Rich Text Format (RTF) Specification

Version 1.9.1

The information contained in this document represents the current view of Microsoft Corporation on the issues discussed as of the date of publication. Because Microsoft must respond to changing market conditions, it should not be interpreted to be a commitment on the part of Microsoft, and Microsoft cannot guarantee the accuracy of any information presented after the date of publication.

This White Paper is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AS TO THE INFORMATION IN THIS DOCUMENT.

Complying with all applicable copyright laws is the responsibility of the user. Without limiting the rights under copyright, no part of this document may be reproduced, stored in or introduced into a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the express written permission of Microsoft Corporation.

Microsoft may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from Microsoft, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.

© 2008 Microsoft Corporation. All rights reserved.

Microsoft, MS-DOS, Windows, Windows NT, Windows Server, ActiveX, Excel, FrontPage, InfoPath, IntelliSense, JScript, OneNote, Outlook, PivotChart, PivotTable, PowerPoint, SharePoint, ShapeSheet, Visual Basic, Visual C++, Visual C#, Visual Studio, Visual Web Developer, Visio are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

All other trademarks are property of their respective owners.

License Agreement

Rich Text Format (RTF) Specification

For the latest information, please see http://www.microsoft.com/office/

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		
Version:	RTF Version 1.9.1	Microsoft Technical Support
Subject:	Rich Text Format (RTF) Specification	Specification
Contents:	278 Pages	03/2008–RTF Specification

Editing note: before editing this specification, turn off all Word autoformatting and spell checking. Otherwise you'll damage the document. Use the Word Compare document feature to ensure that the changes you make are the ones you want to make.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
User Protection Information 37

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
Hyphenation Information 144

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
Other Problem Areas in RTF 213

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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) 277
Microsoft Office Outlook (Used in RTF E-Mail) 277
References 277

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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}
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. 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. 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	characters. 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. 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. 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: '{' **\upr** '{' keyword ansi_text '}{*' **\ud** '{' keyword Unicode_text '}}}' 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}}}

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 **\f*N*** 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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>'}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. **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. 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. **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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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}
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. **Note:** This setting does not imply any behavior for the style, only that the style is of particular significance for this document. 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. If ***N*** = 1, then this priority shall be used to sort all available styles in ascending value order. 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. 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. **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. 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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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*: 0 Assume all styles are allowed except for those specified by \lsdlockedexcept. 1 Assume all styles are disallowed except those specified by \lsdlockedexcept. 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***). If this element is omitted, the default **\ssemihidden*N*** state for all latent styles in the current document shall be "0".

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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**) 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***). 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***) 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. 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. 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. 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. 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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**? (**\leveloldN** & **\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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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***. **\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. **\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. 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 0 Arabic (1, 2, 3) 1 Uppercase Roman numeral (I, II, III) 2 Lowercase Roman numeral (i, ii, iii) 3 Uppercase letter (A, B, C) 4 Lowercase letter (a, b, c) 5 Ordinal number (1st, 2nd, 3rd) 6 Cardinal text number (One, Two Three) 7 Ordinal text number (First, Second, Third) 10 Kanji numbering without the digit character (DBNUM1) 11 Kanji numbering with the digit character (DBNUM2) 12 46 phonetic katakana characters in "aiueo" order (AIUEO) (newer form – "あいうえお。。。" based on phonem matrix) 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) 14 Double-byte character 15 Single-byte character 16 Kanji numbering 3 (DBNUM3)

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 - # -

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.	

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 {\levelnumbers \'01\'03\'05} 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: 0 Tab 1 Space 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. Revision conflicts, such as those that result when one author deletes another's additions, are stored as one group, in the following form: CurrentAuthor\'00\'<length of previous author's name>PreviousAuthor\'00 PreviousRevisionTime 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 {\insrsid8282541 This is text.} For use in lists: {\insrsid8282541 Item in List \par{\listtext\pard\plain\f3\insrsid8282541 \loch\af3\dbch\af0 \hich\f3 \'b7\tab}}

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

\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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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> '}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

\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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

For example:

```
{\*\passwordhash
010000004c0000000100000004800000050c300001400000010000000f89c360d0c9d360d000000008bc29e2f78a2144122ed6
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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 0 General document (for formatting most documents, the default) 1 Letter (for formatting letters, and used by Letter Wizard) 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. **Note:** Removing unused abstract numbering definition from a document will reduce the file size, but is not required. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

Bit	Object model Document event method
0	New
1	Open
2	Close
3	Sync
4	XMLAfterInsert
5	XMLBeforeDelete
6	(reserved for internal use)
7	(reserved for internal use)
8	ContentControlAfterAdd
9	ContentControlBeforeDelete
10	ContentControlOnExit
11	ContentControlOnEnter
12	ContentControlBeforeStoreUpdate
13	ContentControlBeforeContentUpdate
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. 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. **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. 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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. **Note:** Because this setting specifies behavior when saving to an alternative file format not defined by Office Open XML, this behavior is optional. 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. For example, consider the RTF specifying to save through the XSL transform located at c:\temp\myxslt.xsl: `{\*\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. 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. 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). 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). 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. **Note:** Because this setting specifies behavior when saving to an alternative file format not defined by this spec, this behavior is optional. 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. If the **\validatexml*N*** control word is present, then the XML is never invalid and this property is ignored.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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). 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). 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). 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. 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. 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:

Value	Description
0001	Specifies that all styles present should be displayed in the list of document styles.
0002	Specifies that only custom styles should be displayed in the list of document styles.
0004	Specifies that all latent styles should be displayed in the list of document styles.
0008	Specifies that only styles used in the document should be displayed in the list of document styles.
0010	Undefined. Shall not be used.
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.
0040	Specifies that numbering styles should be displayed in the list of document styles.
0080	Specifies that table styles should be displayed in the list of document styles.
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.
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.
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.
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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	1000 Specifies that a style should be present that removes all formatting and styles from text. 2000 Specifies that the first three heading styles should always be displayed in the list of document styles. 4000 Specifies that styles should only be shown if the **\ssemihidden*N*** control word is 0 and the **\shidden** control word isn't present. 8000 Specifies that primary names for styles should not be shown if an alternate name using the name control word exists. Any other value Undefined. Shall not be used. If this control word is omitted, then all settings defined by this control word are turned off. Example: Consider an RTF document containing the following: `{\*\wgrffmtfilter 2002}` This specifies two suggested filter options for the list of document styles: 1) Only custom styles should be shown (0002) 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. If this control word is omitted styles should be sorted as if this control word was present with ***N*** = 1. **Value** **Description** 0 Specifies that visible styles should be sorted by their names. 1 Specifies that visible styles should be sorted by the default sorting of the host application. **Note:** In Microsoft Office Word 2007 the default sorting order is specified by the **\spriority*N*** control word. 2 Specifies that visible styles should be sorted by the font for which they apply. 3 Specifies that visible styles should be sorted by the style on which they are based. 4 Specifies that visible styles should be sorted by their style types (e.g., character, linked, paragraph). 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
Document Views and Zoom Level	
\viewkind*N*	An integer (0 through 5) that represents the view mode of the document.
	0 None
	1 Page Layout view
	2 Outline view
	3 Master Document view
	4 Draft view
	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.
	0 None
	1 Full page
	2 Best fit
	3 Text width
\viewbksp*N*	Boolean:
	0 Background shapes will not show in Page Layout View (default if omitted).
	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.
	0 Footnotes only or nothing at all (the default)
	1 Endnotes only
	2 Both footnotes and endnotes
	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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

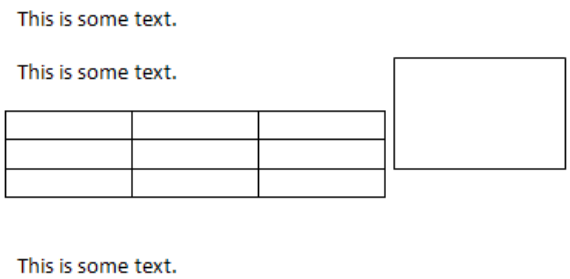
© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: • **\nospaceforul** • **\lnbrkrule** • **\noxlattoyen** • **\expshrtn** • **\dntultrlspc** • **\dntblnsbdbwid** • **\dontadjustlineheightintable** 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. If both this control word and **\nouicompat** are present, the last one read determines the result.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. **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: • **\nospaceforul** • **\lnbrkrule** • **\noxlattoyen** • **\expshrtn** • **\dntultrlspc** • **\dntblnsbdbwid** • **\dontadjustlineheightintable** 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. **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. 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. 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. 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:  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. 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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	This is some text. This is some text. 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. 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): Chinese (Simplified) Cannot start a line: !),.:;?]}¨·ˇ¯―‖’”…:、。〃々〉》」』】〕〗！＂＇），．：；？］｀｜｝～¢ Cannot end a line: ([{·‘“〈《「『【〔〖（．［｛£¥ Chinese (Traditional) Cannot start a line: !),.:;?]}¢·––’”•‥…·′、。〉》」』】〕〞：｜｜｛ ︶︸︺︼︾︿﹂﹄ ﹏，、．：：？！）｝〕〗！）），．：；？｜｝、 Korean Cannot end a line: ([\{£¥‘“〈《「『【〔$（［｛₩ Example: Consider a line of text in a WordprocessingML document within a paragraph marked as Chinese (Simplified) that begins with a % symbol, as follows: %... 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: 〖%... 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: %... **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. 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. 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. This control word specifies that floating objects shall always impact paragraphs on the same

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	line in two ways: 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. Example: A paragraph with a 1" left indent shall tightly wrap a floating object that appears at only 0.25" on the same line. 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. 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. 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: One Two Three Four Five 1. One 2. Two 3. Three 4. Four 5. Five However if this control word is present, the two alternate rules defined above apply, resulting in the following output: One Two Three Four Five 1. One 2. Two 3. Three 4. Four 5. Five **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. 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). Example: Consider an RTF document with a default paragraph style with additional spacing after and contextual spacing set: The default presentation would have the spacing suppressed between all paragraphs, since

© 2008 Microsoft Corporation. All rights reserved.

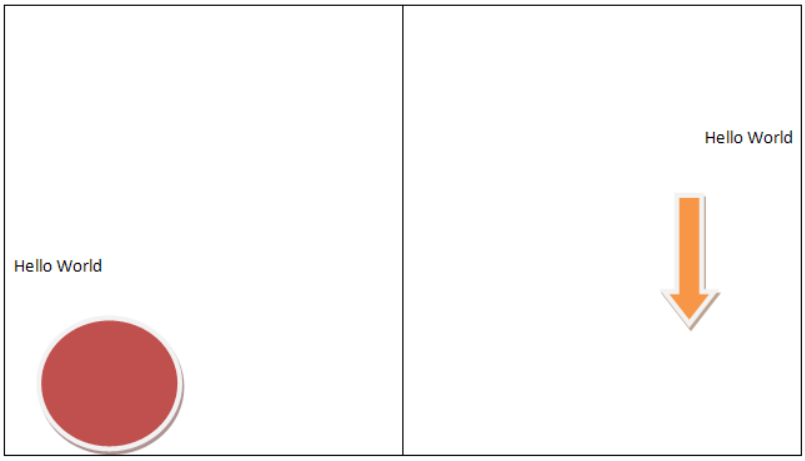
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	they are all of the default paragraph style: 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. 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. 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. 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. However, if this control word was present, then the paragraphs in the table will never have their spacing suppressed, resulting in the following output: 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. 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. 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. 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. **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. 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*]. 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. 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.

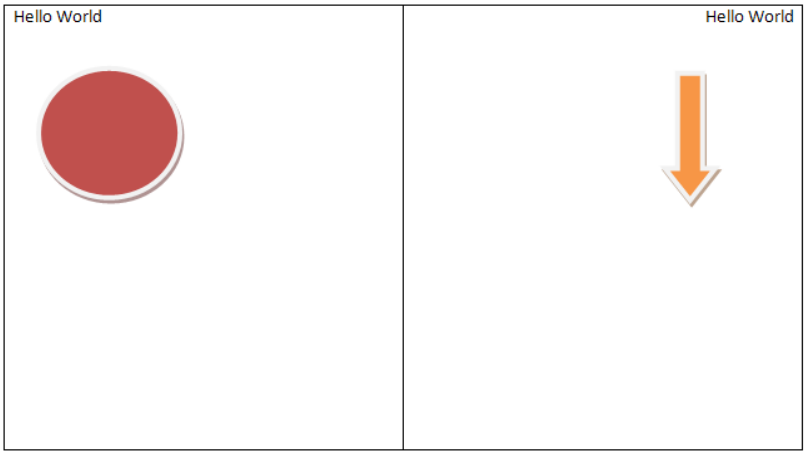
© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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:



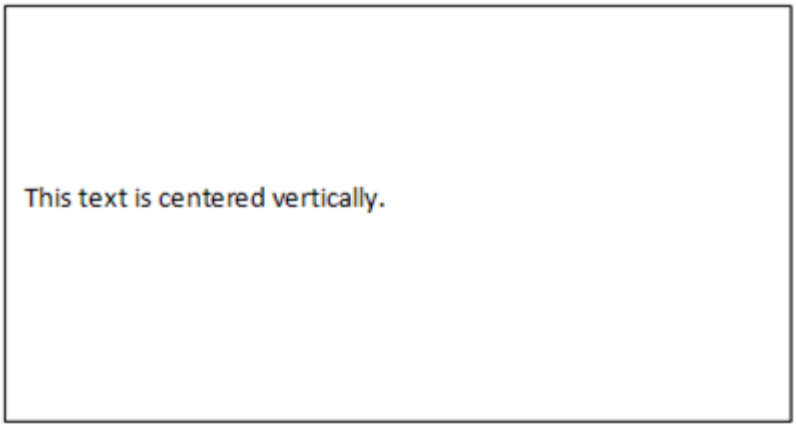
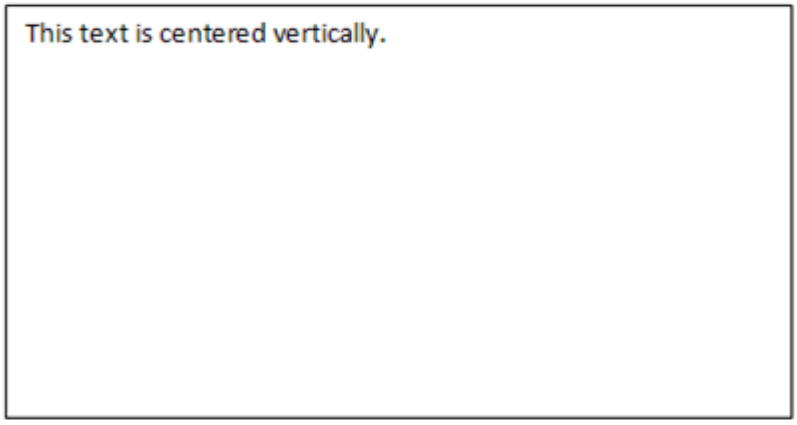
Note: This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003.

\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:

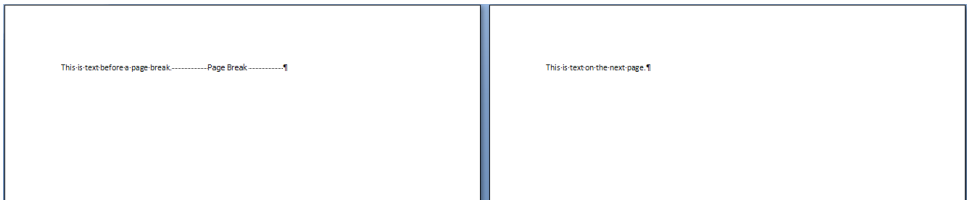
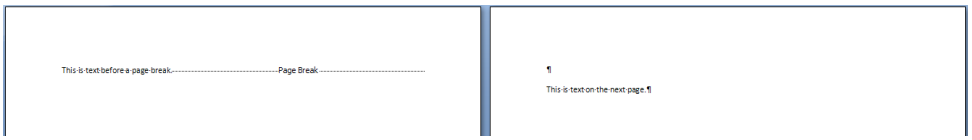
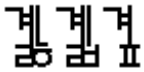
© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	 If this control word is present, then the text shall always be top aligned, resulting in the following output:  **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. 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. 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. 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. Example: Consider an RTF document with two paragraphs of content – the first ending with a page break as rendered by Microsoft Office Word 2007.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	 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:  **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). 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). 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). Example: Consider an RTF document with three Hangul characters:  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): 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:

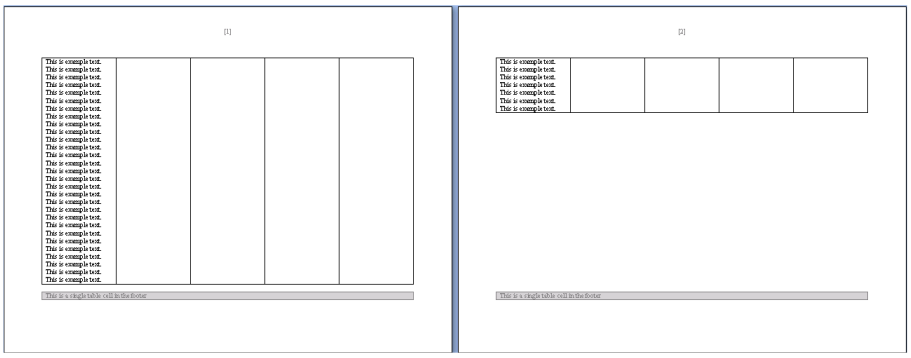
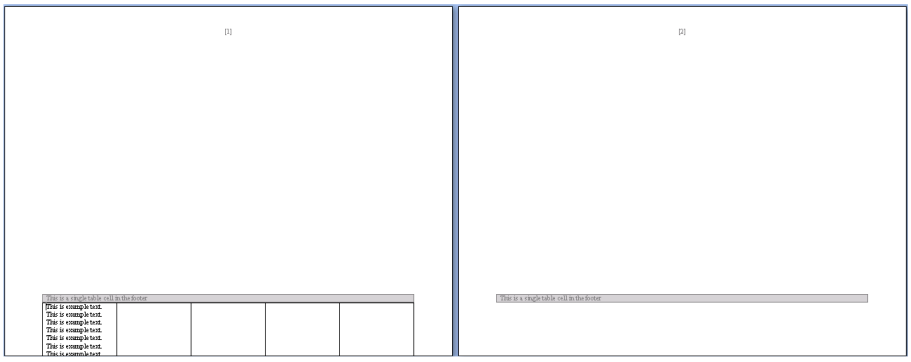
© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	Notice from the highlighting that the characters have been compressed to the width of the single character and displayed at that fixed width. **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. **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. 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. **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. 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: The numbering is underlined The first character of the paragraph is underlined 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: 1. Example Text 2. Example Text 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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
	1. Example Text 2. Example Text **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: The table row exceeds one page in height (it must be split across two pages) The table row would need to be split to accommodate a floating table also on the page 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. 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:  The default presentation of this document forces that row to be split as needed around that floating table. 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:  This example, while extreme, shows how the row is placed below the floating table, rather than breaking around it. **Note:** This control word is used to maintain compatibility with documents created by Microsoft Office Word 2003.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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). **Note:** Because this setting specifies behavior when saving to an alternative file format not defined by this spec, this behavior is optional. 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: 0 No properties shown 1 Bold 2 Italic 3 Underline (default) 4 Double underline
\revbar*N*	Vertical lines mark altered text, based on the argument: 0 No marking 1 Left margin 2 Right margin 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 0 Track Changes (**\revprot** is also emitted) 1 Comments (**\annotprot** also emitted) 2 Forms (**\formprot** also emitted) 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

\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: 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). bit 3 Display in front (0), in back (1) bit 5 Offset from text (0), from edge of page (1). Examples: 8 Page border for all pages in section measures from text. **Always display in front** option is set to **off**. 32 Page border for all pages in section measures from edge of page. **Always display in front** option is set to **on**. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
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}}
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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>. 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. **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. 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. 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. **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. 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. 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. 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. 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. The type of error reporting implied by this control word shall be defined as follows: • Simulate the population of fields with mapped external data, and report errors in a new document if the parameter is equal to 1. • While populating fields with mapped external data pause to report each error as it occurs if the parameter is equal to 2. • Populate fields with mapped external data, and report errors in a new document if the parameter is equal to 3. • 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. If this destination is omitted, no UDL connection string shall be associated with the ODSO data for this mail merge. This connection string is only used under the following conditions: • The <mmdatatypeodso> control word is used in the given RTF file. • 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. This control word is used to specify the location of the external data source only under the following conditions: • The <mmdatatypeodso> control word is used in the given RTF file. • 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. 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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>. 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. 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. 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. 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. 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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-

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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…

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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*y*N	Header is ***N*** twips from the top of the page (default is 720).
\footer*y*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, …)

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. A 0 (zero) specifies to not show heading level (the default). 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. 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: 0 Space before determined by **\sb*N*** 1 Space before is Auto (ignores **\sb*N***) Default is 0.
\saauto*N*	Auto spacing after: 0 Space after determined by **\sa*N*** 1 Space after is Auto (ignores **\sa*N***) 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. 0 "At Least" or "Exactly" line spacing 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. 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. 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 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. This element shall only be read for paragraphs that are contained within a text box. If the parent text box does not meet the following three criteria, then this property has no effect: • The text box wrapping must be set to 1 (shape property **WrapText** = 1) • The text box border must not be set • The text box shading must not be set 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 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. This element shall only be read for paragraphs that are contained within a text box. If the parent text box does not meet the following three criteria, then this property has no effect: • The text box wrapping must be set to 1 (shape property **WrapText** = 1) • The text box border must not be set • The text box shading must not be set 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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. This element shall only be read for paragraphs that are contained within a text box. If the parent text box does not meet the following three criteria, then this property has no effect: • The text box wrapping must be set to 1 (shape property **WrapText** = 1) • The text box border must not be set • The text box shading must not be set 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 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. This element shall only be read for paragraphs that are contained within a text box. If the parent text box does not meet the following three criteria, then this property has no effect: • The text box wrapping must be set to 1 (shape property **WrapText** = 1) • The text box border must not be set • The text box shading must not be set 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 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. This element shall only be read for paragraphs that are contained within a text box. If the parent text box does not meet the following three criteria, then this property has no effect: • The text box wrapping must be set to 1 (shape property **WrapText** = 1) • The text box border must not be set • The text box shading must not be set 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 paragraphs in a text box have no tight wrapping overrides, and text shall wrap to the extents of the text box.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
{\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 '}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 (1st, 2nd, 3rd).
\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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. **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. **\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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

\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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. **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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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**

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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**

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 Do not lock anchor (default). 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 1 In-text drop cap 2 Margin drop cap
Overlap	
\absnoovrlp*N*	Allow overlap with other frames or objects with similar wrapping: 0 Allow overlap (default) 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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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***

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 No AutoFit (default). 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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***: 0 Null. Ignore **\trpaddb*N*** in favor of **\trgaph*N*** (Word 97 style padding). 3 Twips.
\trpaddfl*N*	Units for **\trpaddl*N***: 0 Null. Ignore **\trpaddl*N*** in favor of **\trgaph*N*** (Word 97 style padding). 3 Twips.
\trpaddfr*N*	Units for **\trpaddr*N***: 0 Null. Ignore **\trpaddr*N*** in favor of **\trgaph*N*** (Word 97 style padding). 3 Twips.
\trpaddft*N*	Units for **\trpaddt*N***: 0 Null. Ignore **\trpaddt*N*** in favor of **\trgaph*N*** (Word 97 style padding). 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***: 0 Null. Ignore **\trspdb*N***. 3 Twips.
\trspdfl*N*	Units for **\trspdl*N***: 0 Null. Ignore **\trspdl*N***. 3 Twips.
\trspdfr*N*	Units for **\trspdr*N***: 0 Null. Ignore **\trspdr*N***. 3 Twips.
\trspdft*N*	Units for **\trspdt*N***: 0 Null. Ignore **\trspdt*N***. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. This value specified corresponds to the unit of measurement specified by the **\tblindtype*N*** control word. 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. 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. 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). 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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***.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\clspfl*N*	Units for **\clspl*N***: 0 Null. Ignore **\clspl**. 3 Twips.
\clspft*N*	Units for **\clspt*N***: 0 Null. Ignore **\clspt**. 3 Twips.
\clspfb*N*	Units for **\clspb*N***: 0 Null. Ignore **\clspb**. 3 Twips.
\clspfr*N*	Units for **\clspr*N***: 0 Null. Ignore **\clspr**. 3 Twips.
\clwWidth*N*	Preferred cell width. Overrides **\trautofit*N***.
\clftsWidth*N*	Units for **\clwWidth*N***: 0 Null. Ignore **\clwWidth*N*** in favor of **\cellx*N*** (Word 97 style of determining cell and row width). 1 Auto, no preferred cell width, ignores **\clwWidth*N*** if present; **\clwWidth*N*** will generally not be written, giving precedence to row defaults. 2 Percentage (in 50ths of a percent). 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. **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. 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. If this control word is omitted, then the end of cell marker shall be included in the determination of the height of this row. Example: Consider the following RTF table:

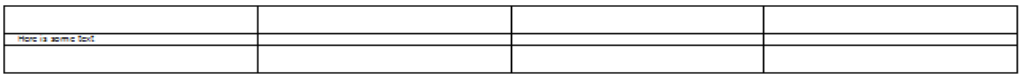
Here is some small text.			

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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. 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. 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. 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. 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. 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

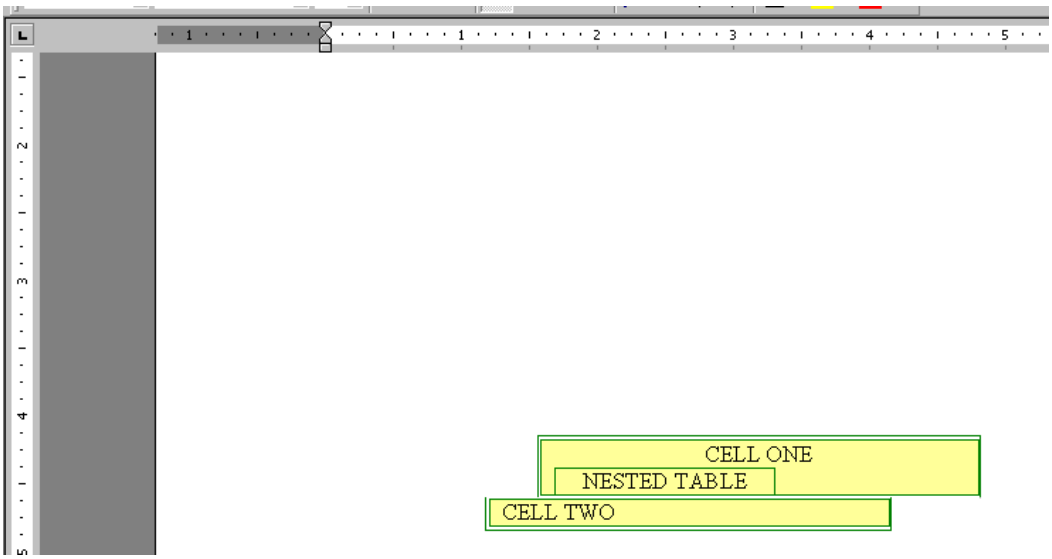
© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
{\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!

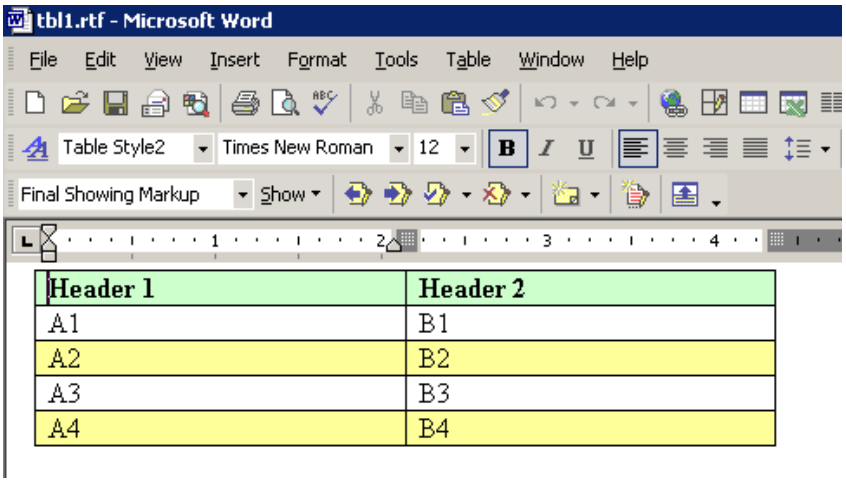
```
{\trowd \trgaph115\trleft388\trbrdrt
\brdrs\brdrw15\brdrcf11 \trbrdrl\brdrs\brdrw15\brdrcf11 \trbrdrb\brdrs\brdrw15\brdrcf11
\trbrdrr\brdrs\brdrw15\brdrcf11 \trbrdrh\brdrs\brdrw15\brdrcf11 \trbrdrv\brdrs\brdrw15\brdrcf11
\tphmrg\tposxc\tposyc\tdfrmtxtLeft187\tdfrmtxtRight187\trftsWidth1\trftsWidthB3\trwWidthB504\trftsWid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

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Table Styles Example



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

\ts11 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
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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>

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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> '}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<sSubPr>	'{' **\msSubPr** <ctrlPr> '}'
<sSubSupPr>	'{' **\msSubSupPr** ('{' **\malnScr** <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> '}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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>	**uN** '?'
<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 $\dot{a}, \hat{a}, \tilde{a}, \widehat{a+b}$.
\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 $\sqrt{\pi}$
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

and

$\underline{\overline{a^2 + b^2 = c^2}}$ (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:

$$\pi_2(x, p_i) = x_2 A_i \left(1 - \frac{1}{p_2\alpha_2} - \frac{1}{p_3\alpha_3} + \frac{1}{p_2 p_3 \alpha_2 \alpha_3} - \cdots \pm \frac{1}{p_2 p_3 p_4 \ldots p_i \alpha_3 \alpha_4 \ldots \alpha_i}\right).$$

\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**

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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):

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

$$\int_0^2 x\,dx$$

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

\mdiffSty*N* Specifies document math style to display the differential 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 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**.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

\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:

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

When an integral object is written in linear format, e.g., $\int_a\hat{}b$, 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:

$$\begin{aligned} x &= x_1 + x_2 + x_3 + \cdots \\ y &= y_1 + y_2 + y_3 + y_4 + \cdots \\ z &= z_1 + z_2 + z_3 + z_4 + z_5 + \cdots \end{aligned}$$

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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:

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

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

Example: $\lim_{n\to\infty}$ and $\max_{0\le x\le 2}$

\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: $\int_0^1 x\,dx$, $\sum_k \binom{n}{k} a_k$, $\prod_{k=1}^n A_k$ 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

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

respectively. When this summation object is written in linear format as $\sum_(i = 0)\hat{}n$, 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.	$\begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix}$

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

4	Multiple of value of **\mrSp*N***, measured in half lines, here 3.	1 2 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 $\boxed{\cancel{a+b}}$.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

\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

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

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 dx:

$$\int \mathrm{xdx}$$

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	$\begin{matrix} a \\ b \end{matrix}$

\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:

\mpos	\mvertJc	layout

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

top	top	$a \underset{bcd}{\longleftarrow} e$
top	bot	$a \overbrace{bcd} e$
bot	top	$a \underbrace{bcd} e$
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.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\animtext*N*	Animated text properties (note: Word 2007 ignores this control word): 0 (none) 1 Las Vegas Lights 2 Blinking Background 3 Sparkle Text 4 Marching Black Ants 5 Marching Red Ants 6 Shimmer 7 Wipe down 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.
\fs*N*	Font size in half-points (default is 24).
\i*	Italic.
\impr*	Engrave (imprint).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\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.
\ulthdashd*	Thick dash-dotted underline.
\ulthdashdd*	Thick dash-dot-dotted underline.
\ulthldash*	Thick long dashed underline.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\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
Bengali (India)	0x445	1093
BosniaHerzegovina	0x101a	4122
Bosnian (Cyrillic, Bosnia and Herzegovina)	0x201a	8218

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
English (United States)	0x409	1033
English (Zimbabwe)	0x3009	12297
Estonian (Estonia)	0x425	1061

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
Igbo (Nigeria)	0x470	1136
Indonesian (Indonesia)	0x421	1057
Inuktitut (Latin, Canada)	0x85d	2141

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
(none)	0x400, 0	1024, 0
Norwegian, Bokmål (Norway)	0x414	1044
Norwegian, Nynorsk (Norway)	0x814	2068

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
Somali	0x477	1143
Spanish (Argentina)	0x2c0a	11274
Spanish (Bolivia)	0x400a	16394

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
Urdu (India)	0x820	2080
Uzbek (Cyrillic, Uzbekistan)	0x843	2115
Uzbek (Latin, Uzbekistan)	0x443	1091

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

Property association uses the following syntax:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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.
\ashad*	Associated font is shadow.
\astrike*	Associated font is strikethrough.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\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.
\nestrow	End of nested table row.
\par	End of paragraph.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\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: 0 Default line break (just like **\line**) 1 Clear left 2 Clear right 3 Clear all 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.
\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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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**).

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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**). The following restrictions are applied to the use of this control word: • 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. • 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. 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). 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). {*\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**). The following restrictions are applied to the use of this control word: • 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. • 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**). The following restrictions are applied to the use of this control word • 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. • 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. 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). 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). `{\*\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**). The following restrictions are applied to the use of this control word: • 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. • 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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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). 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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}}
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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	Specifes 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”.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 '}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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. 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. 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: 1. Take the object's original CLSID 2. Write the CLSID as the argument for **\oleclsid** 3. Stamp the object with CLSID_SAXXMLReader50 4. Write the object in the **\objdata** destination **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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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***.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\dpaendl*N*	Length of end arrow, relative to pen width: 1 Small 2 Medium 3 Large
\dpaendsol	Solid end arrow (lines only).
\dpaendw*N*	Width of end arrow, relative to pen width: 1 Small 2 Medium 3 Large
\dpastarthol	Hollow start arrow (lines only).
\dpastartl*N*	Length of start arrow, relative to pen width: 1 Small 2 Medium 3 Large
\dpastartsol	Solid start arrow (lines only).
\dpastartw*N*	Width of start arrow, relative to pen width: 1 Small 2 Medium 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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>	**\shplefT*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** ... '}'

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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	
\shplefT*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: 1 Wrap around top and bottom of shape (no text allowed beside shape) 2 Wrap around shape 3 None (wrap as if shape isn't present) 4 Wrap tightly around shape 5 Wrap text through shape
\shpwrk*N*	Wrap on side (for types 2 and 4 for **\shpwr*N***): 0 Wrap both sides of shape 1 Wrap left side only 2 Wrap right side only 3 Wrap only on largest side

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\shpfblwtxt*N*	Describes relative z-ordering: 0 Text is below shape 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: {\shptxt Any valid RTF for the current text box } **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. 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: {\shpgrp … {\shp … (and all sub-items as usual) } {\shp … (and all sub-items as usual) } **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: Example: {\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 Absolute 1 Left 2 Center 3 Right 4 Inside 5 Outside This overrides the absolute position specified in **\shpleft*N*** and **\shpright*N***.	Not applicable	Absolute position as specified in **\shpleft*N*** and **\shpright*N***.

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
posrelh	Position horizontally relative to: 0 Margin 1 Page 2 Column 3 Character 4 Left margin 5 Right margin 6 Inside margin 7 Outside margin	Not applicable	2, if **posh** is present
posv	Vertical alignment: 0 Absolute 1 Top 2 Center 3 Bottom 4 Inside 5 Outside 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: 0 Margin 1 Page 2 Paragraph 3 Line 4 Top margin 5 Bottom margin 6 Inside margin 7 Outside margin 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
pctVertPos	Percentage vertical position for a shape	Integer	Application specific
sizerelh	Relative size horizontal relation 0 Margin 1 Page 2 Left Margin 3 Right Margin 4 Inside Margin 5 Outside Margin	Not applicable	Application specific
sizerelv	Relative size vertical relation 0 Margin 1 Page 2 Top Margin 3 Bottom Margin 4 Inside Margin 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 Stretch each line of text to fit width 1 Center text on width 2 Left justify 3 Right justify 4 Spread letters out to fit width 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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):	Not applicable	0
	0 No links (default)		
	10 Link to file; save with document		
	14 Link to file; do not save picture with document		
pibName	Picture file name that is used to link to file pictures.	String	NULL
pibPrint	Blip to display when printing.	Picture	NULL
pibPrintFlags	Flags:	Not applicable	0
	0 No links (default)		
	10 Link to file; save with document		
	14 Link to file; do not save picture with document		
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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 ***N*** **Script Language** 1 JavaScript 2 VBScript 3 ASP 4 Other given by wzScriptLangAttr	Long integer	1
tableProperties	Table flags with nonzero bit meanings **Bit** **Nonzero meaning** 0 Group is a PowerPoint table 1 Table is a placeholder 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

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 Solid color 1 Pattern (bitmap) 2 Texture (pattern with its own color map) 3 Picture centered in the shape 4 Shade from start to endpoints 5 Shade from bounding rectangle to endpoint 6 Shade from shape outline to endpoint 7 Shade using the fillAngle 8 Shade to title (for PowerPoint) 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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): 0 No links (default) 10 Link to file; save picture with document 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). **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: 0 Default size, ignore the values 1 Values are in EMUs 2 Values are in pixels 3 Values are fixed fractions of the shape size 4 Aspect ratio is fixed 5 EMUs, fixed aspect ratio 6 Pixels, fixed aspect ratio 7 Proportion of shape, fixed aspect ratio 8 Aspect ratio is fixed, favor larger size 9 EMUs, fixed aspect ratio	Measurement type	0

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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		

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
lineStartArrowhead	Start arrow type: 0 Nothing 1 Arrow 2 Stealth arrow 3 Diamond 4 Oval 5 Open arrow 6 Chevron arrow 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: 0 Narrow 1 Medium 2 Wide	Arrow width	1
lineStartArrowLength	Start arrow length: 0 Short 1 Medium 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: 0 Round 1 Square 2 Flat	Line cap style	2
lineFillBlipName	Blip file name.	String	NULL
lineFillDztype	fillWidth/Height numbers: 0 Default size, ignore the values 1 Values are in EMUs 2 Values are in pixels 3 Values are fixed fractions of shape size 4 Aspect ratio is fixed 5 EMUs, fixed aspect ratio 6 Pixels, fixed aspect ratio 7 Proportion of shape, fixed aspect ratio 8 Aspect ratio is fixed, favor larger size 9 EMUs, fixed aspect ratio 10 Pixels, fixed aspect ratio	Measurement type	0

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
c3DYRotationAngle	Degrees about y-axis. 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. 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). 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). 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**. 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 1 Render as a wireframe 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
c3DOriginX	The following **c3DOriginY** and **c3DSkewAngle** values define the origin relative to the viewpoint origin measured. 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 Absolute 1 Shape 2 Drawing	Fixed	1
perspectiveWeight	Scaling factor.	Boolean	256
fPerspective	On/off.		Not applicable
Callout			
spcot	Callout type: 1 Right angle 2 One segment 3 Two segments 4 Three segments	Not applicable	3
dxyCalloutGap	Distance from box to first point.	EMU	76,200
spcoa	Callout angle: 0 Any angle 1 30 degrees 2 45 degrees 3 60 degrees 4 90 degrees	Not applicable	1

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
spcod	Callout drop type: 0 Top 1 Center 2 Bottom 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: 0 None 1 Segments 2 Custom 3 Rect	Connector style	1
cxstyle	Connector style: 0 Straight 1 Bent 2 Curved 3 None		3
Drawing Canvases and Diagrams			
dgmt	Diagram type: 0 Drawing Canvas 1 Organizational Chart 2 Radial Diagram 3 Cycle Diagram 4 Pyramid Diagram 5 Venn Diagram 6 Target Diagram	Diagram style	Not applicable
dgmStyle	Diagram style, which is dependent on Diagram type: Organization Chart Styles 0 Default	Complex	Not applicable

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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)		

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
dgmLayout	This property specifies the node layout in a diagram, which is dependent on the Diagram type: Organization Chart Node Layout 0 Standard 1 Both Hanging 2 Right Hanging 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: 0 Node 1 Root 2 Assistant, 3 CoWorker, 4 Subordinate, 5 Auxiliary Node, 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: 0 Color 1 Automatic 2 Grayscale 3 Light grayscale 4 Inverse gray 5 Gray outline 6 Black TextLine 7 High contrast 8 Black 9 White 10 Do not show 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Property	Meaning	Type of value	Default
Horizontal Line			
alignHR	Horizontal alignment: 0 Left 1 Center 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
{\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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

<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 日本語(にほんご) 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)

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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: 0 Text 1 Check box 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: 0 Auto 1 Exact

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Meaning
\fftypetxt*N*	Type of text field: 0 Regular text 1 Number 2 Date 3 Current date 4 Current time 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 1 Center justified 2 Right justified for left-to-right paragraphs and left justified for right-to-left paragraphs 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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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 **\f*N***.
\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 → 億

- 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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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).

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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…

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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):
	0 Switched text is uncompressed.
	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:
	0 Text is not enclosed.
	1 Text is enclosed in parentheses.
	2 Text is enclosed in square brackets ([]).
	3 Text is enclosed in angled brackets (<>).
	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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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;
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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:

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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.

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
"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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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;
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
} 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,
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
              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;
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
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)
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
    {
        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))
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
                        {
                            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;
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
    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);
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
    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;
    }
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
    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.
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
};

// 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,    '”',
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
    "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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
// 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;
}
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
// %%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
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
            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;
}
```

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

```
// %%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
```

© 2008 Microsoft Corporation. All rights reserved.
By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

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
\aftnrstcont	Document Formatting Properties	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\autofmtoverride [2003]	Document Formatting Properties	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\brdrdashd [97]	Paragraph Borders	Flag
\brdrdashdd [97]	Paragraph Borders	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\caccentfive [2007]	Color Table	Flag
\caccentfour [2007]	Color Table	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\chcfpat*N* [97]	Character Borders and Shading	Value
\chdate [87]	Special Characters	Symbol
\chdpa	Special Characters	Symbol
\chdpl	Special Characters	Symbol

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\clins[2007]	Table Definitions	Flag
\clinsauth*N* [2007]	Table Definitions	Value
\clinsdttm*N* [2007]	Table Definitions	Value
\clmgf	Table Definitions	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\clvmrg [95]	Table Definitions	Flag
\clwWidth*N* [2000]	Table Definitions	Value
\cmaindarkone [2007]	Color Table	Flag
\cmaindarktwo [2007]	Color Table	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\deflang*N*	Default Fonts	Value
\deflangfe*N* [97]	Default Fonts	Value
\defpap [2007]	Default Properties	Destination
\defshp [2000]	Pictures	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\dpfillbgcr*N*	Drawing Objects	Value
\dpfillbggray*N*	Drawing Objects	Value
\dpfillbgpal	Drawing Objects	Flag
\dpfillfgcb*N*	Drawing Objects	Value
\dpfillfgcg*N*	Drawing Objects	Value

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\fjminchou	Font Family	Flag
\fldalt	Fields	Flag
\flddirty	Fields	Flag
\fldedit	Fields	Flag
\fldinst	Fields	Destination
\fldlock	Fields	Flag

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\levelold*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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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 Drawing Objects (Shapes)	Flag
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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 Properties	Toggle
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Control word	Described in section	Type
\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
\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

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Appendix C: Control Words Introduced by Specific/Other Microsoft Products

Pocket Word and RichEdit

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).

© 2008 Microsoft Corporation. All rights reserved.

By using or providing feedback on these materials, you agree to the license agreement on p. 1.

Unicode Standard: http://www.unicode.org.

▪ ▪ ▪ ▪

The information contained in this document represents the current view of Microsoft Corporation on the issues discussed as of the date of publication. Because Microsoft must respond to changing market conditions, it should not be interpreted to be a commitment on the part of Microsoft, and Microsoft cannot guarantee the accuracy of any information presented after the date of publication.

This document is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AS TO THE INFORMATION IN THIS DOCUMENT.

Microsoft may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering this document or the subject matter included in this document. The furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.

© 2008 Microsoft Corporation. All rights reserved.