flag |
| \brdrthtnmg [97] | Paragraph Borders | Flag |
| \brdrthtnsg [97] | Paragraph Borders | Flag |
| \brdrtnthlg [97] | Paragraph Borders | Flag |
| \brdrtnthmg [97] | Paragraph Borders | Flag |
| \brdrtnthsg [97] | Paragraph Borders | Flag |
| \brdrtnthtnlg [97] | Paragraph Borders | Flag |
| \brdrtnthtnmg [97] | Paragraph Borders | Flag |
| \brdrtnthtnsg [97] | Paragraph Borders | Flag |
| \brdrtriple [97] | Paragraph Borders | Flag |
| \brdrw*N* | Paragraph Borders | Value |
| \brdrwavy [97] | Paragraph Borders | Flag |
| \brdrwavydb [97] | Paragraph Borders | Flag |
| \brkfrm | Document Formatting Properties | Flag |
| \brsp*N* | Paragraph Borders | Value |
| \bullet | Special Characters | Symbol |
| \buptim [87] | Information Group | Destination |
| \bxe | Index Entries | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \caccentfive [2007] | Color Table | Flag |
| \caccentfour [2007] | Color Table | Flag |
| \caccentone [2007] | Color Table | Flag |
| \caccentsix [2007] | Color Table | Flag |
| \caccentthree [2007] | Color Table | Flag |
| \caccenttwo [2007] | Color Table | Flag |
| \cachedcolbal [2007] | Document Formatting Properties | Flag |
| \caps [87] | Font (Character) Formatting Properties | Toggle |
| \category [95] | Information Group | Destination |
| \cb*N* [87] | Font (Character) Formatting Properties | Value |
| \cbackgroundone [2007] | Color Table | Flag |
| \cbackgroundtwo [2007] | Color Table | Flag |
| \cbpat*N* | Paragraph Shading | Value |
| \cchs*N* | Font (Character) Formatting Properties | Value |
| \cell | Table Definitions | Symbol |
| \cellx*N* | Table Definitions | Value |
| \cf*N* [87] | Font (Character) Formatting Properties | Value |
| \cfollowedhyperlink [2007] | Color Table | Flag |
| \cfpat*N* | Paragraph Shading | Value |
| \cgrid*N* [97] | East Asian Control Words | Value |
| \charrsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \charscalex*N* [95] | Font (Character) Formatting Properties | Value |
| \chatn | Special Characters | Symbol |
| \chbgbdiag [97] | Character Borders and Shading | Flag |
| \chbgcross [97] | Character Borders and Shading | Flag |
| \chbgdcross [97] | Character Borders and Shading | Flag |
| \chbgdkbdiag [97] | Character Borders and Shading | Flag |
| \chbgdkcross [97] | Character Borders and Shading | Flag |
| \chbgdkdcross [97] | Character Borders and Shading | Flag |
| \chbgdkfdiag [97] | Character Borders and Shading | Flag |
| \chbgdkhoriz [97] | Character Borders and Shading | Flag |
| \chbgdkvert [97] | Character Borders and Shading | Flag |
| \chbgfdiag [97] | Character Borders and Shading | Flag |
| \chbghoriz [97] | Character Borders and Shading | Flag |
| \chbgvert [97] | Character Borders and Shading | Flag |
| \chbrdr [97] | Character Borders and Shading | Flag |
| \chcbpat*N* [97] | Character Borders and Shading | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \chcfpat*N* [97] | Character Borders and Shading | Value |
| \chdate [87] | Special Characters | Symbol |
| \chdpa | Special Characters | Symbol |
| \chdpl | Special Characters | Symbol |
| \chftn [87] | Special Characters | Symbol |
| \chftnsep | Special Characters | Symbol |
| \chftnsepc | Special Characters | Symbol |
| \chpgn [87] | Special Characters | Symbol |
| \chhres*N* | Hyphenation Information | Value |
| \chshdng*N* [97] | Character Borders and Shading | Value |
| \chtime [87] | Special Characters | Symbol |
| \chyperlink [2007] | Color Table | Flag |
| \clbgbdiag | Table Definitions | Flag |
| \clbgcross | Table Definitions | Flag |
| \clbgdcross | Table Definitions | Flag |
| \clbgdkbdiag | Table Definitions | Flag |
| \clbgdkcross | Table Definitions | Flag |
| \clbgdkdcross | Table Definitions | Flag |
| \clbgdkfdiag | Table Definitions | Flag |
| \clbgdkhor | Table Definitions | Flag |
| \clbgdkvert | Table Definitions | Flag |
| \clbgfdiag | Table Definitions | Flag |
| \clbghoriz | Table Definitions | Flag |
| \clbgvert | Table Definitions | Flag |
| \clbrdrb | Table Definitions | Flag |
| \clbrdrl | Table Definitions | Flag |
| \clbrdrr | Table Definitions | Flag |
| \clbrdrt | Table Definitions | Flag |
| \clcbpat*N* | Table Definitions | Value |
| \clcbpatraw*N* [2002] | Table Definitions | Value |
| \clcfpat*N* | Table Definitions | Value |
| \clcfpatraw*N* [2002] | Table Definitions | Value |
| \cldel[2007] | Table Definitions | Flag |
| \cldelauth*N* [2007] | Table Definitions | Value |
| \cldeldttm*N* [2007] | Table Definitions | Value |
| \cldgll [95] | Table Definitions | Flag |
| \cldglu [95] | Table Definitions | Flag |
| \clFitText [2000] | Table Definitions | Flag |
| \clftsWidth*N* [2000] | Table Definitions | Value |
| \clhidemark[2007] | Table Definitions | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \clins[2007] | Table Definitions | Flag |
| \clinsauth*N* [2007] | Table Definitions | Value |
| \clinsdttm*N* [2007] | Table Definitions | Value |
| \clmgf | Table Definitions | Flag |
| \clmrg | Table Definitions | Flag |
| \clmrgd [2007] | Table Definitions | Flag |
| \clmrgdauth*N* [2007] | Table Definitions | Value |
| \clmrgddttm*N* [2007] | Table Definitions | Value |
| \clmrgdr [2007] | Table Definitions | Flag |
| \clNoWrap [2000] | Table Definitions | Flag |
| \clpadb*N* [2000] | Table Definitions | Value |
| \clpadfb*N* [2000] | Table Definitions | Value |
| \clpadfl*N* [2000] | Table Definitions | Value |
| \clpadfr*N* [2000] | Table Definitions | Value |
| \clpadft*N* [2000] | Table Definitions | Value |
| \clpadl*N* [2000] | Table Definitions | Value |
| \clpadr*N* [2000] | Table Definitions | Value |
| \clpadt*N* [2000] | Table Definitions | Value |
| \clspb*N* [2000] | Table Definitions | Value |
| \clspfb*N* [2000] | Table Definitions | Value |
| \clspfl*N* [2000] | Table Definitions | Value |
| \clspfr*N* [2000] | Table Definitions | Value |
| \clspft*N* [2000] | Table Definitions | Value |
| \clspl*N* [2000] | Table Definitions | Value |
| \clspr*N* [2000] | Table Definitions | Value |
| \clspt*N* [2000] | Table Definitions | Value |
| \clshdng*N* | Table Definitions | Value |
| \clshdngraw*N* [2002] | Table Definitions | Value |
| \clshdrawnil [2002] | Table Definitions | Flag |
| \clsplit [2007] | Table Definitions | Flag |
| \clsplitr [2007] | Table Definitions | Flag |
| \cltxbtlr [95] | Table Definitions | Flag |
| \cltxlrtb [95] | Table Definitions | Flag |
| \cltxlrtbv [95] | Table Definitions | Flag |
| \cltxtbrl [95] | Table Definitions | Flag |
| \cltxtbrlv [95] | Table Definitions | Flag |
| \clvertalb [95] | Table Definitions | Flag |
| \clvertalc [95] | Table Definitions | Flag |
| \clvertalt [95] | Table Definitions | Flag |
| \clvmgf [95] | Table Definitions | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \clvmrg [95] | Table Definitions | Flag |
| \clwWidth*N* [2000] | Table Definitions | Value |
| \cmaindarkone [2007] | Color Table | Flag |
| \cmaindarktwo [2007] | Color Table | Flag |
| \cmainlightone [2007] | Color Table | Flag |
| \cmainlighttwo [2007] | Color Table | Flag |
| \collapsed | Paragraph Formatting Properties | Flag |
| \colno*N* | Section Formatting Properties | Value |
| \colorschememapping [2007] | Color Scheme Mapping | Destination |
| \colortbl [87] | Color Table | Destination |
| \cols*N* [87] | Section Formatting Properties | Value |
| \colsr*N* | Section Formatting Properties | Value |
| \colsx*N* [87] | Section Formatting Properties | Value |
| \column | Special Characters | Symbol |
| \colw*N* | Section Formatting Properties | Value |
| \comment [87] | Information Group | Destination |
| \company [95] | Information Group | Destination |
| \contextualspace [2007] | Paragraph Formatting Properties | Flag |
| \cpg*N* | Code Page Support | Value |
| \crauth*N* [97] | Character Revision Mark Properties | Value |
| \crdate*N* [97] | Character Revision Mark Properties | Value |
| \creatim [87] | Information Group | Destination |
| \cs*N* | Font (Character) Formatting Properties | Value |
| \cshade*N* [2007] | Color Table | Value |
| \ctextone [2007] | Color Table | Flag |
| \ctexttwo [2007] | Color Table | Flag |
| \ctint*N* [2007] | Color Table | Value |
| \ctrl | Style Sheet | Flag |
| \cts*N* [2000] | Document Formatting Properties | Value |
| \cufi*N* [2000] | Paragraph Formatting Properties | Value |
| \culi*N* [2000] | Paragraph Formatting Properties | Value |
| \curi*N* [2000] | Paragraph Formatting Properties | Value |
| \cvmme | Document Formatting Properties | Flag |
| \datafield | Fields | Destination |
| \datastore [2007] | Custom XML Data Properties | Destination |
| \date [97] | Fields | Flag (obsolete) |
| \dbch [95] | Associated Character Properties | Flag |
| \defchp [2007] | Default Properties | Destination |
| \deff*N* | Default Fonts | Value |
| \defformat | Document Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \deflang*N* | Default Fonts | Value |
| \deflangfe*N* [97] | Default Fonts | Value |
| \defpap [2007] | Default Properties | Destination |
| \defshp [2000] | Pictures | Flag |
| \deftab*N* [87] | Document Formatting Properties | Value |
| \deleted | Character Revision Mark Properties | Toggle |
| \delrsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \dfrauth*N* [97] | Paragraph Revision Mark Properties | Value |
| \dfrdate*N* [97] | Paragraph Revision Mark Properties | Value |
| \dfrmtxtx*N* | Positioned Objects and Frames | Value |
| \dfrmtxty*N* | Positioned Objects and Frames | Value |
| \dfrstart [97] | Paragraph Revision Mark Properties | Value |
| \dfrstop [97] | Paragraph Revision Mark Properties | Value |
| \dfrxst [97] | Paragraph Revision Mark Properties | Value |
| \dghorigin*N* [95] | Document Formatting Properties | Value |
| \dghshow*N* [95] | Document Formatting Properties | Value |
| \dghspace*N* [95] | Document Formatting Properties | Value |
| \dgmargin [97] | Document Formatting Properties | Flag |
| \dgsnap [95] | Document Formatting Properties | Flag |
| \dgvorigin*N* [95] | Document Formatting Properties | Value |
| \dgvshow*N* [95] | Document Formatting Properties | Value |
| \dgvspace*N* [95] | Document Formatting Properties | Value |
| \dibitmap*N* | Pictures | Value |
| \disabled | Control Words Introduced by Other Microsoft Products | Toggle |
| \dn*N* [87] | Font (Character) Formatting Properties | Value |
| \dntblnsbdb [97] | Document Formatting Properties | Flag |
| \do | Drawing Objects | Destination |
| \dobxcolumn | Drawing Objects | Flag |
| \dobxmargin | Drawing Objects | Flag |
| \dobxpage | Drawing Objects | Flag |
| \dobymargin | Drawing Objects | Flag |
| \dobypage | Drawing Objects | Flag |
| \dobypara | Drawing Objects | Flag |
| \doccomm [87] | Information Group | Destination |
| \doctemp | Document Formatting Properties | Flag |
| \doctype*N* [97] | Document Formatting Properties | Value |
| \docvar [95] | Document Variables | Destination |
| \dodhgt*N* | Drawing Objects | Value |
| \dolock | Drawing Objects | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \donotembedlingdata*N* [2007] | Document Formatting Properties | Value |
| \donotembedsysfont*N* [2007] | Document Formatting Properties | Value |
| \donotshowcomments [2002] | Document Formatting Properties | Flag |
| \donotshowinsdel [2002] | Document Formatting Properties | Flag |
| \donotshowmarkup [2002] | Document Formatting Properties | Flag |
| \donotshowprops [2002] | Document Formatting Properties | Flag |
| \dpaendhol | Drawing Objects | Flag |
| \dpaendl*N* | Drawing Objects | Value |
| \dpaendsol | Drawing Objects | Flag |
| \dpaendw*N* | Drawing Objects | Value |
| \dparc | Drawing Objects | Flag |
| \dparcflipx | Drawing Objects | Flag |
| \dparcflipy | Drawing Objects | Flag |
| \dpastarthol | Drawing Objects | Flag |
| \dpastartl*N* | Drawing Objects | Value |
| \dpastartsol | Drawing Objects | Flag |
| \dpastartw*N* | Drawing Objects | Value |
| \dpcallout | Drawing Objects | Flag |
| \dpcoa*N* | Drawing Objects | Value |
| \dpcoaccent | Drawing Objects | Flag |
| \dpcobestfit | Drawing Objects | Flag |
| \dpcoborder | Drawing Objects | Flag |
| \dpcodabs | Drawing Objects | Flag |
| \dpcodbottom | Drawing Objects | Flag |
| \dpcodcenter | Drawing Objects | Flag |
| \dpcodescent*N* | Drawing Objects | Value |
| \dpcodtop | Drawing Objects | Flag |
| \dpcolength*N* | Drawing Objects | Value |
| \dpcominusx | Drawing Objects | Flag |
| \dpcominusy | Drawing Objects | Flag |
| \dpcooffset*N* | Drawing Objects | Value |
| \dpcosmarta | Drawing Objects | Flag |
| \dpcotdouble | Drawing Objects | Flag |
| \dpcotright | Drawing Objects | Flag |
| \dpcotsingle | Drawing Objects | Flag |
| \dpcottriple | Drawing Objects | Flag |
| \dpcount*N* | Drawing Objects | Value |
| \dpellipse | Drawing Objects | Flag |
| \dpendgroup | Drawing Objects | Flag |
| \dpfillbgcb*N* | Drawing Objects | Value |
| \dpfillbgcg*N* | Drawing Objects | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \dpfillbgcr*N* | Drawing Objects | Value |
| \dpfillbggray*N* | Drawing Objects | Value |
| \dpfillbgpal | Drawing Objects | Flag |
| \dpfillfgcb*N* | Drawing Objects | Value |
| \dpfillfgcg*N* | Drawing Objects | Value |
| \dpfillfgcr*N* | Drawing Objects | Value |
| \dpfillfggray*N* | Drawing Objects | Value |
| \dpfillfgpal | Drawing Objects | Flag |
| \dpfillpat*N* | Drawing Objects | Value |
| \dpgroup | Drawing Objects | Flag |
| \dpline | Drawing Objects | Flag |
| \dplinecob*N* | Drawing Objects | Value |
| \dplinecog*N* | Drawing Objects | Value |
| \dplinecor*N* | Drawing Objects | Value |
| \dplinedado | Drawing Objects | Flag |
| \dplinedadodo | Drawing Objects | Flag |
| \dplinedash | Drawing Objects | Flag |
| \dplinedot | Drawing Objects | Flag |
| \dplinegray*N* | Drawing Objects | Value |
| \dplinehollow | Drawing Objects | Flag |
| \dplinepal | Drawing Objects | Flag |
| \dplinesolid | Drawing Objects | Flag |
| \dplinew*N* | Drawing Objects | Value |
| \dppolycount*N* | Drawing Objects | Value |
| \dppolygon | Drawing Objects | Flag |
| \dppolyline | Drawing Objects | Flag |
| \dpptx*N* | Drawing Objects | Value |
| \dppty*N* | Drawing Objects | Value |
| \dprect | Drawing Objects | Flag |
| \dproundr | Drawing Objects | Flag |
| \dpshadow | Drawing Objects | Flag |
| \dpshadx*N* | Drawing Objects | Value |
| \dpshady*N* | Drawing Objects | Value |
| \dptxbtlr [95] | Drawing Objects | Flag |
| \dptxbx | Drawing Objects | Flag |
| \dptxbxmar*N* | Drawing Objects | Value |
| \dptxbxtext | Drawing Objects | Destination |
| \dptxlrtb [95] | Drawing Objects | Flag |
| \dptxlrtbv [95] | Drawing Objects | Flag |
| \dptxtbrl [95] | Drawing Objects | Flag |
| \dptxtbrlv [95] | Drawing Objects | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \dpx*N* | Drawing Objects | Value |
| \dpxsize*N* | Drawing Objects | Value |
| \dpy*N* | Drawing Objects | Value |
| \dpysize*N* | Drawing Objects | Value |
| \dropcapli*N* | Positioned Objects and Frames | Value |
| \dropcapt*N* | Positioned Objects and Frames | Value |
| \ds*N* | Section Formatting Properties | Value |
| \dxfrtext*N* | Positioned Objects and Frames | Value |
| \dy*N* [87] | Information Group | Value |
| \ebcend [2007] | Microsoft Office Outlook® | Destination |
| \ebcstart [2007] | Microsoft Office Outlook | Destination |
| \edmins*N* [87] | Information Group | Value |
| \embo [97] | Font (Character) Formatting Properties | Toggle |
| \emdash | Special Characters | Symbol |
| \emfblip [97] | Pictures | Flag |
| \emspace | Special Characters | Symbol |
| \endash | Special Characters | Symbol |
| \enddoc | Document Formatting Properties | Flag |
| \endnhere [87] | Section Formatting Properties | Flag |
| \endnotes [87] | Document Formatting Properties | Flag |
| \enforceprot*N* [2003] | Document Formatting Properties | Value |
| \enspace | Special Characters | Symbol |
| \expnd*N* [87] | Font (Character) Formatting Properties | Value |
| \expndtw*N* | Font (Character) Formatting Properties | Value |
| \expshrtn [97] | Document Formatting Properties | Flag |
| \f*N* [87] | Font (Character) Formatting Properties | Value |
| \faauto [97] | Paragraph Formatting Properties | Flag |
| \facenter [95] | Paragraph Formatting Properties | Flag |
| \facingp [87] | Document Formatting Properties | Flag |
| \factoidname [2007] | SmartTag Data | Destination |
| \fafixed [95] | Paragraph Formatting Properties | Flag |
| \fahang [95] | Paragraph Formatting Properties | Flag |
| \falt | Font Table | Destination |
| \faroman [95] | Paragraph Formatting Properties | Flag |
| \favar [95] | Paragraph Formatting Properties | Flag |
| \fbias*N* [97] | Font Table | Value |
| \fbidi | Font Table | Flag |
| \fbidis | Character Set | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \fbimajor [2007] | Theme Font Information | Flag |
| \fbiminor [2007] | Theme Font Information | Flag |
| \fchars [95] | Document Formatting Properties | Destination |
| \fcharset*N* | Font Table | Value |
| \fcs*N* | Associated Character Properties | Value |
| \fdbmajor [2007] | Theme Font Information | Flag |
| \fdbminor [2007] | Theme Font Information | Flag |
| \fdecor [87] | Font Table | Flag |
| \felnbrelev [2007] | Document Formatting Properties | Flag |
| \fet*N* | Document Formatting Properties | Value |
| \fetch | Font Table | Flag |
| \ffdefres*N* [97] | Form Fields | Value |
| \ffdeftext [97] | Form Fields | Destination |
| \ffentrymcr [97] | Form Fields | Destination |
| \ffexitmcr [97] | Form Fields | Destination |
| \ffformat [97] | Form Fields | Destination |
| \ffhaslistbox*N* [97] | Form Fields | Value |
| \ffhelptext [97] | Form Fields | Destination |
| \ffhps*N* [97] | Form Fields | Value |
| \ffl [97] | Form Fields | Destination |
| \ffmaxlen*N* [97] | Form Fields | Value |
| \ffname [97] | Form Fields | Destination |
| \ffownhelp*N* [97] | Form Fields | Value |
| \ffownstat*N* [97] | Form Fields | Value |
| \ffprot*N* [97] | Form Fields | Value |
| \ffrecalc*N* [97] | Form Fields | Value |
| \ffres*N* [97] | Form Fields | Value |
| \ffsize*N* [97] | Form Fields | Value |
| \ffstattext [97] | Form Fields | Destination |
| \fftype*N* [97] | Form Fields | Value |
| \fftypetxt*N* [97] | Form Fields | Value |
| \fhimajor [2007] | Theme Font Information | Flag |
| \fhiminor [2007] | Theme Font Information | Flag |
| \fi*N* [87] | Paragraph Formatting Properties | Value |
| \fid*N* | File Table | Value |
| \field | Fields | Destination |
| \file | File Table | Destination |
| \filetbl | File Table | Destination |
| \fittext*N* [2000] | Font (Character) Formatting Properties | Value |
| \fjgothic | Font Family | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \fjminchou | Font Family | Flag |
| \fldalt | Fields | Flag |
| \flddirty | Fields | Flag |
| \fldedit | Fields | Flag |
| \fldinst | Fields | Destination |
| \fldlock | Fields | Flag |
| \fldpriv | Fields | Flag |
| \fldrslt | Fields | Destination |
| \fldtype [97] | Fields | Destination (obsolete) |
| \flomajor [2007] | Theme Font Information | Flag |
| \flominor [2007] | Theme Font Information | Flag |
| \fmodern [87] | Font Table | Flag |
| \fn*N* | Style Sheet | Value |
| \fname [95] | Font Table | Destination |
| \fnetwork | File Table | Flag |
| \fnil [87] | Font Table | Flag |
| \fnonfilesys [2002] | File Table | Flag |
| \fontemb | Font Table | Destination |
| \fontfile | Font Table | Destination |
| \fonttbl [87] | Font Table | Destination |
| \footer | Headers and Footers | Destination |
| \footerf [87] | Headers and Footers | Destination |
| \footerl [87] | Headers and Footers | Destination |
| \footerr [87] | Headers and Footers | Destination |
| \footery*N* [87] | Section Formatting Properties | Value |
| \footnote | Footnotes | Destination |
| \forceupgrade [2007] | Document Formatting Properties | Flag |
| \formdisp | Document Formatting Properties | Flag |
| \formfield [97] | Form Fields | Destination |
| \formprot | Document Formatting Properties | Flag |
| \formshade | Document Formatting Properties | Flag |
| \fosnum*N* | File Table | Value |
| \fprq*N* | Font Table | Value |
| \fracwidth | Document Formatting Properties | Flag |
| \frelative*N* | File Table | Value |
| \frmtxbtlr [95] | Positioned Objects and Frames | Flag |
| \frmtxlrtb [95] | Positioned Objects and Frames | Flag |
| \frmtxlrtbv [95] | Positioned Objects and Frames | Flag |
| \frmtxtbrl [95] | Positioned Objects and Frames | Flag |
| \frmtxtbrlv [95] | Positioned Objects and Frames | Flag |
| \froman [87] | Font Table | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \fromhtml*N* [97] | Document Formatting Properties | Value |
| \fromtext [97] | Document Formatting Properties | Flag |
| \fs*N* [87] | Font (Character) Formatting Properties | Value |
| \fscript [87] | Font Table | Flag |
| \fswiss [87] | Font Table | Flag |
| \ftech [87] | Font Table | Flag |
| \ftnalt | Document Formatting Properties | Flag |
| \ftnbj [87] | Document Formatting Properties | Flag |
| \ftncn [87] | Document Formatting Properties | Destination |
| \ftnil | Font Table | Flag |
| \ftnlytwnine [2000] | Document Formatting Properties | Flag |
| \ftnnalc | Document Formatting Properties | Flag |
| \ftnnar | Document Formatting Properties | Flag |
| \ftnnauc | Document Formatting Properties | Flag |
| \ftnnchi | Document Formatting Properties | Flag |
| \ftnnchosung [97] | Document Formatting Properties | Flag |
| \ftnncnum [97] | Document Formatting Properties | Flag |
| \ftnndbar [97] | Document Formatting Properties | Flag |
| \ftnndbnum [97] | Document Formatting Properties | Flag |
| \ftnndbnumd [97] | Document Formatting Properties | Flag |
| \ftnndbnumk [97] | Document Formatting Properties | Flag |
| \ftnndbnumt [97] | Document Formatting Properties | Flag |
| \ftnnganada [97] | Document Formatting Properties | Flag |
| \ftnngbnum [97] | Document Formatting Properties | Flag |
| \ftnngbnumd [97] | Document Formatting Properties | Flag |
| \ftnngbnumk [97] | Document Formatting Properties | Flag |
| \ftnngbnuml [97] | Document Formatting Properties | Flag |
| \ftnnrlc | Document Formatting Properties | Flag |
| \ftnnruc | Document Formatting Properties | Flag |
| \ftnnzodiac [97] | Document Formatting Properties | Flag |
| \ftnnzodiacd [97] | Document Formatting Properties | Flag |
| \ftnnzodiacl [97] | Document Formatting Properties | Flag |
| \ftnrestart [87] | Document Formatting Properties | Flag |
| \ftnrstcont | Document Formatting Properties | Flag |
| \ftnrstpg | Document Formatting Properties | Flag |
| \ftnsep [87] | Document Formatting Properties | Destination |
| \ftnsepc [87] | Document Formatting Properties | Destination |
| \ftnstart*N* [87] | Document Formatting Properties | Value |
| \ftntj [87] | Document Formatting Properties | Flag |
| \fttruetype | Font Table | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \fvaliddos | File Table | Flag |
| \fvalidhpfs | File Table | Flag |
| \fvalidmac | File Table | Flag |
| \fvalidntfs | File Table | Flag |
| \g [97] | East Asian Control Words | Destination |
| \gcw*N* [97] | East Asian Control Words | Value |
| \generator [2002] | Generator | Destination |
| \green*N* [87] | Color Table | Value |
| \grfdocevents*N* | Document Formatting Properties | Value |
| \gridtbl [97] | East Asian Control Words | Destination |
| \gutter*N* [87] | Document Formatting Properties | Value |
| \gutterprl [95] | Document Formatting Properties | Flag |
| \guttersxn*N* | Section Formatting Properties | Value |
| \header | Headers and Footers | Destination |
| \headerf [87] | Headers and Footers | Destination |
| \headerl [87] | Headers and Footers | Destination |
| \headerr [87] | Headers and Footers | Destination |
| \header*y*N [87] | Section Formatting Properties | Value |
| \hich [95] | Associated Character Properties | Flag |
| \highlight*N* [95] | Highlighting | Value |
| \hl | Drawing Object Properties | Destination |
| \hlfr [97] | Drawing Object Properties | Destination |
| \hlinkbase [97] | Information Group | Destination |
| \hlloc [97] | Drawing Object Properties | Destination |
| \hlsrc [97] | Drawing Object Properties | Destination |
| \horzdoc [95] | Document Formatting Properties | Flag |
| \horzsect [95] | Section Formatting Properties | Flag |
| \horzvert*N* [2000] | New Asia Control Words Created by Word 2000 | Value |
| \hr*N* [87] | Information Group | Value |
| \hres*N* | Hyphenation Information | Value |
| \hrule | Drawing Object Properties | Flag |
| \hsv [2007] | Drawing Object Properties | Destination |
| \htmautsp [2000] | Document Formatting Properties | Flag |
| \htmlbase | Control Words Introduced by Other Microsoft Products | Flag |
| \htmlrtf | Control Words Introduced by Other Microsoft Products | Toggle |
| \htmltag | Control Words Introduced by Other Microsoft Products | Destination |
| \hwelev[2007] | Document Formatting Properties | Flag |
| \hyphauto | Document Formatting Properties | Toggle |

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| Control word | Described in section | Type |
|---|---|---|
| \hyphcaps | Document Formatting Properties | Toggle |
| \hyphconsec*N* | Document Formatting Properties | Value |
| \hyphhotz*N* | Document Formatting Properties | Value |
| \hyphpar | Paragraph Formatting Properties | Toggle |
| \i [87] | Font (Character) Formatting Properties | Toggle |
| \id*N* [87] | Information Group | Value |
| \ignoremixedcontent*N* [2007] | Document Formatting Properties | Value |
| \ilfomacatclnup*N* [2007] | Document Formatting Properties | Value |
| \ilvl*N* [97] | Bullets and Numbering | Value |
| \impr [97] | Character Text | Toggle |
| \indmirror [2007] | Paragraph Formatting Properties | Flag |
| \indrlsweleven [2007] | Document Formatting Properties | Flag |
| \info | Information Group | Destination |
| \insrsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \intbl | Paragraph Formatting Properties | Flag |
| \ipgp*N* [2002] | Paragraph Group Propreties | Value |
| \irowband*N* [2002] | Table Definitions | Value |
| \irow*N* [2002] | Table Definitions | Value |
| \itap*N* [2000] | Paragraph Formatting Properties | Value |
| \ixe | Index Entries | Flag |
| \jcompress [95] | Document Formatting Properties | Flag |
| \jexpand [95] | Document Formatting Properties | Flag |
| \jis | Font Family | Flag |
| \jpegblip [97] | Pictures | Flag |
| \jsksu [2000] | Document Formatting Properties | Flag |
| \keep [87] | Paragraph Formatting Properties | Flag |
| \keepn [87] | Paragraph Formatting Properties | Flag |
| \kerning*N* | Font (Character) Formatting Properties | Value |
| \keycode | Style Sheet | Destination |
| \keywords [87] | Information Group | Destination |
| \krnprsnet [2007] | Document Formatting Properties | Flag |
| \ksulang*N* [2000] | Document Formatting Properties | Value |
| \jclisttab [97] | List Table | Flag |
| \landscape [87] | Document Formatting Properties | Flag |
| \lang*N* | Font (Character) Formatting Properties | Value |
| \langfe*N* [2000] | Font (Character) Formatting Properties | Value |
| \langfenp*N* [2000] | Font (Character) Formatting Properties | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \langnp*N* [2000] | Font (Character) Formatting Properties | Value |
| \lastrow [2002] | Table Definitions | Flag |
| \latentstyles [2003] | Style and Formatting Restrictions | Destination |
| \lbr*N* [2000] | Special Characters | Value |
| \lchars [95] | Document Formatting Properties | Destination |
| \ldblquote | Special Characters | Symbol |
| \level*N* | Paragraph Formatting Properties | Value |
| \levelfollow*N* [97] | List Table | Value |
| \levelindent*N* [97] | List Table | Value |
| \leveljc*N* [97] | List Table | Value |
| \leveljcn*N* [2000] | List Table | Value |
| \levellegal*N* [97] | List Table | Value |
| \levelnfc*N* [97] | List Table | Value |
| \levelnfcn*N* [2000] | List Table | Value |
| \levelnorestart*N* [97] | List Table | Value |
| \levelnumbers [97] | List Table | Destination |
| \leveloldl*N* [97] | List Table | Value |
| \levelpicture*N* [2002] | List Table | Value |
| \levelpicturenosize | List Table | Flag |
| \levelprev*N* [97] | List Table | Value |
| \levelprevspace*N* [97] | List Table | Value |
| \levelspace*N* [97] | List Table | Value |
| \levelstartat*N* [97] | List Table | Value |
| \leveltemplateid*N* [2000] | List Table | Value |
| \leveltext [97] | List Table | Destination |
| \lfolevel | List Table | Destination |
| \li*N* [87] | Paragraph Formatting Properties | Value |
| \line [87] | Special Characters | Symbol |
| \linebetcol | Section Formatting Properties | Flag |
| \linecont [87] | Section Formatting Properties | Flag |
| \linemod*N* [87] | Section Formatting Properties | Value |
| \lineppage [87] | Section Formatting Properties | Flag |
| \linerestart [87] | Section Formatting Properties | Flag |
| \linestart*N* [87] | Document Formatting Properties | Value |
| \linestarts*N* | Section Formatting Properties | Value |
| \linex*N* [87] | Section Formatting Properties | Value |
| \linkself | Objects | Flag |
| \linkstyles | Document Formatting Properties | Flag |
| \linkval [95] | Information Group | Destination |
| \lin*N* [2000] | Paragraph Formatting Properties | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \lisa*N* [2000] | Paragraph Formatting Properties | Value |
| \lisb*N* [2000] | Paragraph Formatting Properties | Value |
| \list [97] | List Table | Destination |
| \listhybrid [2000] | List Table | Flag |
| \listid*N* [97] | List Table | Value |
| \listlevel [97] | List Table | Destination |
| \listname [97] | List Table | Destination |
| \listoverride [97] | List Table | Destination |
| \listoverridecount*N* [97] | List Table | Value |
| \listoverrideformat*N* [97] | List Table | Value |
| \listoverridestartat [97] | List Table | Flag |
| \listoverridetable [97] | List Table | Destination |
| \listpicture [2002] | List Table | Destination |
| \listrestarthdn*N* [97] | List Table | Value |
| \listsimple*N* [97] | List Table | Value |
| \liststyleid*N* [2002] | List Table | Value |
| \liststylename [2002] | List Table | Destination |
| \listtable [97] | List Table | Destination |
| \listtemplateid*N* [97] | List Table | Value |
| \listtext [97] | Bullets and Numbering | Destination |
| \lnbrkrule [2000] | Document Formatting Properties | Flag |
| \lndscpsxn | Section Formatting Properties | Flag |
| \lnongrid [95] | Document Formatting Properties | Flag |
| \loch [95] | Associated Character Properties | Flag |
| \lquote | Special Characters | Symbol |
| \ls*N* [97] | List Table | Value |
| \lsdlocked*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdlockeddef*N* [2003] | Style and Formatting Restrictions | Value |
| \lsdlockedexcept [2003] | Style and Formatting Restrictions | Destination |
| \lsdpriority*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdprioritydef*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdqformat*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdqformatdef*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdsemihidden*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdsemihiddendef*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdstimax*N* [2003] | Style and Formatting Restrictions | Value |
| \lsdunhideused*N* [2007] | Style and Formatting Restrictions | Value |
| \lsdunhideuseddef*N* [2007] | Style and Formatting Restrictions | Value |
| \ltrch | Font (Character) Formatting Properties | Flag |
| \ltrdoc | Document Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \ltrmark [2002] | Special Characters | Symbol |
| \ltrpar | Paragraph Formatting Properties | Flag |
| \ltrrow | Table Definitions | Flag |
| \ltrsect | Section Formatting Properties | Flag |
| \lvltentative [2007] | List Levels | Flag |
| \lytcalctblwd [2000] | Document Formatting Properties | Flag |
| \lytexcttp [97] | Document Formatting Properties | Flag |
| \lytprtmet [97] | Document Formatting Properties | Flag |
| \lyttblrtgr [2000] | Document Formatting Properties | Flag |
| \mac [87] | Character Set | Flag |
| \macc [2007] | Math | Destination |
| \maccPr [2007] | Math | Destination |
| \macpict [87] | Pictures | Flag |
| \mailmerge [2007] | Mail Merge | Destination |
| \makebackup | Document Formatting Properties | Flag |
| \maln [2007] | Math | Destination |
| \malnScr [2007] | Math | Destination |
| \manager [95] | Information Group | Destination |
| \margb*N* [87] | Document Formatting Properties | Value |
| \margbsxn*N* | Section Formatting Properties | Value |
| \margl*N* [87] | Document Formatting Properties | Value |
| \marglsxn*N* | Section Formatting Properties | Value |
| \margmirror | Document Formatting Properties | Flag |
| \margmirsxn | Section Formatting Properties | Flag |
| \margPr [2007] | Math | Destination |
| \margr*N* [87] | Document Formatting Properties | Value |
| \margrsxn*N* | Section Formatting Properties | Value |
| \margSz*N* [2007] | Math | Value |
| \margt*N* [87] | Document Formatting Properties | Value |
| \margtsxn*N* | Section Formatting Properties | Value |
| \mbar [2007] | Math | Destination |
| \mbarPr [2007] | Math | Destination |
| \mbaseJc [2007] | Math | Destination |
| \mbegChr [2007] | Math | Destination |
| \mborderBox [2007] | Math | Destination |
| \mborderBoxPr [2007] | Math | Destination |
| \mbox [2007] | Math | Destination |
| \mboxPr [2007] | Math | Destination |
| \mbrk*N* [2007] | Math | Value |
| \mbrkBin*N* [2007] | Math | Value |
| \mbrkBinSub*N* [2007] | Math | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \mcGp*N* 2007 | Math | Value |
| \mcGpRule*N* 2007 | Math | Value |
| \mchr 2007 | Math | Destination |
| \mcount 2007 | Math | Destination |
| \mcSp*N* 2007 | Math | Value |
| \mctrlPr 2007 | Math | Destination |
| \md 2007 | Math | Destination |
| \mdefJc*N* 2007 | Math | Value |
| \mdeg 2007 | Math | Destination |
| \mdegHide 2007 | Math | Destination |
| \mden 2007 | Math | Destination |
| \mdiff 2007 | Math | Destination |
| \mdiffSty*N* 2007 | Math | Value |
| \mdispdef*N* 2007 | Math | Value |
| \mdPr 2007 | Math | Destination |
| \me 2 007 | Math | Destination |
| \mendChr 2007 | Math | Destination |
| \meqArr 2007 | Math | Destination |
| \meqArrPr 2007 | Math | Destination |
| \mf 2007 | Math | Destination |
| \mfName 2007 | Math | Destination |
| \mfPr 2007 | Math | Destination |
| \mfunc 2007 | Math | Destination |
| \mfuncPr 2007 | Math | Destination |
| \mgroupChr 2007 | Math | Destination |
| \mgroupChrPr 2007 | Math | Destination |
| \mgrow 2007 | Math | Destination |
| \mhideBot 2007 | Math | Destination |
| \mhideLeft 2007 | Math | Destination |
| \mhideRight 2007 | Math | Destination |
| \mhideTop 2007 | Math | Destination |
| \mhtmltag | Control Words Introduced by Other Microsoft Products | Destination |
| \min*N* | Information Group | Value |
| \minterSp*N* 2007 | Math | Value |
| \mintLim*N* 2007 | Math | Value |
| \mintraSp*N* 2007 | Math | Value |
| \mjc*N* 2007 | Math | Value |
| \mlim 2007 | Math | Destination |
| \mlimloc 2007 | Math | Destination |
| \mlimlow 2007 | Math | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \mlimlowPr [2007] | Math | Destination |
| \mlimupp [2007] | Math | Destination |
| \mlimuppPr [2007] | Math | Destination |
| \mlit [2007] | Math | Flag |
| \mlMargin*N* [2007] | Math | Value |
| \mm [2007] | Math | Destination |
| \mmaddfieldname [2007] | Mail Merge | Destination |
| \mmath [2007] | Math | Destination |
| \mmathFont*N* [2007] | Math | Value |
| \mmathPict [2007] | Math | Destination |
| \mmathPr [2007] | Math | Destination |
| \mmattach [2007] | Mail Merge | Flag |
| \mmaxdist [2007] | Math | Destination |
| \mmblanklines [2007] | Mail Merge | Flag |
| \mmc [2007] | Math | Destination |
| \mmcJc [2007] | Math | Destination |
| \mmconnectstr | Mail Merge | Destination |
| \mmconnectstrdata [2007] | Mail Merge | Destination |
| \mmcPr [2007] | Math | Destination |
| \mmcs [2007] | Math | Destination |
| \mmdatasource [2007] | Mail Merge | Destination |
| \mmdatatypeaccess [2007] | Mail Merge | Flag |
| \mmdatatypeexcel [2007] | Mail Merge | Flag |
| \mmdatatypefile [2007] | Mail Merge | Flag |
| \mmdatatypeodbc [2007] | Mail Merge | Flag |
| \mmdatatypeodso [2007] | Mail Merge | Flag |
| \mmdatatypeqt [2007] | Mail Merge | Flag |
| \mmdefaultsql [2007] | Mail Merge | Flag |
| \mmdestemail [2007] | Mail Merge | Flag |
| \mmdestfax [2007] | Mail Merge | Flag |
| \mmdestnewdoc [2 007] | Mail Merge | Flag |
| \mmdestprinter [2007] | Mail Merge | Flag |
| \mmerrors*N* [2007] | Mail Merge | Value |
| \mmfttypeaddress [2007] | Mail Merge | Flag |
| \mmfttypebarcode [2007] | Mail Merge | Flag |
| \mmfttypedbcolumn [2007] | Mail Merge | Flag |
| \mmfttypemapped [2007] | Mail Merge | Flag |
| \mmfttypenull [2007] | Mail Merge | Flag |
| \mmfttypesalutation [2007] | Mail Merge | Flag |
| \mmheadersource [2007] | Mail Merge | Destination |
| \mmjdsotype*N* [2007] | Mail Merge | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \mmlinktoquery [2007] | Mail Merge | Flag |
| \mmmailsubject [2007] | Mail Merge | Destination |
| \mmmaintypecatalog [2007] | Mail Merge | Flag |
| \mmmaintypeemail [2007] | Mail Merge | Flag |
| \mmmaintypeenvelopes [2007] | Mail Merge | Flag |
| \mmmaintypefax [2007] | Mail Merge | Flag |
| \mmmaintypelabels [2007] | Mail Merge | Flag |
| \mmmaintypeletters [2007] | Mail Merge | Flag |
| \mmodso [2007] | Mail Merge | Destination |
| \mmodsoactive*N* [2007] | Mail Merge | Value |
| \mmodsocoldelim*N* [2007] | Mail Merge | Value |
| \mmodsocolumn*N* [2007] | Mail Merge | Value |
| \mmodsodynaddr*N* [2007] | Mail Merge | Value |
| \mmodsofhdr*N* [2007] | Mail Merge | Value |
| \mmodsofilter [2007] | Mail Merge | Destination |
| \mmodsofldmpdata [2007] | Mail Merge | Destination |
| \mmodsofmcolumn*N* [2007] | Mail Merge | Value |
| \mmodsohash*N* [2007] | Mail Merge | Value |
| \mmodsolid*N* [2007] | Mail Merge | Value |
| \mmodsomappedname [2007] | Mail Merge | Destination |
| \mmodsoname [2007] | Mail Merge | Destination |
| \mmodsorecipdata [2007] | Mail Merge | Destination |
| \mmodsosort [2007] | Mail Merge | Destination |
| \mmodsosrc [2007] | Mail Merge | Destination |
| \mmodsotable [2007] | Mail Merge | Destination |
| \mmodsoudl | Mail Merge | Destination |
| \mmodsoudldata [200 7] | Mail Merge | Destination |
| \mmodsouniquetag [2007] | Mail Merge | Destination |
| \mmPr [2007] | Math | Destination |
| \mmquery [2007] | Mail Merge | Destination |
| \mmr [2007] | Math | Destination |
| \mmreccur*N* [2007] | Mail Merge | Value |
| \mmshowdata [2007] | Mail Merge | Flag |
| \mnary [2007] | Math | Destination |
| \mnaryLim*N* [2007] | Math | Value |
| \mnaryPr [2007] | Math | Destination |
| \mnoBreak [2007] | Math | Destination |
| \mnor [2007] | Math | Flag |
| \mnum [2007] | Math | Destination |
| \mo*N* [87] | Information Group | Value |
| \mobjDist [2007] | Math | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \moMath [2007] | Math | Destination |
| \moMathPara [2007] | Math | Destination |
| \moMathParaPr [2007] | Math | Destination |
| \mopEmu [2007] | Math | Destination |
| \mphant [2007] | Math | Destination |
| \mphantPr [2007] | Math | Destination |
| \mplcHide [2007] | Math | Destination |
| \mpos [2007] | Math | Destination |
| \mpostSp*N* [2007] | Math | Value |
| \mpreSp*N* [2007] | Math | Value |
| \mr [2007] | Math | Destination |
| \mrad [2007] | Math | Destination |
| \mradPr [2007] | Math | Destination |
| \mrMargin*N* [2007] | Math | Value |
| \mrPr [2007] | Math | Destination |
| \mrSp*N* [2007] | Math | Value |
| \mrSpRule*N* [2007] | Math | Value |
| \mscr*N* [2007] | Math | Value |
| \msepChr [2007] | Math | Destination |
| \mshow [2007] | Math | Destination |
| \mshp [2007] | Math | Destination |
| \msmallFrac*N* [2007] | Math | Value |
| \msmcap [97] | Document Formatting Properties | Flag |
| \msPre [2007] | Math | Destination |
| \msPrePr [2007] | Math | Destination |
| \msSub [2007] | Math | Destination |
| \msSubPr [2007] | Math | Destination |
| \msSubSup [2007] | Math | Destination |
| \msSubSupPr [2007] | Math | Destination |
| \msSup [2007] | Math | Destination |
| \msSupPr [2007] | Math | Destination |
| \mstrikeBLTR [2007] | Math | Destination |
| \mstrikeH [2007] | Math | Destination |
| \mstrikeTLBR [2007] | Math | Destination |
| \mstrikeV [2007] | Math | Destination |
| \msty*N* [2007] | Math | Value |
| \msub [2007] | Math | Destination |
| \msubHide [2007] | Math | Destination |
| \msup [2007] | Math | Destination |
| \msupHide [2007] | Math | Destination |
| \mtransp [2007] | Math | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \mtype [2007] | Math | Destination |
| \muser | Document Formatting Properties | Flag |
| \mvauth*N* [2007] | Character Revision Mark Properties | Value |
| \mvdate*N* [2007] | Character Revision Mark Properties | Value |
| \mvertJc [2007] | Math | Destination |
| \mvf [2007] | Character Revision Mark Properties | Flag |
| \mvfmf [2007] | Move Bookmarks | Destination |
| \mvfml [2007] | Move Bookmarks | Destination |
| \mvt [2007] | Character Revision Mark Properties | Flag |
| \mvtof [2007] | Move Bookmarks | Destination |
| \mvtol [2007] | Move Bookmarks | Destination |
| \mwrapIndent*N* [2007] | Math | Value |
| \mwrapRight*N* [2007] | Math | Value |
| \mzeroAsc [2007] | Math | Destination |
| \mzeroDesc [2007] | Math | Destination |
| \mzeroWid [2007] | Math | Destination |
| \nestcell [2000] | Table Definitions | Symbol |
| \nestrow [2000] | Table Definitions | Symbol |
| \nesttableprops [2000] | Table Definitions | Destination |
| \newtblstyruls [2003] | Document Formatting Properties | Flag |
| \nextfile | Document Formatting Properties | Destination |
| \noafcnsttbl [2007] | Document Formatting Properties | Flag |
| \nobrkwrptbl [2002] | Document Formatting Properties | Flag |
| \nocolbal | Document Formatting Properties | Flag |
| \nocompatoptions [2002] | Document Formatting Properties | Flag |
| \nocwrap [95] | Paragraph Formatting Properties | Flag |
| \nocxsptable [2007] | Document Formatting Properties | Flag |
| \noextrasprl | Document Formatting Properties | Flag |
| \nofchars*N* [87] | Information Group | Value |
| \nofcharsws*N* [97] | Information Group | Value |
| \nofeaturethrottle [2007] | Document Formatting Properties | Flag |
| \nofpages*N* [87] | Information Group | Value |
| \nofwords*N* [87] | Information Group | Value |
| \nogrowautofit [2003] | Document Formatting Properties | Flag |
| \noindnmbrts [2007] | Document Formatting Properties | Flag |
| \nojkernpunct | Document Formatting Properties | Flag |
| \nolead [97] | Document Formatting Properties | Flag |
| \noline [87] | Paragraph Formatting Properties | Flag |
| \nolnhtadjtbl [2000] | Document Formatting Properties | Flag |
| \nonesttables [2000] | Table Definitions | Destination |
| \nonshppict [97] | Pictures | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \nooverflow [95] | Paragraph Formatting Properties | Flag |
| \noproof [2000] | Font (Character) Formatting Properties | Flag |
| \noqfpromote [2007] | Quick Styles | Flag |
| \nosectexpand [97] | East Asian Control Words | Flag |
| \nosnaplinegrid [97] | Paragraph Formatting Properties | Flag |
| \nospaceforul [97] | Document Formatting Properties | Flag |
| \nosupersub | Font (Character) Formatting Properties | Flag |
| \notabind | Document Formatting Properties | Flag |
| \notbrkcnstfrctbl [2007] | Document Formatting Properties | Flag |
| \notcvasp [2007] | Document Formatting Properties | Flag |
| \notvatxbx [2007] | Document Formatting Properties | Flag |
| \nouicompat [2007] | Document Formatting Properties | Flag |
| \noultrlspc [97] | Document Formatting Properties | Flag |
| \nowidctlpar | Paragraph Formatting Properties | Flag |
| \nowrap | Positioned Objects and Frames | Flag |
| \nowwrap [95] | Paragraph Formatting Properties | Flag |
| \noxlattoyen [97] | Document Formatting Properties | Flag |
| \objalias | Objects | Destination |
| \objalign*N* | Objects | Value |
| \objattph [95] | Objects | Flag |
| \objautlink | Objects | Flag |
| \objclass | Objects | Destination |
| \objcropb*N* | Objects | Value |
| \objcropl*N* | Objects | Value |
| \objcropr*N* | Objects | Value |
| \objcropt*N* | Objects | Value |
| \objdata | Objects | Destination |
| \object | Objects | Destination |
| \objemb | Objects | Flag |
| \objh*N* | Objects | Value |
| \objhtml [97] | Objects | Flag |
| \objicemb | Objects | Flag |
| \objlink | Objects | Flag |
| \objlock | Objects | Flag |
| \objname | Objects | Destination |
| \objocx [97] | Objects | Flag |
| \objpub | Objects | Flag |
| \objscalex*N* | Objects | Value |
| \objscaley*N* | Objects | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \objsect | Objects | Destination |
| \objsetsize | Objects | Flag |
| \objsub | Objects | Flag |
| \objtime | Objects | Destination |
| \objtransy*N* | Objects | Value |
| \objupdate | Objects | Flag |
| \objw*N* | Objects | Value |
| \ogutter*N* [87] | Document Formatting Properties | Value |
| \oldas [2000] | Document Formatting Properties | Flag |
| \oldcprops [2002] | Track Changes (Revision Marks) | Destination |
| \oldlinewrap [97] | Document Formatting Properties | Flag |
| \oldpprops [2002] | Track Changes (Revision Marks) | Destination |
| \oldsprops [2002] | Track Changes (Revision Marks) | Destination |
| \oldtprops [2002] | Track Changes (Revision Marks) | Destination |
| \oleclsid [2007] | Objects | Destination |
| \operator [87] | Information Group | Destination |
| \otblrul | Document Formatting Properties | Flag |
| \outl [87] | Font (Character) Formatting Properties | Toggle |
| \outlinelevel*N* [97] | Paragraph Formatting Properties | Value |
| \overlay [97] | Positioned Objects and Frames | Flag |
| \page [87] | Special Characters | Symbol |
| \pagebb [87] | Paragraph Formatting Properties | Flag |
| \panose [97] | Font Table | Destination |
| \paperh*N* | Document Formatting Properties | Value |
| \paperw*N* | Document Formatting Properties | Value |
| \par [87] | Special Characters | Symbol |
| \pararsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \pard [87] | Paragraph Formatting Properties | Flag |
| \password | Read-Only Password Protection | Destination |
| \passwordhash [2007] | Read-Only Password Protection | Destination |
| \pc [87] | Character Set | Flag |
| \pca | Character Set | Flag |
| \pgbrdrb [97] | Document Formatting Properties | Flag |
| \pgbrdrfoot [97] | Document Formatting Properties | Flag |
| \pgbrdrhead [97] | Document Formatting Properties | Flag |
| \pgbrdrl [97] | Document Formatting Properties | Flag |
| \pgbrdropt*N* [97] | Document Formatting Properties | Value |
| \pgbrdrr [97] | Document Formatting Properties | Flag |
| \pgbrdrsnap [97] | Document Formatting Properties | Flag |
| \pgbrdrt [97] | Document Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \pghsxn*N* | Section Formatting Properties | Value |
| \pgnbidia [2000] | Section Formatting Properties | Flag |
| \pgnbidib [2000] | Section Formatting Properties | Flag |
| \pgnchosung [97] | Section Formatting Properties | Flag |
| \pgncnum [97] | Section Formatting Properties | Flag |
| \pgncont | Section Formatting Properties | Flag |
| \pgndbnum [95] | Section Formatting Properties | Flag |
| \pgndbnumd [95] | Section Formatting Properties | Flag |
| \pgndbnumk [97] | Section Formatting Properties | Flag |
| \pgndbnumt [97] | Section Formatting Properties | Flag |
| \pgndec [87] | Section Formatting Properties | Flag |
| \pgndecd [95] | Section Formatting Properties | Flag |
| \pgnganada [97] | Section Formatting Properties | Flag |
| \pgngbnum [97] | Section Formatting Properties | Flag |
| \pgngbnumd [97] | Section Formatting Properties | Flag |
| \pgngbnumk [97] | Section Formatting Properties | Flag |
| \pgngbnuml [97] | Section Formatting Properties | Flag |
| \pgnhindia [2002] | Section Formatting Properties | Flag |
| \pgnhindib [2002] | Section Formatting Properties | Flag |
| \pgnhindic [2002] | Section Formatting Properties | Flag |
| \pgnhindid [2002] | Section Formatting Properties | Flag |
| \pgnhn*N* | Section Formatting Properties | Value |
| \pgnhnsc | Section Formatting Properties | Flag |
| \pgnhnsh | Section Formatting Properties | Flag |
| \pgnhnsm | Section Formatting Properties | Flag |
| \pgnhnsn | Section Formatting Properties | Flag |
| \pgnhnsp | Section Formatting Properties | Flag |
| \pgnid [2002] | Section Formatting Properties | Flag |
| \pgnlcltr [87] | Section Formatting Properties | Flag |
| \pgnlcrm [87] | Section Formatting Properties | Flag |
| \pgnrestart [87] | Section Formatting Properties | Flag |
| \pgnstart*N* [87] | Document Formatting Properties | Value |
| \pgnstarts*N* | Section Formatting Properties | Value |
| \pgnthaia [2002] | Section Formatting Properties | Flag |
| \pgnthaib [2002] | Section Formatting Properties | Flag |
| \pgnthaic [2002] | Section Formatting Properties | Flag |
| \pgnucltr [87] | Section Formatting Properties | Flag |
| \pgnucrm [87] | Section Formatting Properties | Flag |
| \pgnvieta [2002] | Section Formatting Properties | Flag |
| \pgnx*N* [87] | Section Formatting Properties | Value |
| \pgny*N* [87] | Section Formatting Properties | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \pgnzodiac [97] | Section Formatting Properties | Flag |
| \pgnzodiacd [97] | Section Formatting Properties | Flag |
| \pgnzodiacl [97] | Section Formatting Properties | Flag |
| \pgp [2002] | Paragraph Group Properties | Destination |
| \pgptbl [2002] | Paragraph Group Properties | Destination |
| \pgwsxn*N* | Section Formatting Properties | Value |
| \phcol | Positioned Objects and Frames | Flag |
| \phmrg | Positioned Objects and Frames | Flag |
| \phpg | Positioned Objects and Frames | Flag |
| \picbmp | Pictures | Flag |
| \picbpp*N* | Pictures | Value |
| \piccropb*N* | Pictures | Value |
| \piccropl*N* | Pictures | Value |
| \piccropr*N* | Pictures | Value |
| \piccropt*N* | Pictures | Value |
| \pich*N* [87] | Pictures | Value |
| \pichgoal*N* | Pictures | Value |
| \picprop [97] | Pictures | Destination |
| \picscaled [87] | Pictures | Flag |
| \picscalex*N* | Pictures | Value |
| \picscaley*N* | Pictures | Value |
| \pict [87] | Pictures | Destination |
| \picw*N* [87] | Pictures | Value |
| \picwgoal*N* | Pictures | Value |
| \pindtabqc [2007] | Absolute Position Tabs | Flag |
| \pindtabql [2007] | Absolute Position Tabs | Flag |
| \pindtabqr [2007] | Absolute Position Tabs | Flag |
| \plain [87] | Font (Character) Formatting Properties | Flag |
| \pmartabqc [2007] | Absolute Position Tabs | Flag |
| \pmartabql [2007] | Absolute Position Tabs | Flag |
| \pmartabqr [2007] | Absolute Position Tabs | Flag |
| \pmmetafile*N* | Pictures | Value |
| \pn | Bullets and Numbering | Destination |
| \pnacross | Bullets and Numbering | Flag |
| \pnaiu [95] | Bullets and Numbering | Flag |
| \pnaiud [95] | Bullets and Numbering | Flag |
| \pnaiueo [97] | Bullets and Numbering | Flag |
| \pnaiueod [97] | Bullets and Numbering | Flag |
| \pnb | Bullets and Numbering | Toggle |
| \pnbidia [2000] | Bullets and Numbering | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \pnbidib [2000] | Bullets and Numbering | Flag |
| \pncaps | Bullets and Numbering | Toggle |
| \pncard | Bullets and Numbering | Flag |
| \pncf*N* | Bullets and Numbering | Value |
| \pnchosung [97] | Bullets and Numbering | Flag |
| \pncnum [95] | Bullets and Numbering | Flag |
| \pndbnum [95] | Bullets and Numbering | Flag |
| \pndbnumd [97] | Bullets and Numbering | Flag |
| \pndbnumk [97] | Bullets and Numbering | Flag |
| \pndbnuml [97] | Bullets and Numbering | Flag |
| \pndbnumt [97] | Bullets and Numbering | Flag |
| \pndec | Bullets and Numbering | Flag |
| \pndecd [95] | Bullets and Numbering | Flag |
| \pnf*N* | Bullets and Numbering | Value |
| \pnfs*N* | Bullets and Numbering | Value |
| \pnganada [97] | Bullets and Numbering | Flag |
| \pngblip [97] | Pictures | Flag |
| \pngbnum [97] | Bullets and Numbering | Flag |
| \pngbnumd [97] | Bullets and Numbering | Flag |
| \pngbnumk [97] | Bullets and Numbering | Flag |
| \pngbnuml [97] | Bullets and Numbering | Flag |
| \pnhang | Bullets and Numbering | Flag |
| \pni | Bullets and Numbering | Toggle |
| \pnindent*N* | Bullets and Numbering | Value |
| \pniroha [95] | Bullets and Numbering | Flag |
| \pnirohad [95] | Bullets and Numbering | Flag |
| \pnlcltr | Bullets and Numbering | Flag |
| \pnlcrm | Bullets and Numbering | Flag |
| \pnlvl*N* | Bullets and Numbering | Value |
| \pnlvlblt | Bullets and Numbering | Flag |
| \pnlvlbody | Bullets and Numbering | Flag |
| \pnlvlcont | Bullets and Numbering | Flag |
| \pnnumonce | Bullets and Numbering | Flag |
| \pnord | Bullets and Numbering | Flag |
| \pnordt | Bullets and Numbering | Flag |
| \pnprev | Bullets and Numbering | Flag |
| \pnqc | Bullets and Numbering | Flag |
| \pnql | Bullets and Numbering | Flag |
| \pnqr | Bullets and Numbering | Flag |
| \pnrauth*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \pnrdate*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnrestart | Bullets and Numbering | Flag |
| \pnrnfc*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnrnot [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Flag |
| \pnrpnbr*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnrrgb*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnrstart*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnrstop*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnrxst*N* [97] | Revision Marks for Paragraph Numbers and ListNum Fields | Value |
| \pnscaps | Bullets and Numbering | Toggle |
| \pnseclvl*N* | Section Formatting Properties | Destination and Value |
| \pnsp*N* | Bullets and Numbering | Value |
| \pnstart*N* | Bullets and Numbering | Value |
| \pnstrike | Bullets and Numbering | Toggle |
| \pntext | Bullets and Numbering | Destination |
| \pntxta | Bullets and Numbering | Destination |
| \pntxtb | Bullets and Numbering | Destination |
| \pnucltr | Bullets and Numbering | Flag |
| \pnucrm | Bullets and Numbering | Flag |
| \pnul | Bullets and Numbering | Toggle |
| \pnuld | Bullets and Numbering | Flag |
| \pnuldash [95] | Bullets and Numbering | Flag |
| \pnuldashd [95] | Bullets and Numbering | Flag |
| \pnuldashdd [95] | Bullets and Numbering | Flag |
| \pnuldb | Bullets and Numbering | Flag |
| \pnulhair [95] | Bullets and Numbering | Flag |
| \pnulnone | Bullets and Numbering | Flag |
| \pnulth [95] | Bullets and Numbering | Flag |
| \pnulw | Bullets and Numbering | Flag |
| \pnulwave [95] | Bullets and Numbering | Flag |
| \pnzodiac [97] | Bullets and Numbering | Flag |
| \pnzodiacd [97] | Bullets and Numbering | Flag |
| \pnzodiacl [97] | Bullets and Numbering | Flag |
| \posnegx*N* | Positioned Objects and Frames | Value |
| \posnegy*N* | Positioned Objects and Frames | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \posx*N* | Positioned Objects and Frames | Value |
| \posxc | Positioned Objects and Frames | Flag |
| \posxi | Positioned Objects and Frames | Flag |
| \posxl | Positioned Objects and Frames | Flag |
| \posxo | Positioned Objects and Frames | Flag |
| \posxr | Positioned Objects and Frames | Flag |
| \posy*N* | Positioned Objects and Frames | Value |
| \posyb | Positioned Objects and Frames | Flag |
| \posyc | Positioned Objects and Frames | Flag |
| \posyil | Positioned Objects and Frames | Flag |
| \posyin [97] | Positioned Objects and Frames | Flag |
| \posyout [97] | Positioned Objects and Frames | Flag |
| \posyt | Positioned Objects and Frames | Flag |
| \prauth*N* | Paragraph Formatting Properties | Value |
| \prcolbl | Document Formatting Properties | Flag |
| \prdate*N* | Paragraph Formatting Properties | Value |
| \printdata | Document Formatting Properties | Flag |
| \printim [87] | Information Group | Destination |
| \private [97] | Document Formatting Properties | Destination |
| \propname [95] | Information Group | Destination |
| \proptype*N* [95] | Information Group | Value |
| \protect | Control Words Introduced by Other Microsoft Products | Toggle |
| \protend [2003] | Protection Exceptions | Destination |
| \protlevel*N* [2003] | Document Formatting Properties | Value |
| \protstart [2003] | Protection Exceptions | Destination |
| \protusertbl [2003] | User Protection Information | Destination |
| \psover | Document Formatting Properties | Flag |
| \psz*N* | Document Formatting Properties | Value |
| \ptabldot [2007] | Absolute Position Tabs | Flag |
| \ptablmdot [2007] | Absolute Position Tabs | Flag |
| \ptablminus [2007] | Absolute Position Tabs | Flag |
| \ptablnone [2007] | Absolute Position Tabs | Flag |
| \ptabluscore [2007] | Absolute Position Tabs | Flag |
| \pubauto | Macintosh Edition Manager Publisher Objects | Flag |
| \pvmrg | Positioned Objects and Frames | Flag |
| \pvpara | Positioned Objects and Frames | Flag |
| \pvpg | Positioned Objects and Frames | Flag |
| \pwd*N* | Control Words Introduced by Other Microsoft Products | Value |
| \pxe [95] | Index Entries | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \qc [87] | Paragraph Formatting Properties | Flag |
| \qd [95] | Paragraph Formatting Properties | Flag |
| \qj [87] | Paragraph Formatting Properties | Flag |
| \qk*N* [2002] | Paragraph Formatting Properties | Value |
| \ql [87] | Paragraph Formatting Properties | Flag |
| \qmspace [95] | Special Characters | Symbol |
| \qr [87] | Paragraph Formatting Properties | Flag |
| \qt [2002] | Paragraph Formatting Properties | Flag |
| \rawclbgdkbdiag [2002] | Table Definitions | Flag |
| \rawclbgbdiag [2002] | Table Definitions | Flag |
| \rawclbgcross [2002] | Table Definitions | Flag |
| \rawclbgdcross [2002] | Table Definitions | Flag |
| \rawclbgdkcross [2002] | Table Definitions | Flag |
| \rawclbgdkdcross [2002] | Table Definitions | Flag |
| \rawclbgdkfdiag [2002] | Table Definitions | Flag |
| \rawclbgdkhor [2002] | Table Definitions | Flag |
| \rawclbgdkvert [2002] | Table Definitions | Flag |
| \rawclbgfdiag [2002] | Table Definitions | Flag |
| \rawclbghoriz [2002] | Table Definitions | Flag |
| \rawclbgvert [2002] | Table Definitions | Flag |
| \rdblquote | Special Characters | Symbol |
| \readonlyrecommended [2007] | Document Formatting Properties | Flag |
| \readprot [2003] | Document Formatting Properties | Flag |
| \red*N* [87] | Color Table | Value |
| \relyonvml*N* [2007] | Document Formatting Properties | Value |
| \remdttm [2007] | Document Formatting Properties | Flag |
| \rempersonalinfo [2002] | Document Formatting Properties | Flag |
| \result | Objects | Destination |
| \revauth*N* | Character Revision Mark Properties | Value |
| \revauthdel*N* [97] | Character Revision Mark Properties | Value |
| \revbar*N* | Document Formatting Properties | Value |
| \revdttm*N* | Character Revision Mark Properties | Value |
| \revdttmdel*N* [97] | Character Revision Mark Properties | Value |
| \revised | Character Revision Mark Properties | Toggle |
| \revisions | Document Formatting Properties | Flag |
| \revprop*N* | Document Formatting Properties | Value |
| \revprot | Document Formatting Properties | Flag |
| \revtbl | Track Changes | Destination |
| \revtim [87] | Information Group | Destination |
| \ri*N* [87] | Paragraph Formatting Properties | Value |
| \rin*N* [2000] | Paragraph Formatting Properties | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \row | Special Characters | Symbol |
| \rquote | Special Characters | Symbol |
| \rsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \rsidroot*N* [2002] | Track Changes (Revision Marks) | Value |
| \rsidtbl [2002] | Track Changes (Revision Marks) | Destination |
| \rsltbmp | Objects | Flag |
| \rslthtml [2000] | Objects | Flag |
| \rsltmerge | Objects | Flag |
| \rsltpict | Objects | Flag |
| \rsltrtf | Objects | Flag |
| \rslttxt | Objects | Flag |
| \rtf*N* | RTF Version | Destination |
| \rtlch | Font (Character) Formatting Properties | Flag |
| \rtldoc | Document Formatting Properties | Flag |
| \rtlgutter [2000] | Document Formatting Properties | Flag |
| \rtlmark [2002] | Special Characters | Symbol |
| \rtlpar | Paragraph Formatting Properties | Flag |
| \rtlrow | Table Definitions | Flag |
| \rtlsect | Section Formatting Properties | Flag |
| \rxe | Index Entries | Destination |
| \s*N* [87] | Paragraph Formatting Properties | Value |
| \sa*N* [87] | Paragraph Formatting Properties | Value |
| \saauto*N* [2000] | Paragraph Formatting Properties | Toggle |
| \saftnnalc [2002] | Section Formatting Properties | Flag |
| \saftnnar [2002] | Section Formatting Properties | Flag |
| \saftnnauc [2002] | Section Formatting Properties | Flag |
| \saftnnchi [2002] | Section Formatting Properties | Flag |
| \saftnnchosung [2002] | Section Formatting Properties | Flag |
| \saftnncnum [2002] | Section Formatting Properties | Flag |
| \saftnndbar [2002] | Section Formatting Properties | Flag |
| \saftnndbnum [2002] | Section Formatting Properties | Flag |
| \saftnndbnumd [2002] | Section Formatting Properties | Flag |
| \saftnndbnumk [2002] | Section Formatting Properties | Flag |
| \saftnndbnumt [2002] | Section Formatting Properties | Flag |
| \saftnnganada [2002] | Section Formatting Properties | Flag |
| \saftnngbnum [2002] | Section Formatting Properties | Flag |
| \saftnngbnumd [2002] | Section Formatting Properties | Flag |
| \saftnngbnumk [2002] | Section Formatting Properties | Flag |
| \saftnngbnuml [2002] | Section Formatting Properties | Flag |
| \saftnnrlc [2002] | Section Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \saftnnruc [2002] | Section Formatting Properties | Flag |
| \saftnnzodiac [2002] | Section Formatting Properties | Flag |
| \saftnnzodiacd [2002] | Section Formatting Properties | Flag |
| \saftnnzodiacl [2002] | Section Formatting Properties | Flag |
| \saftnrestart [2002] | Section Formatting Properties | Flag |
| \saftnrstcont [2002] | Section Formatting Properties | Flag |
| \saftnstart*N* [2002] | Section Formatting Properties | Value |
| \sautoupd [97] | Style Sheet | Flag |
| \saveinvalidxml [2007] | Document Formatting Properties | Flag |
| \saveprevpict [2007] | Document Formatting Properties | Flag |
| \sb*N* [87] | Paragraph Formatting Properties | Value |
| \sbasedon*N* [87] | Style Sheet | Value |
| \sbauto*N* [2000] | Paragraph Formatting Properties | Toggle |
| \sbkcol [87] | Section Formatting Properties | Flag |
| \sbkeven [87] | Section Formatting Properties | Flag |
| \sbknone [87] | Section Formatting Properties | Flag |
| \sbkodd [87] | Section Formatting Properties | Flag |
| \sbkpage [87] | Section Formatting Properties | Flag |
| \sbys [87] | Paragraph Formatting Properties | Flag |
| \scaps [87] | Font (Character) Formatting Properties | Toggle |
| \scompose [2000] | Style Sheet | Flag |
| \sec*N* | Information Group | Value |
| \sect [87] | Special Characters | Symbol |
| \sectd [87] | Section Formatting Properties | Flag |
| \sectdefaultcl [97] | Section Formatting Properties | Flag |
| \sectexpand*N* [97] | Section Formatting Properties | Value |
| \sectlinegrid*N* [97] | Section Formatting Properties | Value |
| \sectnum | Special Characters | Symbol |
| \sectrsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \sectspecifycl [97] | Section Formatting Properties | Flag |
| \sectspecifygenN | Section Formatting Properties | Flag |
| \sectspecifyl [97] | Section Formatting Properties | Flag |
| \sectunlocked | Section Formatting Properties | Flag |
| \sftnbj [2002] | Section Formatting Properties | Flag |
| \sftnnalc [2002] | Section Formatting Properties | Flag |
| \sftnnar [2002] | Section Formatting Properties | Flag |
| \sftnnauc [2002] | Section Formatting Properties | Flag |
| \sftnnchi [2002] | Section Formatting Properties | Flag |
| \sftnnchosung [2002] | Section Formatting Properties | Flag |
| \sftnncnum [2002] | Section Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \sftnndbar [2002] | Section Formatting Properties | Flag |
| \sftnndbnum [2002] | Section Formatting Properties | Flag |
| \sftnndbnumd [2002] | Section Formatting Properties | Flag |
| \sftnndbnumk [2002] | Section Formatting Properties | Flag |
| \sftnndbnumt [2002] | Section Formatting Properties | Flag |
| \sftnnganada [2002] | Section Formatting Properties | Flag |
| \sftnngbnum [2002] | Section Formatting Properties | Flag |
| \sftnngbnumd [2002] | Section Formatting Properties | Flag |
| \sftnngbnumk [2002] | Section Formatting Properties | Flag |
| \sftnngbnuml [2002] | Section Formatting Properties | Flag |
| \sftnnrlc [2002] | Section Formatting Properties | Flag |
| \sftnnruc [2002] | Section Formatting Properties | Flag |
| \sftnnzodiac [2002] | Section Formatting Properties | Flag |
| \sftnnzodiacd [2002] | Section Formatting Properties | Flag |
| \sftnnzodiacl [2002] | Section Formatting Properties | Flag |
| \sftnrestart [2002] | Section Formatting Properties | Flag |
| \sftnrstcont [2002] | Section Formatting Properties | Flag |
| \sftnrstpg [2002] | Section Formatting Properties | Flag |
| \sftnstart*N* [2002] | Section Formatting Properties | Value |
| \sftntj [2002] | Section Formatting Properties | Flag |
| \shad [87] | Font (Character) Formatting Properties | Toggle |
| \shading*N* | Paragraph Shading | Value |
| \shidden [97] | Style Sheet | Flag |
| \shift | Style Sheet | Flag |
| \showplaceholdtext*N* [2007] | Document Formatting Properties | Value |
| \showxmlerrors*N* [2007] | Document Formatting Properties | Value |
| \shp [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \shpbottom*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shpbxcolumn [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpbxignore [2000] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpbxmargin [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpbxpage [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpbyignore [2000] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpbymargin [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpbypage [97] | Word 97 through Word 2003 RTF for | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| | Drawing Objects (Shapes) | |
| \shpbypara [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shpfblwtxt*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shpfhdr*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shpgrp [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \shpinst [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \shpleft*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shplid*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shplockanchor [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Flag |
| \shppict [97] | Pictures | Destination |
| \shpright*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shprslt [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \shptop*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shptxt [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \shpwrk*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shpwr*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \shpz*N* [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Value |
| \sl*N* [87] | Paragraph Formatting Properties | Value |
| \slink*N* [2002] | Style Sheet | Value |
| \slmult*N* | Paragraph Formatting Properties | Value |
| \slocked [2003] | Style Sheet | Flag |
| \sn [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \snaptogridincell [2002] | Document Formatting Properties | Flag |
| \snext*N* [87] | Style Sheet | Value |
| \softcol | Special Characters | Flag |
| \softlheight*N* | Special Characters | Value |
| \softline | Special Characters | Flag |
| \softpage | Special Characters | Flag |
| \sp [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \spersonal [2000] | Style Sheet | Flag |
| \spltpgpar [2007] | Document Formatting Properties | Flag |
| \splytwnine [2000] | Document Formatting Properties | Flag |
| \spriority*N* [2007] | Style Sheet | Value |
| \sprsbsp [97] | Document Formatting Properties | Flag |
| \sprslnsp [95] | Document Formatting Properties | Flag |
| \sprsspbf | Document Formatting Properties | Flag |
| \sprstsm [97] | Document Formatting Properties | Flag |
| \sprstsp | Document Formatting Properties | Flag |
| \spv [2002] | Paragraph Formatting Properties | Flag |
| \sqformat [2007] | Style Sheet | Flag |
| \srauth*N* | Section Formatting Properties | Value |
| \srdate*N* | Section Formatting Properties | Value |
| \sreply [2000] | Style Sheet | Flag |
| \ssemihidden*N* [2002] | Style Sheet | Value |
| \staticval [95] | Information Group | Destination |
| \stextflow*N* [97] | Section Text | Value |
| \strike [87] | Font (Character) Formatting Properties | Toggle |
| \striked1 [97] | Character Text | Toggle |
| \stshfbi*N* [2002] | Default Fonts | Value |
| \stshfdbch*N* [2002] | Default Fonts | Value |
| \stshfhich*N* [2002] | Default Fonts | Value |
| \stshfloch*N* [2002] | Default Fonts | Value |
| \stylelock [2003] | Document Formatting Properties | Flag |
| \stylelockbackcomp [2003] | Document Formatting Properties | Flag |
| \stylelockenforced [2003] | Document Formatting Properties | Flag |
| \stylelockqfset [2007] | Document Formatting Properties | Flag |
| \stylelocktheme [2007] | Document Formatting Properties | Flag |
| \stylesheet [87] | Style Sheet | Destination |
| \stylesortmethod*N* [2007] | Document Formatting Properties | Value |
| \styrsid*N* [2002] | Style Sheet | Value |
| \sub | Font (Character) Formatting Properties | Flag |
| \subdocument*N* | Paragraph Formatting Properties | Value |
| \subfontbysize [95] | Document Formatting Properties | Flag |
| \subject [87] | Information Group | Destination |
| \sunhideused*N* [2007] | Style Sheet | Value |
| \super | Font (Character) Formatting Properties | Flag |
| \sv [97] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |

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| Control word | Described in section | Type |
|---|---|---|
| \svb [2003] | Word 97 through Word 2003 RTF for Drawing Objects (Shapes) | Destination |
| \swpbdr | Document Formatting Properties | Flag |
| \tab [87] | Special Characters | Symbol |
| \tabsnoovrlp [2000] | Table Definitions | Flag |
| \taprtl [2000] | Table Definitions | Flag |
| \tb*N* | Tabs | Value |
| \tblind*N* [2007] | Table Definitions | Value |
| \tblindtype*N* [2007] | Table Definitions | Value |
| \tbllkbestfit [2002] | Table Definitions | Flag |
| \tbllkborder [2002] | Table Definitions | Flag |
| \tbllkcolor [2002] | Table Definitions | Flag |
| \tbllkfont [2002] | Table Definitions | Flag |
| \tbllkhdrcols [2002] | Table Definitions | Flag |
| \tbllkhdrrows [2002] | Table Definitions | Flag |
| \tbllklastcol [2002] | Table Definitions | Flag |
| \tbllklastrow [2002] | Table Definitions | Flag |
| \tbllknocolband [2007] | Table Definitions | Flag |
| \tbllknorowband [2007] | Table Definitions | Flag |
| \tbllkshading [2002] | Table Definitions | Flag |
| \tblrsid*N* [2002] | Track Changes (Revision Marks) | Value |
| \tc | Table of Contents Entries | Destination |
| \tcelld [97] | Table Definitions | Flag |
| \tcf*N* | Table of Contents Entries | Value |
| \tcl*N* | Table of Contents Entries | Value |
| \tcn | Table of Contents Entries | Flag |
| \tdfrmtxtBottom*N* [2000] | Table Definitions | Value |
| \tdfrmtxtLeft*N* [2000] | Table Definitions | Value |
| \tdfrmtxtRight*N* [2000] | Table Definitions | Value |
| \tdfrmtxtTop*N* [2000] | Table Definitions | Value |
| \template | Document Formatting Properties | Destination |
| \themedata [2007] | Theme Data | Destination |
| \themelang*N* [2007] | Document Formatting Properties | Value |
| \themelangcs*N* [2007] | Document Formatting Properties | Value |
| \themelangfe*N* [2007] | Document Formatting Properties | Value |
| \time [97] | Fields | Flag (obsolete) |
| \title [87] | Information Group | Destination |
| \titlepg [87] | Section Formatting Properties | Flag |
| \tldot [87] | Tabs | Flag |
| \tleq | Tabs | Flag |
| \tlhyph [87] | Tabs | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \tlmdot [95] | Tabs | Flag |
| \tlth [87] | Tabs | Flag |
| \tlul [87] | Tabs | Flag |
| \toplinepunct [2002] | Document Formatting Properties | Flag |
| \tphcol [2000] | Table Definitions | Flag |
| \tphmrg [2000] | Table Definitions | Flag |
| \tphpg [2000] | Table Definitions | Flag |
| \tposnegx*N* [2000] | Table Definitions | Value |
| \tposnegy*N* [2000] | Table Definitions | Value |
| \tposxc [2000] | Table Definitions | Flag |
| \tposxi [2000] | Table Definitions | Flag |
| \tposxl [2000] | Table Definitions | Flag |
| \tposx*N* [2000] | Table Definitions | Value |
| \tposxo [2000] | Table Definitions | Flag |
| \tposxr [2000] | Table Definitions | Flag |
| \tposy*N* [2000] | Table Definitions | Value |
| \tposyb [2000] | Table Definitions | Flag |
| \tposyc [2000] | Table Definitions | Flag |
| \tposyil [2000] | Table Definitions | Flag |
| \tposyin [2000] | Table Definitions | Flag |
| \tposyout [2000] | Table Definitions | Flag |
| \tposyt [2000] | Table Definitions | Flag |
| \tpvmrg [2000] | Table Definitions | Flag |
| \tpvpara [2000] | Table Definitions | Flag |
| \tpvpg [2000] | Table Definitions | Flag |
| \tqc [87] | Tabs | Flag |
| \tqdec [87] | Tabs | Flag |
| \tqr [87] | Tabs | Flag |
| \trackformatting*N* [2007] | Document Formatting Properties | Value |
| \trackmoves*N* [2007] | Document Formatting Properties | Value |
| \transmf | Document Formatting Properties | Flag |
| \trauth*N* [2002] | Table Definitions | Value |
| \trautofit*N* [2000] | Table Definitions | Toggle |
| \trbgbdiag [2002] | Table Definitions | Flag |
| \trbgcross [2002] | Table Definitions | Flag |
| \trbgdcross [2002] | Table Definitions | Flag |
| \trbgdkbdiag [2002] | Table Definitions | Flag |
| \trbgdkcross [2002] | Table Definitions | Flag |
| \trbgdkdcross [2002] | Table Definitions | Flag |
| \trbgdkfdiag [2002] | Table Definitions | Flag |
| \trbgdkhor [2002] | Table Definitions | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \trbgdkvert [2002] | Table Definitions | Flag |
| \trbgfdiag [2002] | Table Definitions | Flag |
| \trbghoriz [2002] | Table Definitions | Flag |
| \trbgvert [2002] | Table Definitions | Flag |
| \trbrdrb | Table Definitions | Flag |
| \trbrdrh | Table Definitions | Flag |
| \trbrdrl | Table Definitions | Flag |
| \trbrdrr | Table Definitions | Flag |
| \trbrdrt | Table Definitions | Flag |
| \trbrdrv | Table Definitions | Flag |
| \trcbpat*N* [2002] | Table Definitions | Value |
| \trcfpat*N* [2002] | Table Definitions | Value |
| \trdate*N* | Table Definitions | Value |
| \trftsWidthA*N* [2000] | Table Definitions | Value |
| \trftsWidthB*N* [2000] | Table Definitions | Value |
| \trftsWidth*N* [2000] | Table Definitions | Value |
| \trgaph*N* | Table Definitions | Value |
| \trhdr | Table Definitions | Flag |
| \trkeep | Table Definitions | Flag |
| \trkeepfollow | Table Definitions | Flag |
| \trleft*N* | Table Definitions | Value |
| \trowd | Table Definitions | Flag |
| \trpaddb*N* [2000] | Table Definitions | Value |
| \trpaddfb*N* [2000] | Table Definitions | Value |
| \trpaddfl*N* [2000] | Table Definitions | Value |
| \trpaddfr*N* [2000] | Table Definitions | Value |
| \trpaddft*N* [2000] | Table Definitions | Value |
| \trpaddl*N* [2000] | Table Definitions | Value |
| \trpaddr*N* [2000] | Table Definitions | Value |
| \trpaddt*N* [2000] | Table Definitions | Value |
| \trpadob*N* [2000] | Table Definitions | Value |
| \trpadofb*N* [2000] | Table Definitions | Value |
| \trpadofl*N* [2000] | Table Definitions | Value |
| \trpadofr*N* [2000] | Table Definitions | Value |
| \trpadoft*N* [2000] | Table Definitions | Value |
| \trpadol*N* [2000] | Table Definitions | Value |
| \trpador*N* [2000] | Table Definitions | Value |
| \trpadot*N* [2000] | Table Definitions | Value |
| \trpat*N* [2002] | Table Definitions | Value |
| \trqc | Table Definitions | Flag |
| \trql | Table Definitions | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \trqr | Table Definitions | Flag |
| \trrh*N* | Table Definitions | Value |
| \trshdng*N* [2002] | Table Definitions | Value |
| \trspdb*N* [2000] | Table Definitions | Value |
| \trspdfb*N* [2000] | Table Definitions | Value |
| \trspdfl*N* [2000] | Table Definitions | Value |
| \trspdfr*N* [2000] | Table Definitions | Value |
| \trspdft*N* [2000] | Table Definitions | Value |
| \trspdl*N* [2000] | Table Definitions | Value |
| \trspdr*N* [2000] | Table Definitions | Value |
| \trspdt*N* [2000] | Table Definitions | Value |
| \trspob*N* [2000] | Table Definitions | Value |
| \trspofb*N* [2000] | Table Definitions | Value |
| \trspofl*N* [2000] | Table Definitions | Value |
| \trspofr*N* [2000] | Table Definitions | Value |
| \trspoft*N* [2000] | Table Definitions | Value |
| \trspol*N* [2000] | Table Definitions | Value |
| \trspor*N* [2000] | Table Definitions | Value |
| \trspot*N* [2000] | Table Definitions | Value |
| \truncatefontheight | Document Formatting Properties | Flag |
| \truncex | Document Formatting Properties | Flag |
| \trwWidthA*N* [2000] | Table Definitions | Value |
| \trwWidthB*N* [2000] | Table Definitions | Value |
| \trwWidth*N* [2000] | Table Definitions | Value |
| \ts*N* [2002] | Style Sheet | Value |
| \tsbgbdiag [2002] | Table Styles | Flag |
| \tsbgcross [2002] | Table Styles | Flag |
| \tsbgdcross [2002] | Table Styles | Flag |
| \tsbgdkbdiag [2002] | Table Styles | Flag |
| \tsbgdkcross [2002] | Table Styles | Flag |
| \tsbgdkdcross [2002] | Table Styles | Flag |
| \tsbgdkfdiag [2002] | Table Styles | Flag |
| \tsbgdkhor [2002] | Table Styles | Flag |
| \tsbgdkvert [2002] | Table Styles | Flag |
| \tsbgfdiag [2002] | Table Styles | Flag |
| \tsbghoriz [2002] | Table Styles | Flag |
| \tsbgvert [2002] | Table Styles | Flag |
| \tsbrdrb [2002] | Table Styles | Flag |
| \tsbrdrdgl [2002] | Table Styles | Flag |
| \tsbrdrdgr [2002] | Table Styles | Flag |
| \tsbrdrh [2002] | Table Styles | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \tsbrdrl [2002] | Table Styles | Flag |
| \tsbrdrr [2002] | Table Styles | Flag |
| \tsbrdrr [2002] | Table Styles | Flag |
| \tsbrdrt [2002] | Table Styles | Flag |
| \tsbrdrv [2002] | Table Styles | Flag |
| \tscbandhorzeven [2002] | Paragraph Formatting Properties | Flag |
| \tscbandhorzodd [2002] | Paragraph Formatting Properties | Flag |
| \tscbandsh*N* [2002] | Table Styles | Value |
| \tscbandsv*N* [2002] | Table Styles | Value |
| \tscbandverteven [2002] | Paragraph Formatting Properties | Flag |
| \tscbandvertodd [2002] | Paragraph Formatting Properties | Flag |
| \tscellcbpat*N* [2002] | Table Styles | Value |
| \tscellcfpat*N* [2002] | Table Styles | Value |
| \tscellpaddb*N* [2002] | Table Styles | Value |
| \tscellpaddfb*N* [2002] | Table Styles | Value |
| \tscellpaddfl*N* [2002] | Table Styles | Value |
| \tscellpaddfr*N* [2002] | Table Styles | Value |
| \tscellpaddft*N* [2002] | Table Styles | Value |
| \tscellpaddl*N* [2002] | Table Styles | Value |
| \tscellpaddr*N* [2002] | Table Styles | Value |
| \tscellpaddt*N* [2002] | Table Styles | Value |
| \tscellpct*N* [2002] | Table Styles | Value |
| \tscellwidth*N* [2002] | Table Styles | Value |
| \tscellwidthfts*N* [2002] | Table Styles | Value |
| \tscfirstcol [2002] | Paragraph Formatting Properties | Flag |
| \tscfirstrow [2002] | Paragraph Formatting Properties | Flag |
| \tsclastcol [2002] | Paragraph Formatting Properties | Flag |
| \tsclastrow [2002] | Paragraph Formatting Properties | Flag |
| \tscnecell [2002] | Paragraph Formatting Properties | Flag |
| \tscnwcell [2002] | Paragraph Formatting Properties | Flag |
| \tscsecell [2002] | Paragraph Formatting Properties | Flag |
| \tscswcell [2002] | Paragraph Formatting Properties | Flag |
| \tsd [2002] | Document Formatting Properties | Flag |
| \tsnowrap [2002] | Table Styles | Flag |
| \tsrowd [2002] | Style Sheet | Flag |
| \tsvertalb [2002] | Table Styles | Flag |
| \tsvertalc [2002] | Table Styles | Flag |
| \tsvertalt [2002] | Table Styles | Flag |
| \twoinone*N* [2000] | New Asia Control Words Created by Word 2000 | Value |
| \twoonone [95] | Document Formatting Properties | Flag |

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| Control word | Described in section | Type |
|---|---|---|
| \tx*N* [87] | Tabs | Value |
| \txbxtwalways [2007] | Paragraph Formatting Properties | Flag |
| \txbxtwfirst [2007] | Paragraph Formatting Properties | Flag |
| \txbxtwfirstlast [2007] | Paragraph Formatting Properties | Flag |
| \txbxtwlast [2007] | Paragraph Formatting Properties | Flag |
| \txbxtwno [2007] | Paragraph Formatting Properties | Flag |
| \txe | Index Entries | Destination |
| \u*N* | Unicode RTF | Value |
| \uc*N* [97] | Unicode RTF | Value |
| \ud [97] | Unicode RTF | Destination |
| \ul [87] | Font (Character) Formatting Properties | Toggle |
| \ulc*N* [2000] | Font (Character) Formatting Properties | Value |
| \uld [87] | Font (Character) Formatting Properties | Flag |
| \uldash [95] | Font (Character) Formatting Properties | Toggle |
| \uldashd [95] | Font (Character) Formatting Properties | Toggle |
| \uldashdd [95] | Font (Character) Formatting Properties | Toggle |
| \uldb [87] | Font (Character) Formatting Properties | Toggle |
| \ulhair [95] | East Asian Control Words Created by Word 6J | Toggle |
| \ulhwave [2000] | Font (Character) Formatting Properties | Toggle |
| \ulldash [2000] | Font (Character) Formatting Properties | Toggle |
| \ulnone [87] | Font (Character) Formatting Properties | Flag |
| \ulth [95] | Font (Character) Formatting Properties | Toggle |
| \ulth [97] | Font (Character) Formatting Properties | Toggle |
| \ulthd [2000] | Font (Character) Formatting Properties | Toggle |
| \ulthdash [2000] | Font (Character) Formatting Properties | Toggle |
| \ulthdashd [2000] | Font (Character) Formatting Properties | Toggle |
| \ulthdashdd [2000] | Font (Character) Formatting Properties | Toggle |
| \ulthldash [2000] | Font (Character) Formatting Properties | Toggle |
| \ululdbwave [2000] | Font (Character) Formatting | Toggle |

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| Control word | Described in section | Type |
|---|---|---|
| | Properties | |
| \ulw [87] | Font (Character) Formatting Properties | Flag |
| \ulwave [95] | Font (Character) Formatting Properties | Toggle |
| \up*N* [87] | Font (Character) Formatting Properties | Value |
| \upr [97] | Unicode RTF | Destination |
| \urtf*N* | Control Words Introduced by Other Microsoft Products | Value |
| \useltbaln [2000] | Document Formatting Properties | Flag |
| \usenormstyforlist [2007] | Document Formatting Properties | Flag |
| \userprops [95] | Information Group | Destination |
| \usexform [2007] | Document Formatting Properties | Flag |
| \utinl [2007] | Document Formatting Properties | Flag |
| \v | Font (Character) Formatting Properties | Toggle |
| \validatexml*N* [2007] | Document Formatting Properties | Value |
| \vern*N* [87] | Information Group | Value |
| \version*N* [87] | Information Group | Value |
| \vertal [87] | Section Formatting Properties | Flag |
| \vertalb | Section Formatting Properties | Flag |
| \vertalc [87] | Section Formatting Properties | Flag |
| \vertalj [87] | Section Formatting Properties | Flag |
| \vertalt [87] | Section Formatting Properties | Flag |
| \vertdoc [95] | Document Formatting Properties | Flag |
| \vertsect [95] | Section Formatting Properties | Flag |
| \viewbksp*N* [2003] | Document Formatting Properties | Value |
| \viewkind*N* [97] | Document Formatting Properties | Value |
| \viewnobound [2002] | Document Formatting Properties | Flag |
| \viewscale*N* [97] | Document Formatting Properties | Value |
| \viewzk*N* [97] | Document Formatting Properties | Value |
| \wbitmap*N* | Pictures | Value |
| \wbmbitspixel*N* | Pictures | Value |
| \wbmplanes*N* | Pictures | Value |
| \wbmwidthbyte*N* | Pictures | Value |
| \webhidden [2000] | Font (Character) Formatting Properties | Flag |
| \wgrffmtfilter [2007] | Document Formatting Properties | Destination |
| \widctlpar | Paragraph Formatting Properties | Flag |
| \widowctrl [87] | Document Formatting Properties | Flag |
| \windowcaption [97] | Document Formatting Properties | Destination |
| \wmetafile*N* [87] | Pictures | Value |

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| Control word | Described in section | Type |
|---|---|---|
| \wpeqn [97] | Fields | Flag (obsolete) |
| \wpjst [97] | Document Formatting Properties | Flag |
| \wpsp [97] | Document Formatting Properties | Flag |
| \wraparound [2007] | Positioned Objects and Frames | Flag |
| \wrapdefault [2007] | Positioned Objects and Frames | Flag |
| \wrapthrough [2007] | Positioned Objects and Frames | Flag |
| \wraptight [2007] | Positioned Objects and Frames | Flag |
| \wraptrsp | Document Formatting Properties | Flag |
| \writereservation | Document Formatting Properties | Destination |
| \writereservhash [2007] | Document Formatting Properties | Destination |
| \wrppunct [2002] | Document Formatting Properties | Flag |
| \xe | Index Entries | Destination |
| \xef*N* | Index Entries | Value |
| \xform [2007] | Document Formatting Properties | Destination |
| \xmlattr [2007] | Custom XML Tags | Flag |
| \xmlattrname [2007] | Custom XML Tags | Destination |
| \xmlattrns*N* [2007] | Custom XML Tags | Value |
| \xmlattrvalue [2007] | Custom XML Tags | Destination |
| \xmlclose [2007] | Custom XML Tags | Destination |
| \xmlname [2007] | Custom XML Tags | Destination |
| \xmlns*N* [2007] | Custom XML Tags | Value |
| \xmlnstbl [2007] | Custom XML Tags | Destination |
| \xmlopen [2007] | Custom XML Tags | Destination |
| \xmlsdttcell [2007] | Custom XML Tags | Flag |
| \xmlsdttpara [2007] | Custom XML Tags | Flag |
| \xmlsdttregular [2007] | Custom XML Tags | Flag |
| \xmlsdttrow [2007] | Custom XML Tags | Flag |
| \xmlsdttunknown [2007] | Custom XML Tags | Flag |
| \yr*N* [87] | Information Group | Value |
| \yts*N* [2002] | Paragraph Formatting Properties | Value |
| \yxe [97] | Index Entries | Flag |
| \zwbo [95] | Special Characters | Symbol |
| \zwj [2002] | Special Characters | Symbol |
| \zwnbo [95] | Special Characters | Symbol |
| \zwnj [2002] | Special Characters | Symbol |

# Appendix C: Control Words Introduced by Specific/Other Microsoft Products

## *Pocket Word and RichEdit*

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| Control word | Meaning |
|---|---|
| \disabled | Character formatting property used by RichEdit to mark text runs as disabled. **\disabled** turns on the disabled effect and **\disabled0** turns it off. |
| \protect | Character formatting flag used by RichEdit to mark text runs as protected. Introduced for Outlook 97. **\protect** turns on protection and **\protect0** turns it off. |
| \pwd*N* | Substitute for **\rtf*N***. Introduced by Pocket Word to distinguish its files from general RTF files. Currently only 1 is emitted and the number is ignored by the RTF reader. |
| \urtf*N* | Identifies an RTF file in which all text characters are encoded in UTF-8. Only binary data escapes this transformation. Word does not read this encoding of RTF. |

## *Exchange (Used in RTF ↔ HTML Conversions)*

| Control word | Meaning |
|---|---|
| *\htmltag*N* | Indicates that the destination is encapsulated HTML text (to be ignored by RTF readers, but used during reverse RTF->HTML conversion). This keyword is followed by a numeric parameter containing encapsulation flags. |
| \htmlrtf*N* | Toggling keyword to mark pieces of RTF to be ignored during reverse RTF->HTML conversion. ***N*** missing or ***N*** = 1 turns effect on; ***N*** =0 turns it off. |
| *\mhtmltag*N* | Indicates that the destination is an encapsulated tag with rewritten URL links that should be used in a conversion to plain HTML. Typically, URL links are rewritten as automatically generated MHTML reference names or as absolute external links. The keyword is followed by the flag parameter (the same one as for the **\htmltag*N*** keyword). |
| \htmlbase | Placeholder in front of encapsulated MHTML reference name that marks the place where the base URL should be appended. This keyword is only used inside the \mhtmltag destination. |

## *Microsoft Office Outlook (Used in RTF E-Mail)*

| Control word | Meaning |
|---|---|
| *\ebcstart #PCDATA | Specifies start of Electronic Business Card data. This is a destination control word. |
| *\ebcend #PCDATA | Specifies end of Electronic Business Card data. This is a destination control word. |

# References

1987 RTF specification: *Microsoft Systems Journal*, March 1987. Control words defined in this specification are followed by the superscript [87] in the Appendix B Control Word table. Note that more control words were in Word 3.0 for the Apple Macintosh in 1987, but the basic destinations are defined in the specification.

Office OpenXML: Ecma-376, Part 4.

Linear Format: Unicode Technical Note #28

Unicode Technical Report #25, "Unicode Support for Mathematics".

TeX: Donald E. Knuth, *The TeXbook*, (Reading, Massachusetts, Addison-Wesley 1984).

Unicode Standard: http://www.unicode.org.

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