

Creating Documents

with Scientific WorkPlace[®]
& Scientific Word[®]

Version 6

by Clint Hicks

MacKichan Software, Inc.

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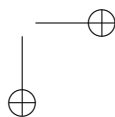
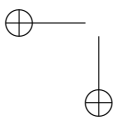
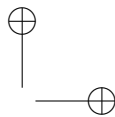
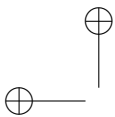
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1

Getting Started

For the same characteristic simultaneously to belong and not belong to the same object in the same way is impossible. Aristotle (384 BC–322 BC)

The point of philosophy is to start with something so simple as not to seem worth stating, and to end with something so paradoxical that no one will believe it. Bertrand Russell (1872–1970)

Welcome to Version 6! *Scientific WorkPlace* (SWP), *Scientific Word* (SW), and *Scientific Notebook* (SNB) have always provided easy text-entry, natural-notation mathematics, powerful symbolic and numeric computation, and flexible output of online, printed, and typeset documents in a Windows environment. With Version 6, these features are available for Linux and Macintosh OS X users as well.

Because of the substantial changes to the program for this version, existing users should take time to familiarize themselves with SWP's new features every bit as much as new users should, although the exact topics of interest to each group will be different. Recognizing this, we have divided this introductory chapter into a section for existing users and one for new users. Existing users will find information about important changes to the functionality of SWP in Version 6. New users will get an introduction to the product with suggestions on how best to learn it.

From there, this book takes an incremental approach to using SWP. Early chapters outline basic document-creation tasks. Later chapters discuss different methods of document production, structuring documents for typesetting, and other more advanced tasks. The appendices summarize the command menus, toolbars, and keyboard shortcuts.

For Existing Users

For New Users

Before You Begin

Conventions

Chapter 1 | Getting Started

The book itself was produced using SWP Version 6, and serves as an example of the kinds of things you can do: Dropped capitals, margin notes, references, inline graphics with text that runs around them, and of course attractive and accurately formatted mathematics.

For Existing Users

The new program features introduced in this version enhance the important features present in earlier versions of the program: compatibility with other software and systems; a rich interface based on the logical separation of content and appearance; the natural entry of text and mathematics; the ability to perform mathematical computations inside your SWP and SNB documents; and easy creation and production of complex, highly formatted printed documents.

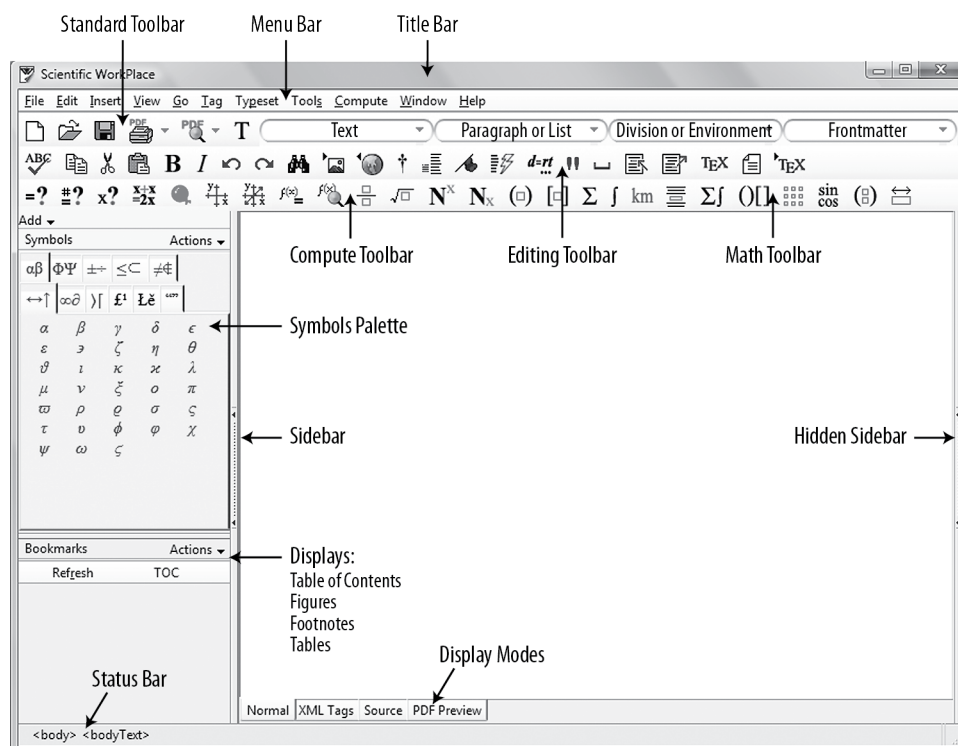
With Version 6 you can work on Windows, Linux, or Macintosh OS X and share your work seamlessly with colleagues, regardless of their system environment. With its entirely new Mozilla-based architecture, Version 6 provides more flexibility for your workplace. You can save or export your documents in multiple formats according to your publication and portability needs.

Cross-platform capability

SWP, SW, and SNB now operate on Windows systems running Windows XP and up; Macintosh systems running OS X.5 Intel and later; and systems running Linux. For SWP and SNB, Macintosh systems should be Intel 64-bit capable. Version 6 saves your documents as XML files, making them completely portable across platforms. Sharing your work and collaborating with colleagues is easier than ever.

For Existing Users

New look



The program window has an updated look with streamlined layouts for the toolbars and symbol panels. Most tools work the same way they did in earlier versions. As before, a mouse-activated tooltip gives the name of each toolbar button and panel symbols.

Seamless \TeX in an XML environment

You can seamlessly import \TeX files created with earlier versions of the program, and you can export any document as a \TeX file.

Create XHTML web files with ease

Make representations of your mathematics available on various platforms over the Internet with a browser.

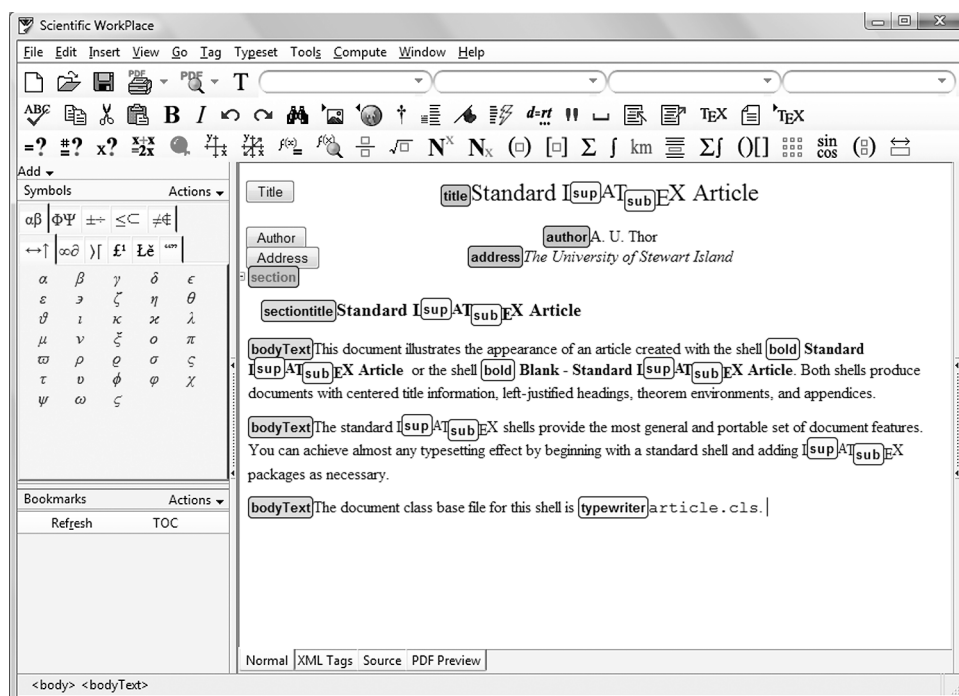
Mathematics in MathML

In XML and XHTML files, Version 6 represents your mathematics as MATHML.

Chapter 1 | Getting Started

Multiple display options

Display your document with or without XML tags, as XHTML source code, or PDF (except SNB).



Multiple document production options

When you're ready for output, you can choose whether to preview and print directly from the program window or view your document in a browser. And in SWP or SW, you can typeset your document when you need the extensive document formatting that \LaTeX and pdf \LaTeX provide.

Easy sharing of documents

Documents and all files related to them (embedded files, plot files, etc.) are automatically bundled to include all necessary files. To share a document, you need only share a single file bearing the extension .sci.

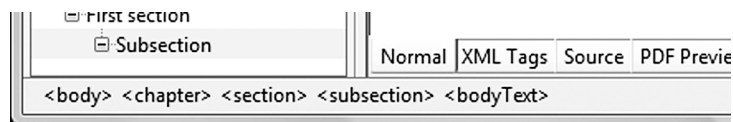
For Existing Users

Copy selections more accurately to other applications

Preserve the appearance of information in your document when you use the enhanced copy operation to copy selections to other applications. The copy operation writes your selection to the clipboard in XHTML/MATHML. The new format is more easily recognized by other applications.

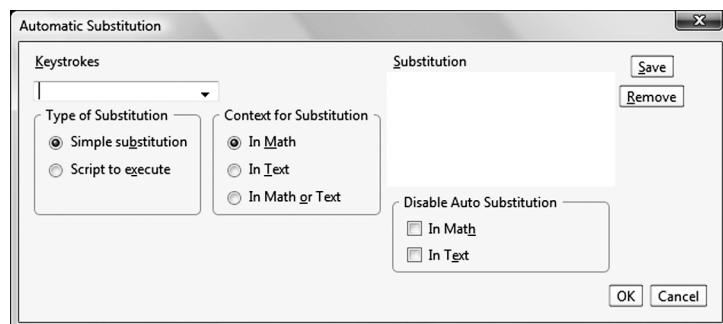
Context-sensitive status bar indicates xhtml code

Version 6 makes more information available to you as you work. A glance at the status bar tells you which tags are in effect at the insertion point.



Define automatic substitution sequences for text and mathematics

Speed the entry of the text and mathematical expressions you use most often with an enhanced automatic substitution feature.



Speed document formatting with new interactive dialogs

The page layout you define in a new WYSIWYG interface translates directly to \TeX . There's little or no need to use the document preamble or raw \TeX commands to achieve the page format you want. Common tasks such as section head and footnote formatting are simpler.

Chapter 1 | Getting Started

Enter content quickly with fragments

With Version 6 you can create fragments containing XHTML code, T_EX code, graphics, or anything else that can go on the clipboard.

Change your mind

Invoke the new Unlimited Undo capability with the standard Ctrl+z (Command+z for Macintosh) shortcut.

Enter tables precisely

Use the new visual interface to create a table of the exact dimensions you need.

Work faster from the keyboard

Use new keyboard shortcuts to enter or remove section tags and quickly structure your document. The keyboard shortcuts for performing basic operations and entering symbols, characters, and the most common mathematical objects are faster to use than the mouse.

Edit efficiently

Save time by leaving dialog boxes open while you make replacements and corrections.

Check your spelling in realtime

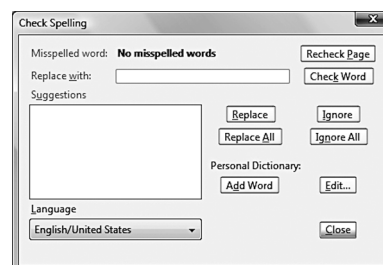
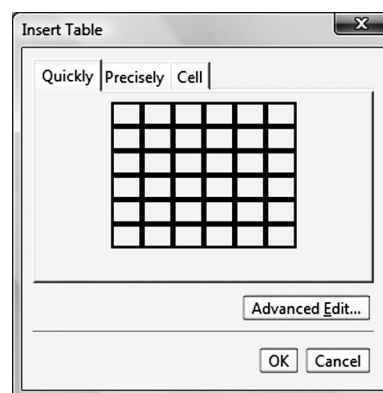
With inline spell checking from MySpell, you can catch any misspellings. MySpell includes dictionaries in over 40 languages. Misspelled words have a wavy red underline.

Search from the keyboard

Use the arrow keys to initiate fast character search and incremental find.

Use improved and scalable fonts

Use pdf \LaTeX and X_Y \LaTeX to create documents with a wide variety of scalable fonts. The software supports the New Font Selection Scheme (NFSS); with X_Y \LaTeX you can use any OpenType font installed on your computer, as well as Unicode and associated extended Unicode TrueType fonts. The program includes the latest version of \LaTeX and AMS macros. The packages yield ligatures and improved kerning in Times text when documents are typeset, and both use the widely accepted PostScript New Font Selection Scheme (PSNFSS) for \LaTeX .



Tip:

Use the context menu (right-click) to see suggested corrections.

Create $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ documents

Create documents in $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ format automatically by choosing a shell that uses $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ typesetting specifications.

Produce documents using $\mathcal{R}\mathcal{E}\mathcal{V}\mathcal{T}\mathcal{E}\mathcal{X}$

$\mathcal{R}\mathcal{E}\mathcal{V}\mathcal{T}\mathcal{E}\mathcal{X}$ is a package of $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ macros designed for preparing physics manuscripts. The software includes a shell with typesetting specifications for producing typeset documents for several different publications.

Create and operate on matrices

Build matrices quickly with Fill Matrix. Carry out implied operations simply by applying Evaluate to a sum, product, or power. Apply the numerous mathematical operations displayed on the Matrices submenu.

Operate with the names of functions, after defining them by expressions

Define generic functions and use them to illustrate rules for differentiation, or use the names of generic functions in defining new functions.

Make use of user-defined functions

Use the Define Name dialog box to access and take advantage of functions that have been programmed in MuPAD or that reside in the standard computational engine libraries, or to create custom programmed functions.

For New Users

One of the most important things to understand when using MacKichan products is the difference between semantic and formative tagging. Most people are used to the latter: You wish to emphasize a word, so you select it and choose bold, italics, underline, or some other format option. In *Scientific Workplace* (SWP), however, you select the text and apply a meaningful tag; say, “Emphasis.” The exact way the text is displayed is independent of this tagging. It could be changed at production time to suit different requirements: italics for print, bold for the Web, underline for a screenplay, etc.

Working this way, you don’t have to go back and retag everything

Chapter 1 | Getting Started

that you might have tagged “italic” if you need for it to be underlined; you simply change how the tag “Emphasis” is printed and displayed. One change instead of many. The logical separation of the creative process of writing documents from the mechanical process of formatting them has always been at the heart of the user interface in *Scientific Workplace* (SWP) and *Scientific Word* (SW).

As you write, the tags you apply to your content not only establish the document’s structure but also consistently define its printed, on-line, or typeset appearance, all according to the properties associated with each tag. Tag properties are determined by the document’s style, a collection of commands that define the way the document appears when you display it on the screen or in a browser, and when you produce it without typesetting. In SWP and SW, tag properties are also determined by the document’s typesetting specifications.

While you are doing the work of creating content, you do not need to be distracted by formatting tasks. The program does that work for you. In other words, while you do the work of creating a good document, the program does the work of creating a beautiful one. And with so many available output options, each with a different purpose and appearance, taking the time-consuming approach of trying to make the document on the screen look as much as possible like the document in print is simply not necessary.

Because the document window doesn’t correspond directly to the size of online or printed pages, the program doesn’t display page divisions or fixed line lengths on the screen; lines are broken to fit the size of the window. If you resize the window, the program reshapes the text to fit it. When you preview your document, you’ll see the page divisions correctly.

MacKichan products share an easy-to-use scientific word processor that accepts mathematics entered using familiar mathematical notation on the same screen as text. The programs use styles and tags for formatting documents, which can be printed directly or saved as XHTML files for use on your website. Version 6 provides direct access to the Internet from within the program. The online Help system provides fast information when you need it. SWP and SW support typesetting with \LaTeX , \pdf\LaTeX or \XeTeX , as well as direct printing without typesetting. SWP and *Scientific Notebook* (SNB) support a wide range of symbolic and numeric mathematical computations with MuPAD, including plotting and animation of various two- and three-dimensional expressions, computing with named physical units, and

performing dynamic calculations with formula objects.

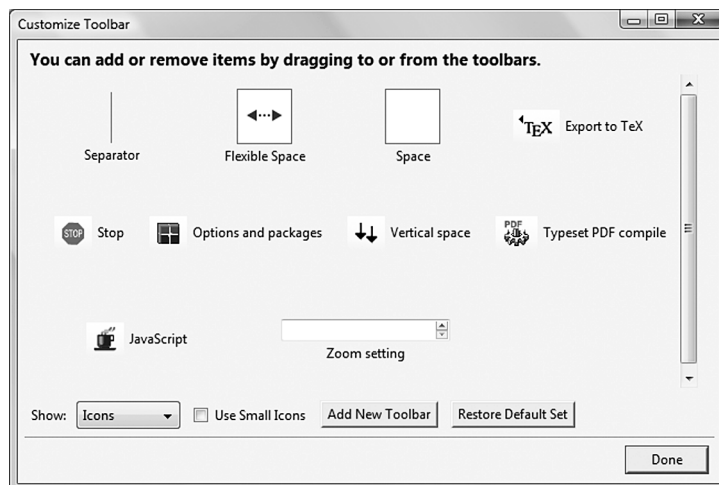
Capabilities and Features	SWP	SW	SNB
Document creation and printing	✓	✓	✓
Typesetting with	✓	✓	
XHTML output with MATHML	✓	✓	✓
Computation, plotting, and animations	✓		✓

Arrange your workplace

Hide the toolbars you don’t need; and display the symbol panels in sidebars while you work.

Configure the symbol panels

Customize the symbol panels by removing the symbols that you don’t use. Revert easily to the original configuration of the cache and the panels.



Choose document shells that meet your requirements

Select the typeset and non-typeset appearance of your document by choosing from among numerous shells, or sets of specifications, for producing books, articles, reports, and other types of documents. View typeset images of sample documents for each shell provided with the program in *A Gallery of Document Shells for Scientific WorkPlace and Scientific Word*, on the program DVD. Because the specifications contain complete document formatting instructions, you can concentrate on writing your document instead of on formatting its appearance.

Chapter 1 | Getting Started

Use the program with non-Roman languages

You can use any TrueType or OpenType font installed on your computer to create documents in languages other than English. Enter documents from non-U.S. keyboards, including those for right-to-left languages. The program also provides fonts and hyphenation support for European languages other than English. If you typeset, you can switch languages in the same document by using Babel, the multilingual \LaTeX package, and Polyglossia for X_{\LaTeX} (designed for Unicode).

Get help

Documentation available online includes extensive information about creating documents and performing mathematical computations. Use the Help search feature to find information quickly when you need it.

Before You Begin

Before you attempt to install and use the program, make sure your personal computer or network client computer meets the hardware and software requirements shown in the DVD booklet supplied with the program.

Conventions

Understanding the notation and the terms used in our documentation will help you understand the instructions. We assume you're familiar with the basic procedures and terminology for your operating system. In our manuals, we use the notation and terms listed below.

General Notations

Text like *this* indicates information you should type exactly as it is shown.

Text like *this* indicates information that you must supply, such as a filename.

Typeset your file means to process your document with \LaTeX or pdf \LaTeX .

Commands on menus and submenus are shown as *Menu*, [*Sub-menu*,] *Command*, with arrows separating each part. For instance, the Save As... command on the File menu is shown as File → Save As... The

Direct Print Preview command on the Print Preview submenu of the File menu is given by File →Print Preview →Direct Print Preview.

Keyboard Conventions

We use standard computer conventions to give keyboard instructions

The names of keys in the instructions match the names shown on most keyboards. Ctrl (Windows) and Cmd (Mac) are synonymous, as are Enter (Windows) and Return (Mac). **Names of keys are always shown in Windows format.** Macintosh users should substitute Mac keys (e.g. Cmd and Return) as appropriate. For right-clicking, Macintosh users with a single-button mouse should substitute Ctrl+click.

A plus sign (+) between the names of two keys indicates that you must press the first key and hold it down while you press the second key. For example, Ctrl+g means that you press and hold down the Ctrl key, press g, and then release both keys.

Press the Alt key followed by the indicated letter(s) (F for File, S for Save, e.g.) to quickly access menus and commands. Press Esc to cancel.

Press Enter in an empty paragraph to terminate any structure (subsection, list, etc.) and return to the next level up. (Pressing Enter twice is the same.) **This does mean that you can’t ordinarily press Enter multiple times to create white space.** To create vertical space, either use Insert →Spacing Objects... →Vertical Space... OR use Configuration to change how pressing Enter in an empty paragraph works.

Mouse Conventions

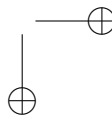
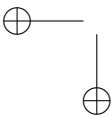
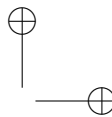
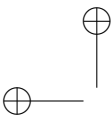
The instructions in this manual assume you have not changed any mouse button defaults. You can use the right mouse button to display a Context menu for the current selection or the item under the mouse pointer. (Mac Users: Ctrl+click.) Pressing the Application key or Command key also displays the menu.

In any dialog box, click the OK button to put changes into effect and dismiss the dialog box. Click the Cancel button to dismiss the dialog box without taking any other action. You may also click the Close button in the upper right corner of the dialog box.

Macintosh Users Note

Important:

Terminating Lists, Subsections, etc.



2

Basics

[[I]f we want to subject science itself to a rigorous scrutiny...we must begin by reawakening the basic experience of the world, of which science is the second-order expression Maurice Merleau-Ponty (1908–1961)

The *Scientific WorkPlace* (SWP), *Scientific Word* (SW), and *Scientific Notebook* (SNB) Version 6 program window has been completely redesigned to provide easy access to the tools you need to create and navigate documents. In addition to the standard menu bar at the top, there is a status bar at the bottom and several other customizable toolbars just above the text entry area. Optional sidebars display a navigable outline of your document, symbol panels, a link to a web page on our web site that gives current information about updates, new shells, extensions, etc., and/or a list of available fragments. Tabs at the bottom of the screen change the display mode of your document: normal text entry, a view with the XML tags shown, a view of the source code, or a PDF preview.

Program tools are available from the menus, toolbar buttons, tabs, and via keyboard shortcuts. Many tools may be invoked in multiple ways to suit your style of work: via menu, button, or keyboard. In this manual, we generally indicate only one of the possible ways of accessing a tool, generally via the menus. A table of alternative methods is given at the end of each subsequent chapter of this manual. Appendix A lists all command shortcuts.

Menus

Toolbars

Sidebars

Display Modes

Status Bar

Additional Information

Chapter 2 | Basics

Menus

The command menus are the same no matter what MacKichan product you have installed, with these exceptions: In SW, the Compute menu isn’t available. In SNB, the Typeset menu isn’t available.

Menu	Function
File	Open, close, save, import, and export new and existing files; print, and preview documents; leave the program
Edit	Edit, delete, move, or copy and paste text or mathematics; undo; find and replace content; check spelling
Insert	Insert graphics, tables, breaks, lines, and spacing; insert mathematical objects and typeset objects; insert markers, notes, formulas, and hypertext links
View	Change the display mode; open the sidebar; toggle the display of items like notes, markers, and invisible characters
Go	Move to marker or to paragraph
Tag	Apply tags; change the non-typeset appearance of tagged text; assign tags to function keys
Typeset	Work with packages and settings; compile your document in SWP and SW using pdf \TeX or X \LaTeX
Tools	Provide user setup and system settings; access tools; execute jumps; set automatic substitution sequences
Compute	Perform mathematical computations in SWP and SNB
Window	Navigate among open documents
Help	Access the online Help system and MacKichan website; register your system; obtain system information
Program (Macintosh only)	On the Macintosh only, the About..., Preferences, and Quit commands are on the Program menu, SWP.

When you choose a menu, the program displays a pull-down list of available commands. When you move the mouse over a command that is followed by an arrow, the program displays a list of associated

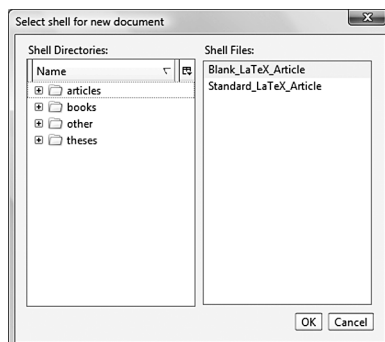
commands so you can choose among them. When you choose a command that is followed by an ellipsis (dots), the program displays a dialog box so you can make additional choices. Some commands are available only in certain environments or circumstances; for example, the Paste command isn’t available if you haven’t already copied a selection to the clipboard. *Unavailable commands are dimmed.*

FILE Menu

Commands in the file menu apply to documents as a whole.

New Document...

Opens the Select Shell for a New Document dialog box.



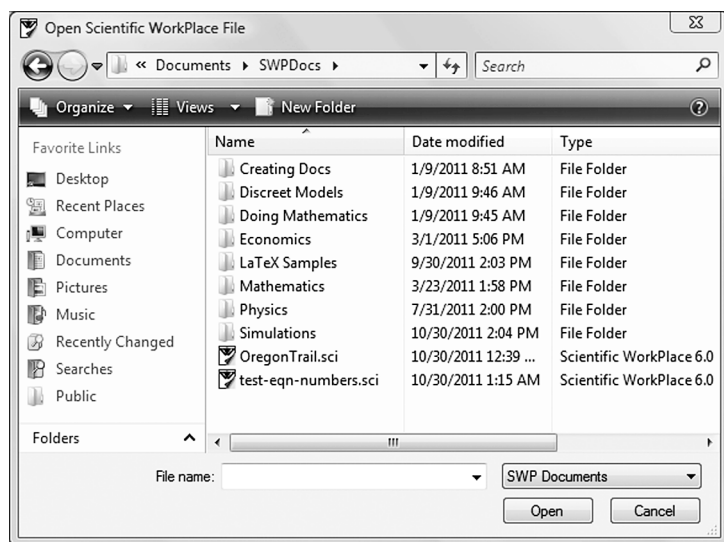
A shell document contains all information needed to create a new document, including the document type, the \LaTeX style, tags for formatting and structuring the document, etc. When you select a shell, a document is created with a made up name. You should change this title the first time you save the document.

A document can be fairly complex, consisting of an HTML file, many graphics files, MuPAD plots, .css files (which determine the on-screen presentation of the document tags), and generated files such as \TeX and PDF files. These are all collected together in a document file which has the file extension .sci, and which is, in fact, a complete directory of files zipped together. This makes it easier to move files on a single computer or between computers, as all the needed components are contained in the .sci file rather than in multiple files and locations.

Chapter 2 | Basics

Open File...

Accesses the Open File dialog box, with which you may select an existing file for editing.



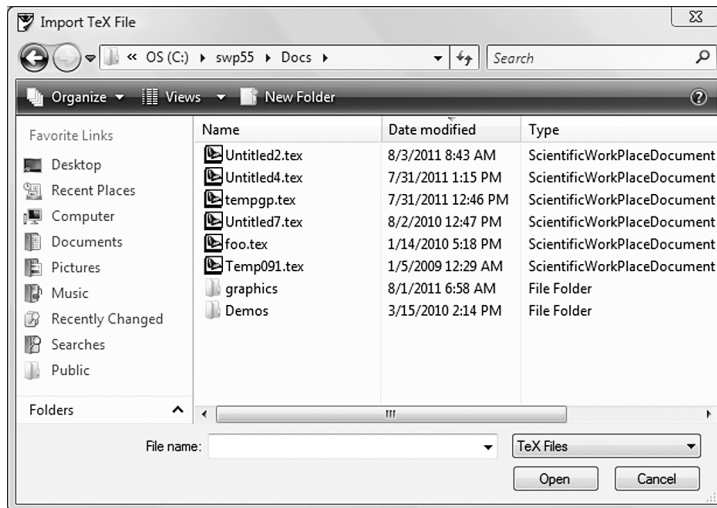
The program works with .sci and .xhtml files. (You may choose to open other text-based file types, but these will generally all open and be edited as straight, unformatted text.)

When you open a .sci file, the zip file is unwrapped and written to a working directory. When your editing is completed, this directory and its altered files are zipped up again into an .sci file and the working directory is deleted. An HTML file is converted to an .sci file. Any graphics that it refers to will be copied first into the working directory and then into the zipped up .sci file.

Menus

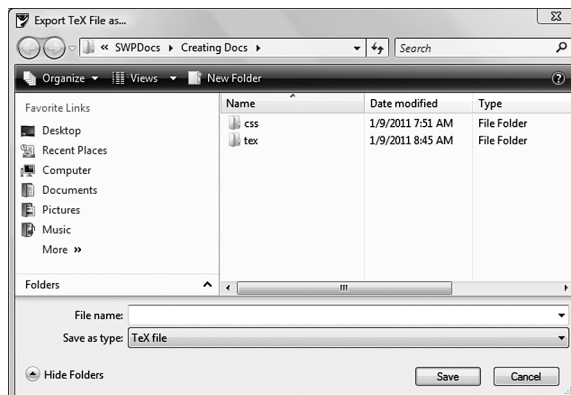
Import TeX...

Allows you to open and edit TeX documents and documents created with previous versions of MacKichan software. These documents will be converted to .sci format.



Export TeX...

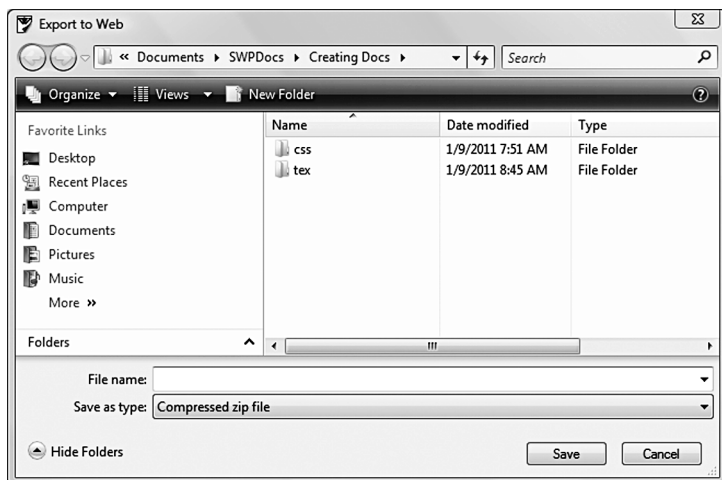
Gives you the ability to share documents with a TeX user who does not have access to MacKichan software. Choosing this command brings up a dialog box with which you may choose to save the current document in TeX format.



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Export to Web...

Saves current document in .html format, copying internal .css files, etc., into the .sci file and changing the internal links.



Recent Files

Shows a list of the most recent files with which you have worked, making it easier to select one for editing.

Clean Up

Cleans up temporary files created during PDF previews.

Close

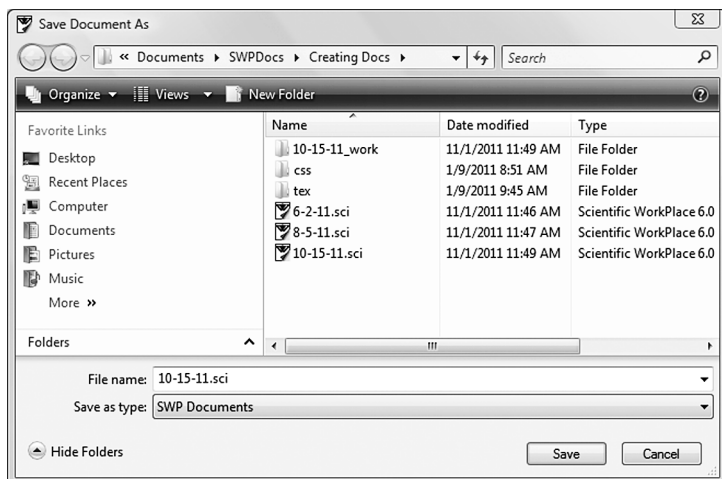
Closes the current document. If you have any unsaved changes, you will be asked if you wish to save or discard them. You may also choose to cancel the Close operation as this point. You may also close a document by clicking the Close box (marked with a small x) in the upper right corner.

Save

Opens the Save Document As dialog box the first time you select this command with a new document open, allowing you to choose a name and location under which to save it and to choose the file type. After a document has been saved, choosing this command again saves the document without the dialog box appearing.

Note:

In Version 6, you can save by pressing Ctrl + s, which is the accepted standard Save shortcut.



Save As...

Opens the Save Document As dialog box every time you choose it. This allows you to save a copy of the current document under a different name, and to work on the copy.

Save Copy As...

Save a copy of the current document, either to a new directory or as an .sci file. Note that you continue working on the original document, not on the copy as you do with Save As...

Revert

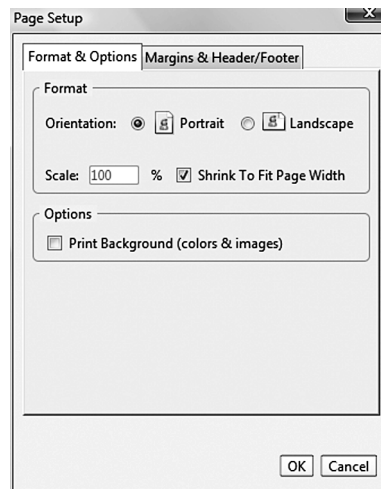
Discards all unsaved changes, rolling document back to the last saved version. This command is not available if no changes have been made since the document was last opened or saved or if the document has never been saved.

Page Setup...

Brings up the Page Setup dialog box, in which you may make choices regarding your printer and its specifications for use in direct printing. The Format and Options tab controls page orientation and the scale at which to print. The Margins & Header/Footer tab controls the overall margins on top, bottom, left and right and also lets you determine the placement of headers and footers.

Print Preview

Choose to preview what your document will look like when printed. You may choose Direct Print or Typeset PDF previews. You may also

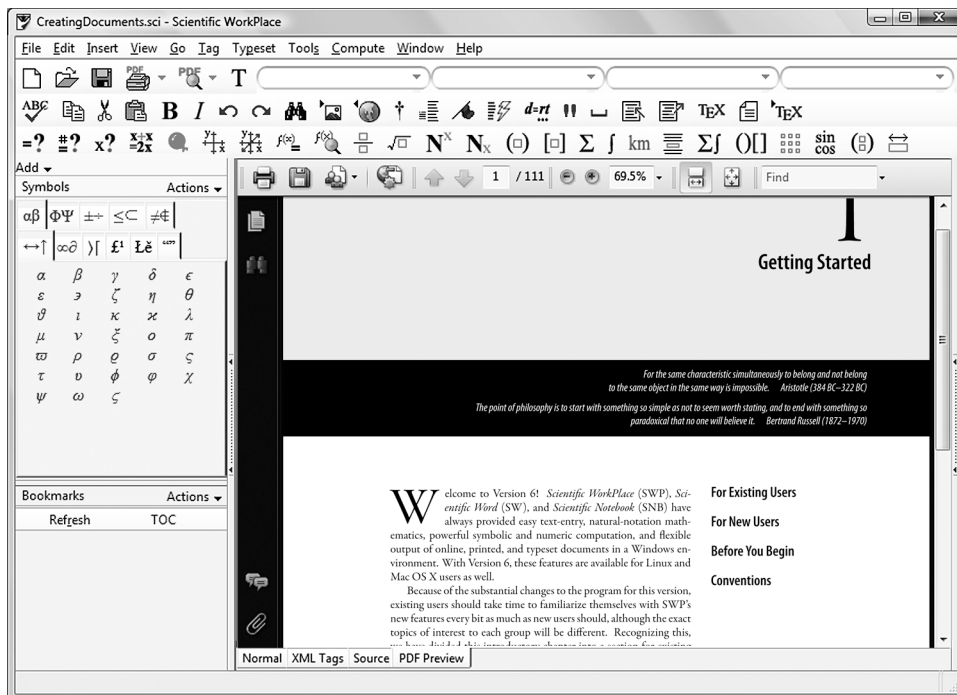


Note:

TeX typesetting features will not be used when you choose to direct print.

Chapter 2 | Basics

select a default print preview choice from among the two. When you choose one of these commands, the preview version of your document is displayed in the program window. Click Close to return to editing.

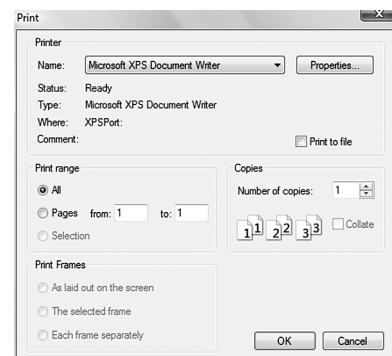


Print

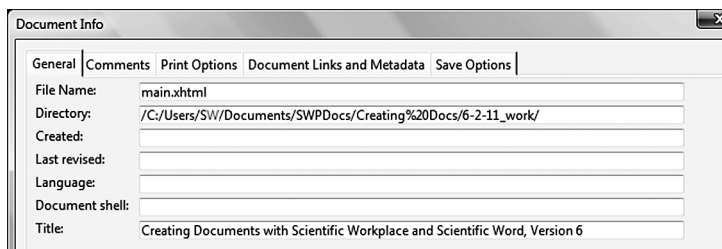
Choose to print your document via Direct Print or Typeset PDF. Doing so opens the Print dialog box in which you may specify print options such as the page range to print, the number of copies, whether to print to a file, and how to handle frames.

Document Info....

Accesses the Document Info dialog box, which has tabs for viewing and editing various information items associated with the current document. These include:



Menus



Tab	Description
General	Name of file, exact path to file’s directory, date and time created and last revised, original language of composition, shell used to create document, full document title.
Comments	User-defined comments and description fields.
Print Options	Specify how to direct-print document, including whether to display or suppress invisible items like returns and spaces, color and zoom factor to use.
Document Links and Metadata	Wide variety of user-defined fields that may be defined with text entries or with links.
Save Options	Specify how to store different parts of the document’s working files.

Style...

Opens the Document style sheets dialog box, allowing you to browse for and attach different styles to your document, altering its overall appearance without changing its contents. Tabs let you select from among style sheets, scripts, tag definitions, XSLT translators, and L^AT_EX styles to use with the current document.

Quit

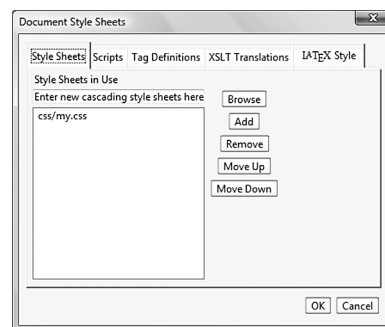
Exits the program, closing all documents in the process. If you have unsaved changes in any open documents, you will be asked if you wish to save, discard changes, or cancel the Quit operation. On the Macintosh version, this command is on the SWP (Application) menu.

EDIT Menu

The Edit menu contains commands for working with document content, most of which should be familiar from your work with other applications

Undo

New to Version 6, you may undo an unlimited amount of previous editing changes from your current session with the document



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Redo

This command is unavailable until you have chosen to Undo one or more changes. At that point, you may choose Redo to reapply the last undone editing change. Note that if you choose to undo the last change, and then make another editing change, Redo is no longer available.

Properties

Accesses a properties dialog box; the exact one that appears depends upon what sort of object (paragraph, math expression, etc.) the cursor is in when you select the command and which specific choice you make among properties. Use the dialog box that appears to apply special properties to the item at the insertion point.

Cut

Delete the current selection and place it on the clipboard, from which it may be moved and reinserted elsewhere in the current document or other documents. This command is unavailable if there is no current selection.

Copy

Copy the current selection and place it on the clipboard. From here it may be replicated elsewhere in the current document or other documents. This command is unavailable if there is no current selection.

Paste

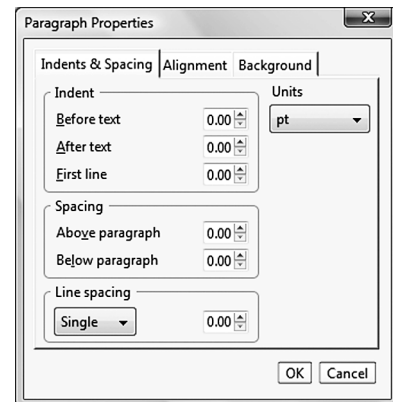
Place a copy of the current clipboard contents at the insertion point. This command is unavailable if nothing has been cut or copied to the clipboard (including from other applications).

Paste Without Formatting

Place a copy of the current clipboard contents at the insertion point without any tag or formatting information. This command is unavailable if nothing has been cut or copied to the clipboard (including from other applications).

Delete

Delete the current selection or the character to the right of the insertion point if there is no selection.



Note:

There may be an entire nested chain of items whose properties may be changed, e.g. chapter, section, subsection, bodyText.

Select All

Select the entire contents of the current document. Useful for applying certain global changes, or for copying an entire document to the clipboard.

Find and Replace...

Opens the Find and Replace dialog box. Enter a word or phrase for which you would like to search. You may also specify a word or phrase with which to replace found instances of the search text. You may apply tags to the search and/or replacement text.

Find Again

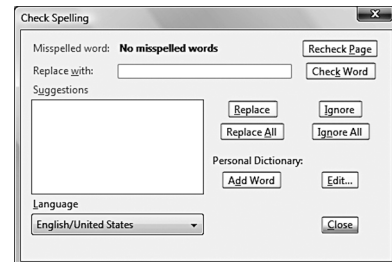
Starting with the current insertion point, locate the next instance of text matching what you entered using Find and Replace.

Find Previous

Starting from the current insertion point, locate the first previous instance of text matching what you entered using Find and Replace.

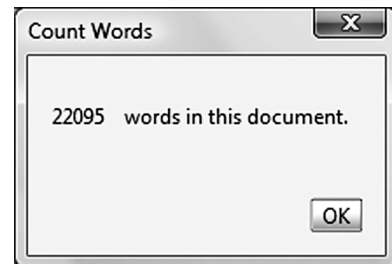
Check Spelling

Accesses the dedicated spelling checker, as opposed to the inline spell checking that is always operative. (Misspelled words are flagged with a wavy red underline; right-click to get suggested corrections from the context menu.) With the Check Spelling dialog, you can choose to replace a misspelled word or to ignore the suggested corrections. You may also specify which language to use.



Count Words

Returns the word count for the current document in a dialog box. The count is obtained by looking at the number of sequences of characters separated by spaces, returns, tabs, and the like. (Some word counts are obtained by taking the whole number of characters in a document and dividing by five, which is the average number of characters in an English word.) Click OK to dismiss it.



Special Characters

On the Macintosh there is an OS X dialog box that allows you to select special characters.

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INSERT Menu

The Insert menu contains commands for placing a number of different special items into your document, including images, tables, and math objects.

Image...

Brings up the Image dialog box. Use it to select a graphics file to put into your document at the current insertion point. You may set a number of different properties for the selected image, including its size, placement, whether it should be put into a container (frame), whether to import or reference it, and so on.

When you import an image file, it is copied and the copy is placed in a special location in the document's .sci file. If you reference an external image, the file is kept in its original location. It is easier to share documents with images handled in the former manner. Look on page 63 for instructions on working with images.

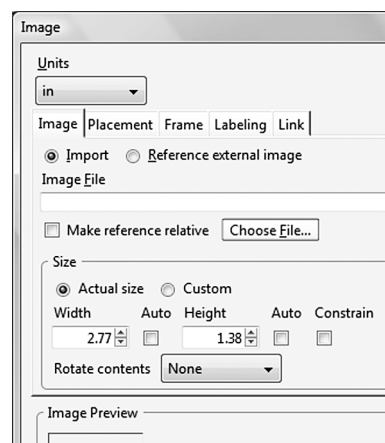
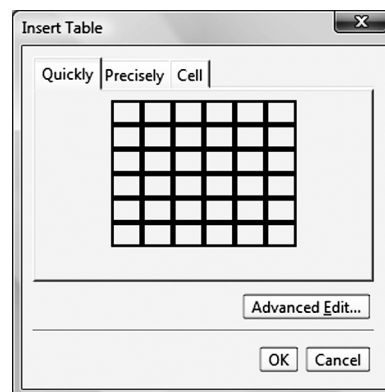


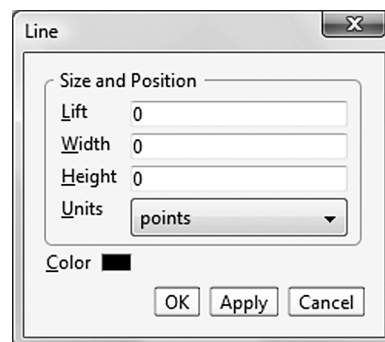
Table...

Specify the size of and insert a table in your document at the current insertion point. You can click and drag to specify the number of rows and columns (Quickly tab), enter the exact number (Precisely), and specify the format for a selected cell (Cell tab). Look on page 63 for information on inserting tables.



Line...

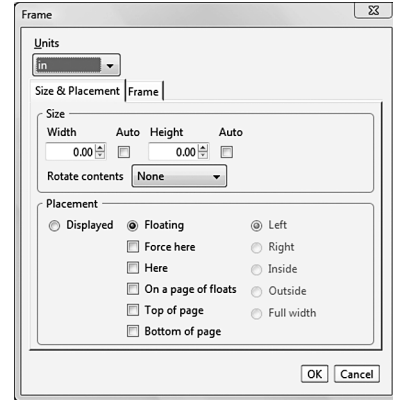
Insert a horizontal rule in the document at the insertion point, with specified color, lift (position above the text baseline), width (length), and height (thickness). Units are initially specified in points, but you may choose inches, millimeters, or centimeters as well. Look on page 62 for usage information.



Menus

Frame...

Create a frame at the insertion point. A frame is a box that may contain text, tables, images, or other objects. There are many options you may specify when creating a frame, including the margins, the border thickness and color, and the way the frame is displayed (at a certain position, floating, etc.). Additional information on page 64 shows you how to enter frames.

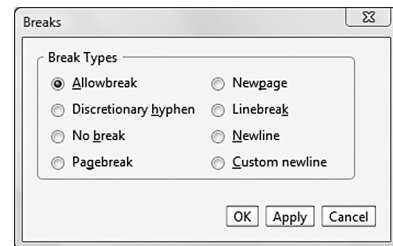


Breaks...

Place a division in the text at the insertion point, such as a discretionary hyphen, line break, or page break.

Breaks

Allowbreak	Line break is permitted if necessary
Discretionary hyphen	Use to control exactly where a word breaks. If word occurs at end of line, insert hyphen in word at this point and break.
No break	Do not break line ever at specified point
Pagebreak	Break page at specified point
Newpage	Start a new page at specified point
Linebreak	Break line at specified point
Newline	Start a new line at specified point
Custom newline	Start a new line with user-defined settings



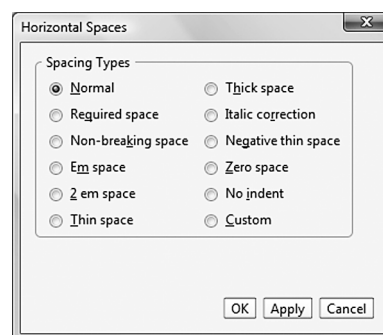
Chapter 2 | Basics

Spacing Objects

Horizontal Spaces

Specify the kind or amount of horizontal space to add at the insertion point.

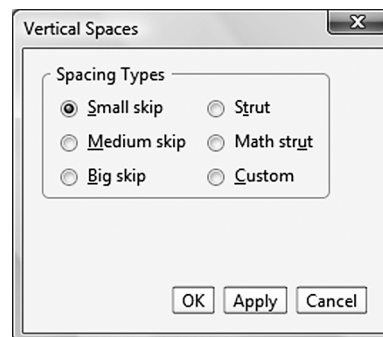
Horizontal	
Normal	Standard space; $\frac{2}{9}$ em (width of letter 'm')
Required	$\frac{2}{9}$ em; space must be included
Non-breaking space	$\frac{2}{9}$ em; word following space must appear on same line as word preceding space
Em space	Width of letter 'm'
2 em space	2 'm' widths
Thin space	$\frac{1}{6}$ em
Thick space	$\frac{5}{18}$ em
Italic correction	Varies; used to maintain correct offset from top of preceding italic character
Negative thin space	$-\frac{1}{6}$ em
Zero space	0 em
No indent	Do not indent at space
Custom	User-defined space



Vertical Spaces

Specify the kind or amount of vertical space to add at the insertion point.

Vertical	(based on 12pt font)
Small skip	$\frac{5}{16}$ inch
Medium skip	$\frac{3}{8}$ inch
Big skip	$\frac{7}{16}$ inch
Strut	$\frac{3}{16}$ inch
Math strut	$\frac{7}{32}$ inch
Custom	User-specified



Math

Toggles text entry mode to Math entry. Subsequent editing will enter math objects.

Text

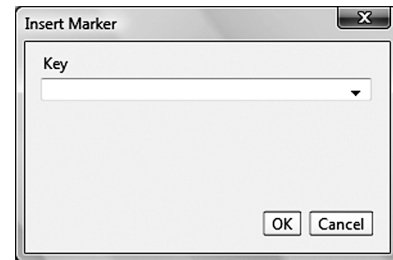
Toggles entry mode to Text entry. Subsequent editing will enter text objects.

Math Objects

Insert one of the specified Math objects at the insertion point. There are a number of math objects you may enter; see Chapter 5 for information on working with them and other mathematical entities.

Marker...

A marker is an invisible object with a specific name that may be referenced from elsewhere; for example, as the target of a hyperlink or cross reference. Use this command to set up a marker at the insertion point. Although invisible, the marker can appear in the direct view of the document.

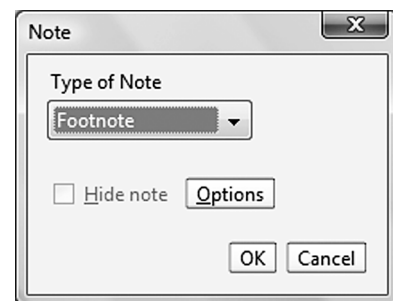


Footnote

Places a numbered footnote in the text at the insertion point.

Note...

Place a note (footnote, endnote, margin note, etc.) at the insertion point. Look on page 64 for information on the type of notes you may insert and how to work with them.



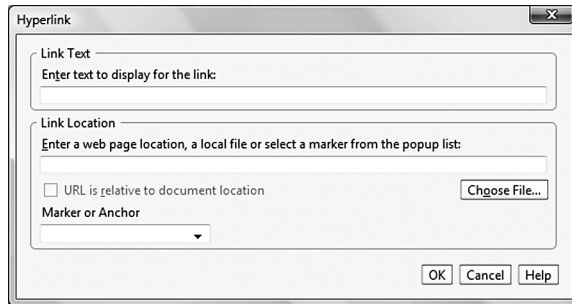
Typeset Object

A typeset object contains information about the typeset form of the document, such as citations, index locations, cross-references, \TeX fields, and bibliographic references. This command brings up one of several dialog boxes with which you may customize one of these objects to place at the insertion point. Consult Chapter 6 for more information about various typeset objects.

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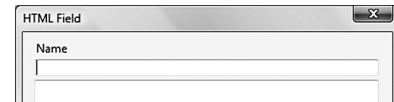
Hyperlink...

Insert a hyperlink at the current location of the insertion point. You may specify an external file or web location, or a marker (identified by its key) within the current document.



HTML Field...

Insert the contents of a named HTML field at the insertion point.



VIEW Menu

The View menu has commands to adjust how you see the current document and the program window itself.

The first four commands in the View menu replicate the action of the tabs along the bottom of the document pane.

Normal Edit Mode

Set document display to standard edit mode.

XML Tags

Show XML tags within the document display.

XML Source

Show the XML source code for the current document.

Preview

Display a print preview of the current document. The exact preview shown (Direct, PDF) depends on the default preview method chosen using the File > Print Preview > Select Default command.

The next two commands in the View menu apply to T_EX.

T_EX Log

Display the most recent T_EX processing log. The log shows results of running T_EX on your document and may provide information to aid in troubleshooting should you have difficulties.

T_EX File

Show the T_EX file for the current document. A separate window opens containing the T_EX code for the document on which you’re working.

The next two sets of commands in the View menu let you select which sidebars and toolbars you wish to see in the program window.

Sidebars

Toggle display of the left and right program sidebars.

Toolbars

Toggle display of the Standard, Editing, Math, and Symbol toolbars that appear at the top of the program window, just below the menus.

The next set of commands in the View menu toggle the display of various special objects.

Footnotes

Choose whether to show footnotes at their document locations.

Other Notes

Choose whether to show other notes at their document locations.

Invisibles

Toggles display of generally hidden items such as spaces, returns, discretionary hyphens, frames around lists, list items, environments, and the like.

Helper Lines

Toggles display of guide lines.

Input Boxes

Toggles display of input boxes.

Index Entries

Choose whether to show index entries at their document locations.

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Markers

Choose whether to show markers at their document locations.

The final command in the View menu adjusts the size at which you view the current document.

Zoom

Choose whether to enlarge or reduce the size of the current document. You may also reset to the original zoom factor.

GO Menu

The Go menu contains commands for navigating within a document.

To Marker...

Brings up a dialog box allowing you to go to a selected marker location from among those shown.

To Paragraph...

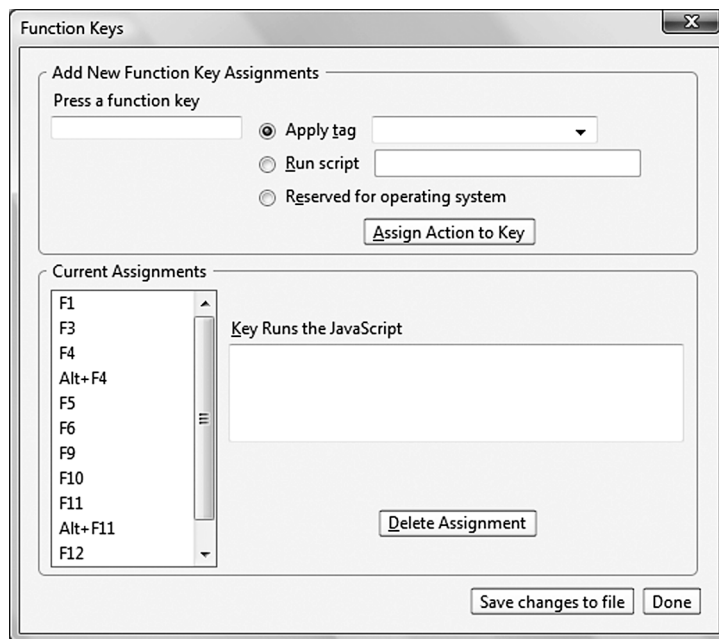
Advance to a specified paragraph number or forward or backward by a given number of paragraphs.

TAG Menu

The Tag menu has commands to change the format and appearance of the current document.

Function Keys...

Accesses the Function key dialog box. Use this to assign formatting commands to specific function keys to speed editing. You may also assign scripts to function keys. Note that certain function keys are reserved for operating system use.



Advanced...

Select font, font size and line spacing, or font color to use at the insertion point or on the current selection.

CSS Editor

Accesses the Tag Appearance dialog box, with which you may create and edit the CSS stylesheets to adjust a wide variety of on-screen appearance options (paragraph styles, font styles, etc.)

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TYPESET Menu

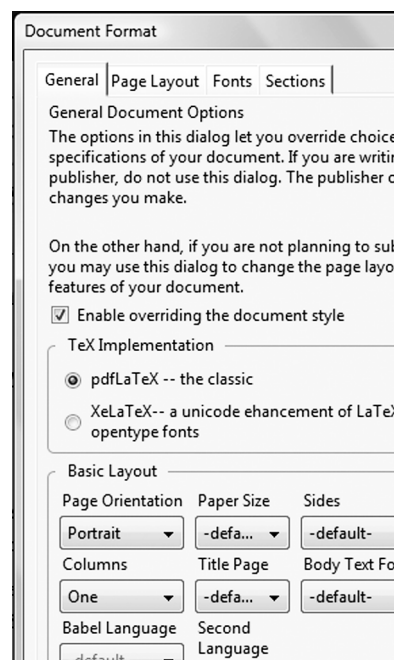
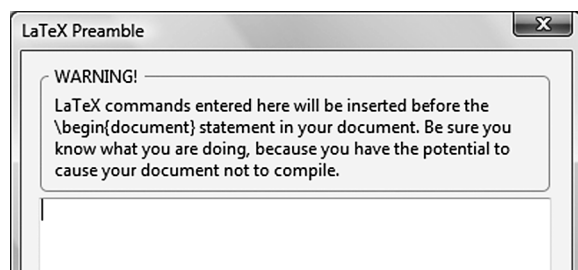
The Typeset menu contains commands for determining the type-set appearance of a document.

Document Format...

Accesses the Document Format dialog box, giving you a wide range of choices for altering or overriding document appearance options specified by the document shell (page formatting, font choice, number of columns, section styles, and so on.) If you leave the first checkbox blank (on the General tab it's labeled *Enable overriding the document style*), all the options on the dialog box will be grayed out.

Preamble...

Opens the Preamble dialog box. Use it to add commands to the document's preamble. This is helpful in case you employ \LaTeX packages which SW and SWP do not support directly.



Bibliography Choice...

Specify whether to use $\text{BIB}\text{\TeX}$ or manual bibliography item entry.

Options and Packages...

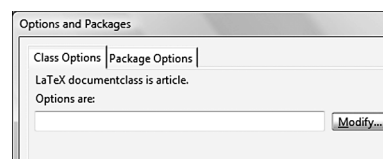
Manage the class options and \TeX packages used by the document.

TOOLS Menu

Contains various items for configuring and customizing your SW, SWP, and SNB experience..

JavaScript debugger...

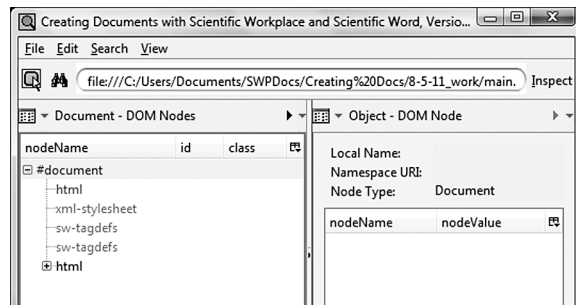
Use to troubleshoot embedded JavaScript code.



Menus

DOM Inspector...

Lets you view DOM information for the current document and others.



Extensions...

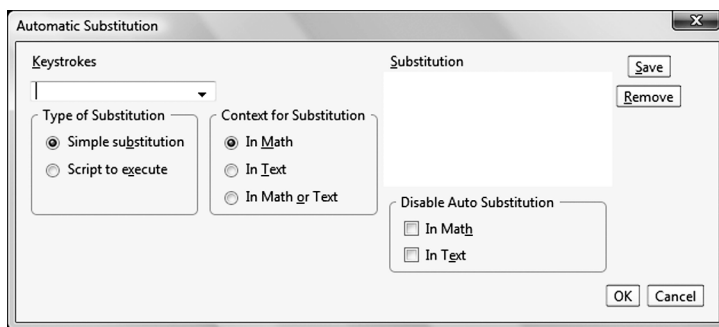
Lets you view and manage Mozilla extensions.

Themes...

Lets you choose between Mozilla themes.

Automatic Substitution...

Lets you specify text or a script to insert when a specified combination of keystrokes is entered. You may restrict substitution to Math or Text entry modes, or have it occur in both.

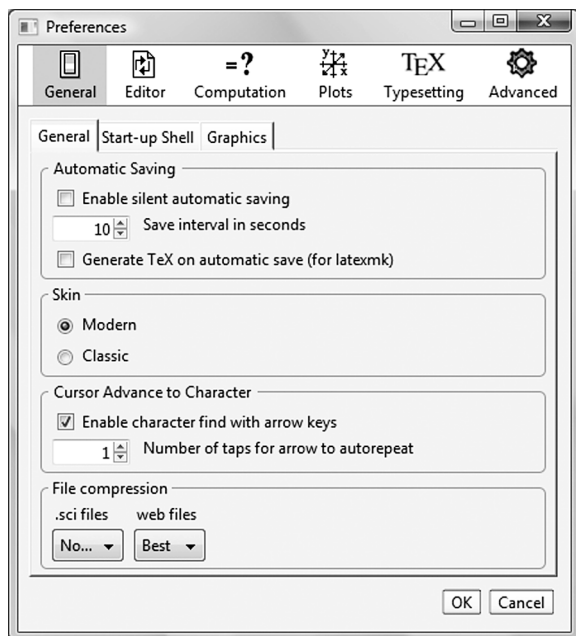


Preferences...

Adjust how you want the program to appear and operate. The Preferences dialog box has tabs for general settings, editor controls, computation, plots, and typesetting. On the Macintosh, this command is available through the SWP (Application) menu.

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Tab	Purpose
General	Adjust auto-saving, using arrow keys to find, which shell to use when starting a new document, default size and placement for new images.
Editor	Enable realtime spellchecking, etc.
Computation	Adjust input, output, matrices, derivatives, entities, and the computational engine.
Plots	Adjust axes, layout, labeling, and the view
Typesetting	Specify BIB _T E _X , PDF, and miscellaneous options.

COMPUTE Menu

The Compute menu contains a wide variety of commands for evaluating mathematical expressions. The commands in the Compute menu are not documented in this book. Learn about them and their use in *Doing Mathematics with Scientific Workplace and Scientific Notebook, Version 6*.

WINDOW Menu

Use the Window Menu to move between open documents. There will be one entry in the Window menu for each document you have open.

HELP Menu

The Help menu accesses the online help system, the MacKichan web site, and product registration and licensing.

The first three commands in the Help menu access the online help system.

Contents...

Accesses the online help table of contents.

Search...

Accesses a dialog box with which you may search the online help for specified text.

Index

Accesses the online help index.

MacKichan Software Website

If you have Internet access, choosing this command launches your default browser and/or opens the MacKichan web site (<http://www.mackichan.com>) in a new tab. Through this web site you can find out how to contact MacKichan for technical support and other needs.

The last commands on the Help menu deal with licensing and registration.

Register....

Lets you register your copy of MacKichan software.

System Features...

Shows a dialog box with your product name, serial number, computer identification, etc.

License Information

Accesses a window with information about MacKichan Software’s licensing policies.

About product

Shows a dialog box with a few specifics on the currently installed MacKichan product. This includes information about the software version with which you are working. On the Macintosh, this command is available through the SWP (Application) menu.

Macintosh Users Note

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Toolbars

The Version 6 program window has four customizable toolbars. The Standard toolbar contains buttons for invoking common file operations (New, Open, Save, Print, Preview), toggling from text to math, and the list boxes for tag lists (character, paragraph, division, front matter). Text in gray identifies the purpose of the tags in each list:



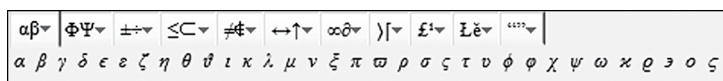
The Editing toolbar buttons invoke ordinary editing tools (Check spelling, Copy, Cut, Paste), Undo and Redo, Search, Space, bold and italic tags, and several others:



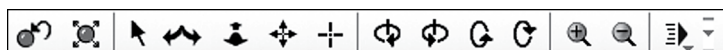
The Math toolbar buttons insert mathematical objects such as fractions, integrals, matrices, and radicals directly into your document or open dialog boxes so that you can make additional specifications. Certain buttons invoke common computational operations.



The Symbol toolbar has palettes of buttons for adding a wide variety of symbols to your documents.



The Plot toolbar appears if you have a plot in your document. Refer to *Doing Mathematics* for information about plots.



With the exception of those on the Symbol toolbar, the buttons on the toolbars are identical in function to commands on the menus. Point the mouse at each toolbar button for a few seconds to display a brief tooltip that identifies the button. As with menu commands, buttons that appear dimmed are unavailable.

Hint:

Tooltips let you know what various interface features (buttons, symbols) are for.

Sidebars

The Version 6 sidebars display several palettes that make document editing easier. You may toggle the display of sidebars on either side of the document pane, and you may choose which palettes/panes to display in either sidebar using the Add drop-down menu. The Actions drop-down menu lets you close or move palettes in a sidebar.

You may toggle the display of either sidebar. Note the small graphic on the inside border of each, containing two arrowheads separated by a column of dots. Click this graphic to toggle sidebar display. You may also toggle sidebar display from the View menu. Click on any button in the Symbols palette to place the associated symbol at the insertion point.

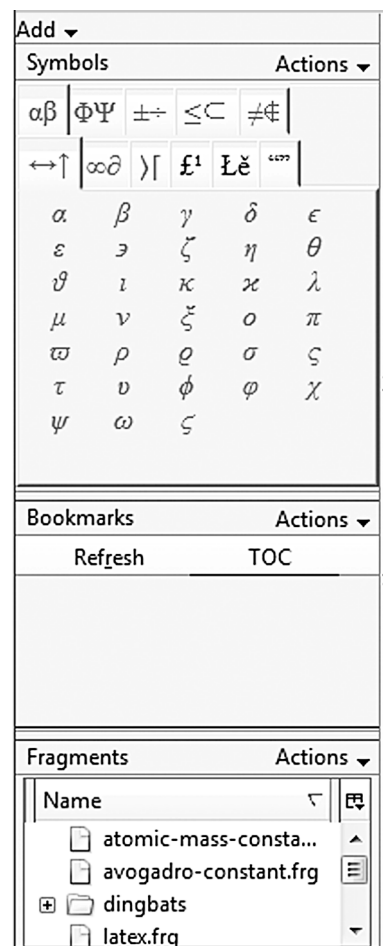
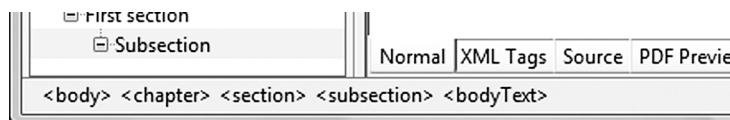
Display Modes

In addition to working in the normal editing view, you can display your document as an XML file, shown either in ASCII representation or with all XML tags depicted as icons. You can also preview your document as a PDF file. Click the tabs along the bottom of the document window.



Status Bar

New in Version 6, the context-sensitive Status bar operates in two display modes, Normal and XML Tags, to indicate the active XHTML tags. You can easily tell which tags are in effect at the insertion point. In the image shown below, the insertion point is in a bodyText paragraph within a section within a chapter.



Left sidebar with Symbols palette and Fragments pane

Chapter 2 | Basics

Additional Information

For information on program shortcuts, consult the Appendix. You may also consult the *Getting Started* DVD booklet for a brief orientation to the user interface and the book *Doing Mathematics with Scientific WorkPlace and Scientific Notebook* for information on mathematics and computation.

In the remainder of this book, we take an increasingly in-depth look at using the software. The first item under consideration is how to create and edit a simple document.

3

Creating a Simple Document

I have found that all ugly things are made by those who strive to make something beautiful, and that all beautiful things are made by those who strive to make something useful. Oscar Wilde (1854–1900)

At its most basic level, your work in *Scientific WorkPlace* (SWP), *Scientific Word* (SW), and *Scientific Notebook* (SNB) consists of creating new documents or working with existing ones and then preserving the work you do by saving the files. By default, Version 6 saves your documents as XHTML files and gives them a file extension of .sci. This is a change from earlier versions of the program, which saved all files as L^AT_EX files with a file extension of .tex. Of course, in Version 6 you can import, modify, and export existing .tex files created with earlier versions, and you can create new L^AT_EX files by exporting your documents as T_EX files.

This chapter explains how to create new documents and how to open existing documents saved in various file formats. It also explains how Version 6 saves and closes documents and describes the export options that are available to you. The chapter also discusses creating document copies.

About Document Shells

Opening Existing Documents

Saving Documents in Other Formats and Location

Information for Power Users

About Document Shells

Every new document is created from a document shell. The program includes a number of shells that produce both general-purpose documents and documents designed to meet the specific publication requirements of various universities and scholarly journals. Document shells, which have a file extension of `.shl`, are installed in the Shells folder of your program folder.

The shells have different purposes. Some have been designed to create articles; others, to create books, reports, or other types of documents. Some of the shells in the international folder support creating documents with non-Roman character sets, including Chinese, Korean, and Japanese. These documents must be produced by typesetting with $\text{X}_{\text{T}}\text{E}_{\text{X}}$.

Some shells contain predefined information that you can use or modify. The tags available for structuring documents differ from shell to shell. Each shell has several sets of appearance specification files. The program uses some of the files when you display the document in the program window, view it as an `XHTML` file, or print it directly from the program window without typesetting. These files include the style specification (`.css` file) and the print options. The program uses the typesetting specifications associated with the shell only when you export the document as a `.tex` file and produce a typeset file (in `SWP` or `SW`).

Occasionally, you may want to use a shell that isn't provided as part of the program installation. Please note that although you may be able to create a document using a shell from another source, we support only those documents created with shells and specifications that are provided with the program.

Choosing an appropriate shell is an important decision. It's easier to choose a shell that has all the formats and capabilities you'll need right at the start rather than trying to add capabilities later as you discover you need them.

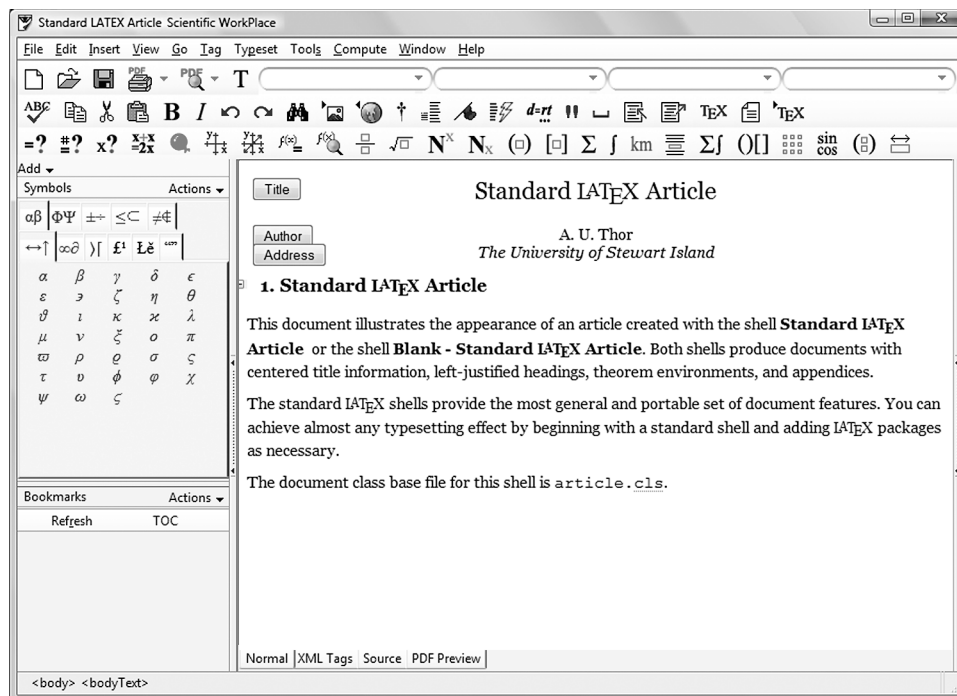
Documents shells provided with your program installation are organized by type: articles, books, theses, etc. This helps make it easier to choose what shell to use based on what type of document you're creating. Are you writing an article for publication? Look in the Articles folder and see if the organization (publisher, journal, etc.) for whom you're writing has a predefined shell. Are you writing a book?

Please Note

Look in the Books folder for a shell adapted to the kind of book you’re writing. If a specific shell does not exist for what you’re writing, there are generalized article, book, and thesis shells you can use.

Standard Document Shell

When you first open the program, a template article appears using the `Standard_LaTeX_Article` shell. If this shell meets your needs, you can begin working in it immediately.

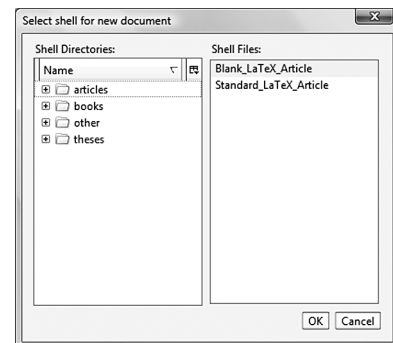


Opening a New Document

In most cases, the default document shell will not be appropriate for your needs. You need to create a new document and choose a new shell for it.

To create a new document

1. Choose File → New Document... The Select Shell for New Document dialog box appears.
2. Navigate in the Shell Directories pane until you find the shell



Chapter 3 | Creating a Simple Document

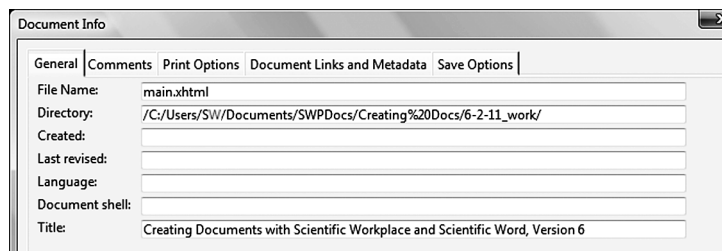
you wish to use. Click to select it in the Shell Files pane.

3. Click OK. A new document appears using the shell you chose.

After you create the initial document, you can set a few of its initial properties using the Document Info dialog box. Among other things, you can set the document title.

To give a new document a title

1. Choose File → Document Info... The Document Info dialog box appears.



2. Click to place the cursor in the Title field at the bottom of the items on the General tab.
3. Enter the title for the document.
4. Click OK. The title for the document will now appear in the title bar of the main window. Try clicking the different tabs on the Document Info dialog box to see the various items you can define for a document.

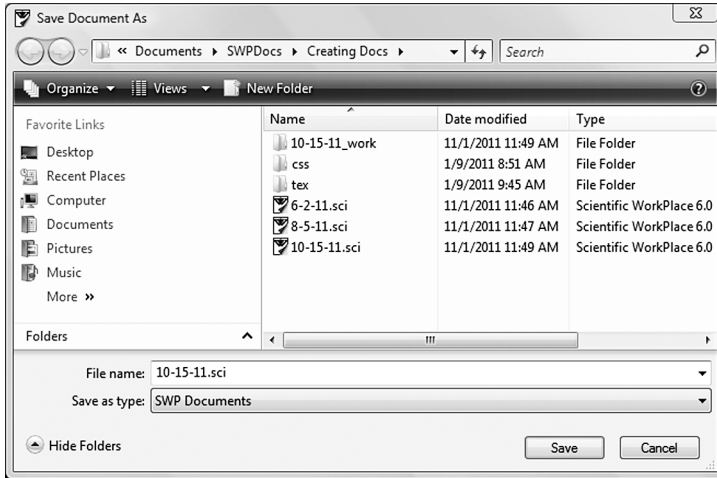
Tip

Having created a new document and given it a title, you can proceed to save it for the first time.

To save a new document

1. Choose File → Save... The first time you do this in a new document, the Save Document As dialog box appears.

Opening Existing Documents



2. Enter a valid file name for the document. (Remember not to use characters that may be reserved by your operating system, such as * and /.)
3. Use the directory pane to navigate to a different location if you wish to save the file elsewhere from the default location shown.
4. Click Save. The file name for the document will now appear in the title bar of the main window.

When your editing work is done, you can either choose File → Close to leave the document without exiting the program, or you can choose File → Quit to close the document and the program together. On the Macintosh the Quit command is found on the SWP (Application) menu.

Macintosh Users Note

Opening Existing Documents

There are two broad categories of existing documents that you can open with Version 6. Naturally, there are documents that you (or someone else) created with Version 6 itself, like the simple one described in the preceding pages. Opening such a document can be as simple as finding the icon for the file and double-clicking it, or choosing Open File... from the File menu, locating the document file, and clicking Open.

Alternatively, you may have documents created with previous ver-

Please Note

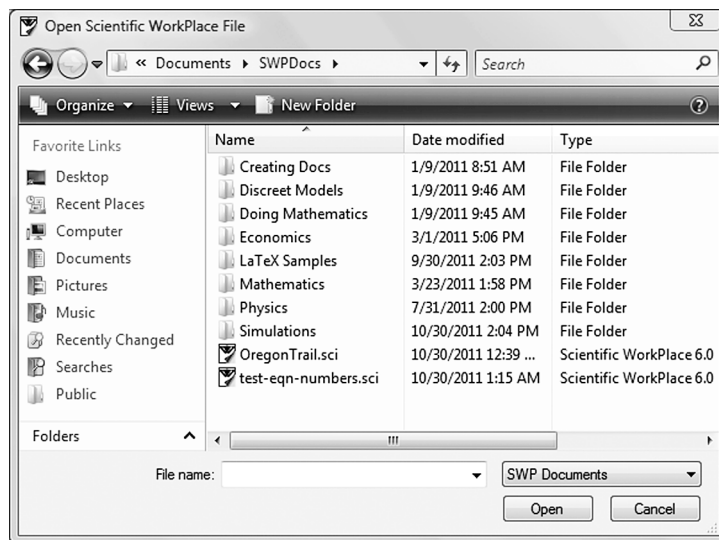
Chapter 3 | Creating a Simple Document

sions of MacKichan software or with other programs. These documents need to be converted into Version 6 format before they can be edited. You do so using the File > Import and File > Open Web Location commands. When you choose to import a document in Version 6, the original document file is undisturbed. The software creates a new version of the document in .sci format while preserving the original intact.

To open a document created with Version 6

If the icon for the file you want to open is not readily visible, you can use the Open File... command to access it.

1. Choose File → Open File... The Open Scientific Workplace file dialog box appears.



2. Navigate to the location of the desired file.
3. Click to select the file.
4. Click Open. The file opens in a new window.

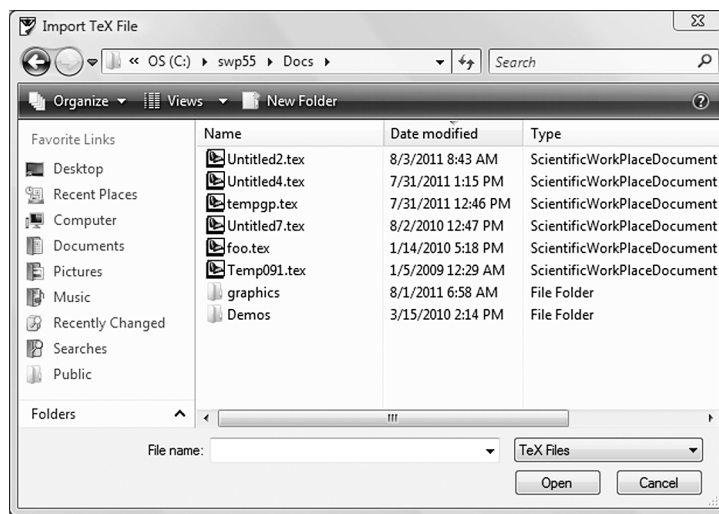
If the document you wish to work with was opened recently on your system, and you have Version 6 running, you need only locate it on the Recent Files submenu on the File menu. The last ten files with which you've worked are displayed there.

Saving Documents in Other Formats and Location

To open a document created with an earlier version

Version 5.5 and earlier documents are saved in .tex format. These documents must be imported into Version 6 before you can work with them.

1. Choose File → Import Tex... The Import Tex File dialog box appears.



2. Navigate to find the file you wish to import.
3. Click to select the file's name.
4. Click Open. The file is opened and converted, and then appears in a new window.

Note that you'll need to save the new document you created by importing.

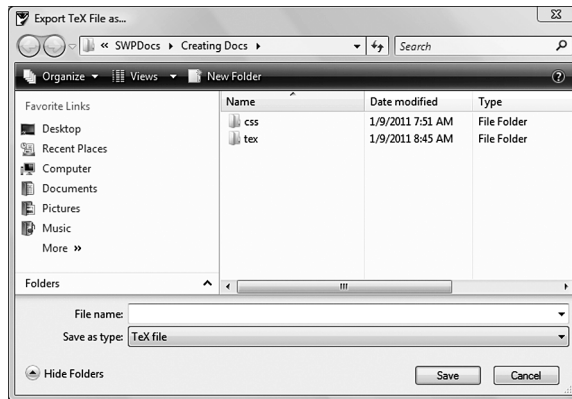
Saving Documents in Other Formats and Location

At times you may wish to share Version 6 files with others who do not have the software. The easiest way to do this is to export the file and save it as a .tex file. You can also export your work in HTML format for use in Web publications.

Chapter 3 | Creating a Simple Document

To export a document as a \LaTeX file

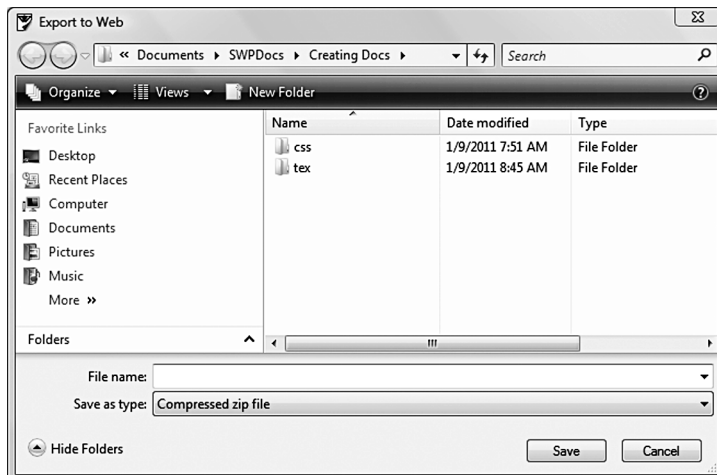
1. Open the document and choose File → Export \TeX ... The Export \TeX File dialog box appears.



2. Select a location and name for the file.
3. Click Save. The file is exported; the original Version 6 file stays open.

To export a document as a Web file

1. Choose File → Export to Web... The Export to Web dialog box appears.



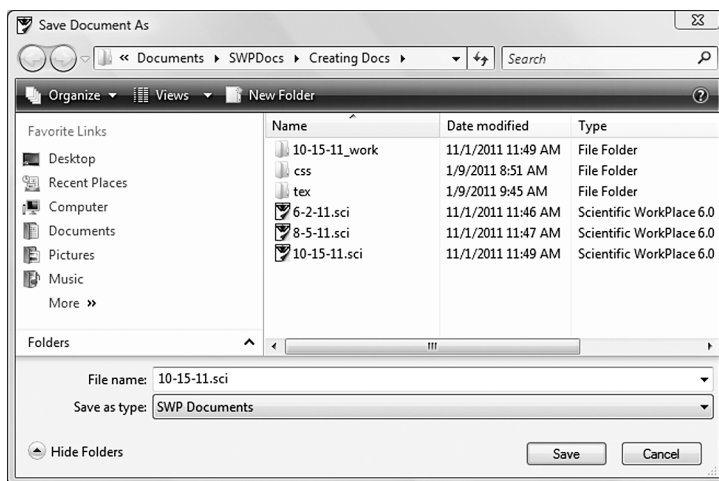
Saving Documents in Other Formats and Location

2. Select a location and enter a name for the file.
3. Click Save. The file is exported in HTML format; the original file stays open.

To save a copy of an open document

You can create a copy of an open document using a new location. The copy is like a snapshot of your document. When you save a copy of your document, the program creates the copy but keeps the original document open so you can continue working in it. Any subsequent changes you make appear in the original file but not the copy.

1. Choose File → Save Copy As... The Save Document As dialog box appears.

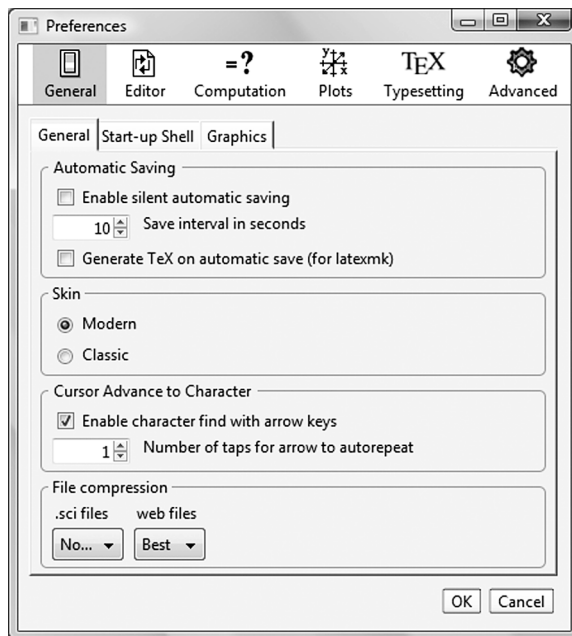


2. Select a location and type a name for the document copy.
3. Click Save. The copy is created and the original document is left open.

Information for Power Users

Setting Program Options

Use Tools → Preferences to see and set certain options relevant to saving and opening documents and much more (E.g. change default startup shell, whether to automatically save, etc.).






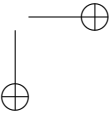
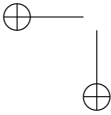
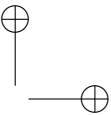
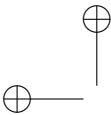
Click through the tabs to see what kind of preferences you can set. Of particular interest is the automatic saving option. You can have the program automatically save your work at an interval you specify in seconds. Your work will be protected even if you should be called away before you can remember to save.

Shortcuts

Here is a list of shortcuts for the commands covered in this chapter:

Shortcuts

Command	Shortcut
Save	Ctrl+s or Alt f s or 
New Document	Ctrl+n or Alt f n or 
Open Document	Ctrl+o or Alt f o or 
Quit program	Ctrl+q or Alt f q
Close Document	Alt f c
Save As	Alt f a
Revert	Alt f v



4

Editing Documents

Is not this a lamentable thing, that the skin of an innocent lamb should be made parchment? That parchment, being scribbled o'er, should undo a man? William Shakespeare (1564–1616), II Henry VI, IV:ii

Entering text is straightforward in *Scientific WorkPlace* (SWP), *Scientific Word* (SW), and *Scientific Notebook* (SNB) even when special characters are needed. In Version 6, enhanced tools for using fragments, automatic substitution strings, and tags make entering text simpler than ever.

This chapter explains how to enter text and text elements such as lists.

Before You Begin

Just as grasping the concept of a document shell was important to the process of creating a new document, understanding how MacKichan software treats different kinds of information is important before you enter and edit text. The next sections of this chapter note the differences between entering text and entering mathematics, and talk about the importance of tagging.

Before You Begin

Basic Text Editing

Entering Text with Special Tools

Enhancing Text

Creating Section Headings

Creating Lists

Adding Non-Text Elements

Information for Power Users

Chapter 4 | Editing Documents

Text vs. Mathematics

At all times during information entry you are either entering text or mathematics, and the results obtained from keystrokes and other user interface actions will differ depending on whether you are entering text or math. Thus we refer to being in either text mode or math mode. The default state is text mode; it is easy to toggle between the two modes and it is also easy to determine what mode you are in. Unless you actively change to mathematics, the program displays a "T" on the Standard toolbar and

- Interprets anything you type as text, displaying it in black in the program window.
- Displays alphabetic characters as upright, not italicized.
- Inserts a space when you press the spacebar.

When you start the program, the insertion point is in text mode.

To toggle between text and mathematics

Click the "T" on the standard toolbar. The "T" changes to "M," the insertion point changes to red and appears between brackets.

You may also choose the Math command from the Insert menu.

When you toggle to mathematics, the Math/Text button changes to an "M" and the program

- Displays the insertion point between brackets for mathematics.
- Interprets anything you type as mathematics, displaying it in red in the program window.
- Italicizes alphabetic characters and displays numbers upright.
- Automatically formats mathematical expressions, inserting correct spacing around operators such as + and relations such as =.
- Advances the insertion point to the next mathematical object when you press the spacebar.

The remainder of this chapter focuses on entering and editing text items. The next chapter discusses how to enter mathematics.

About Tagging

In MacKichan software, all information is tagged. As was stated in the New User's section of the first chapter, this tagging is semantic, or meaningful, in nature. The tags you apply to your content not only establish the document's structure but also consistently define its printed, online, or typeset appearance, all according to the properties associated with each tag. Tag properties are determined by the document's style, a collection of commands that define the way the document appears when you display it on the screen or in a browser, and when you produce it without typesetting. In SWP and SW, tag properties are also determined by the document's typesetting specifications, items generally set using the Typeset > Document Format command.

In general there are four types of tags, set by using the four drop-down menus on the standard toolbar: text; paragraph or list; division or environment; and frontmatter. In a sense these are organized in descending order of the level of organization to which they apply. Text tags can apply to entire blocks of text or to a single character; paragraph tags apply to an entire paragraph, structure tags apply to multiple paragraphs.

The exact set of tags you have available at any time depends upon your original choice of document shell. This is one of the reasons why it is important to choose an appropriate shell.

Note

In general, you use text tags for a word or phrase you wish to set off from the rest of text; for example, using italics to indicate a foreign word or phrase. Use paragraph tags to indicate the purpose of an entire paragraph: to serve as the heading for a section, to serve as a body paragraph, a bibliography entry, and so on. These will also affect a paragraph's alignment. Section tags define the purpose of entire blocks of paragraphs: as a subsection in the current section, as a preface, and the like. There is a (removesection) tag to take off a previous section choice. Use a frontmatter tag at the appropriate place in a document to automatically generate items such as the title page, table of contents, or a list of figures. (Appearance of such items is controlled by the shell and may be adjusted via the Document Format dialog box.)

To apply a tag to a part of a document

1. Click to move the insertion point to the relevant part OR
Click-and-drag to select a section of text.
2. Choose the desired tag from the menu.

Chapter 4 | Editing Documents

Additional information about applying specific kinds of tags is provided later in the chapter.

Basic Text Editing

Information entry in SW, SWP, and SNB consists of typing and selecting characters and other elements for entry and tagging same. There are a number of menu and palette choices to support information entry.

Entering Symbols

Entering standard characters is easy: You just type. Not all characters you may wish to enter are available directly from the keyboard, however. In many cases, they can be found on palettes, such as the Symbols palette. You can also enter them using macros.

To enter a character from a symbols palette or toolbar

1. Ensure that the relevant palette is visible. If the Symbol toolbar isn't visible and you want it to be, choose View → Toolbars → Symbol toolbar. If the symbols palette isn't visible, choose it from the Add menu on either the left or right sidebar.
2. Place the insertion point where you want the character to appear.
3. Click the desired tab to display the characters on the palette.
4. Click the character you want.

Symbols shown in black on the palettes are text; those shown in red are math.

Tip

If you prefer working strictly from the keyboard, you can enter special characters with macros. The macro for each character in any symbols palette appears in the corresponding tooltip. So to identify the macro for a special character or symbol, just let the mouse hover over the character to display the macro.

To enter a character with a macro

1. Place the insertion point where you want the character to appear.
2. Press Ctrl+spacebar. The program opens a Macro box on the Status bar.

3. Type the macro for the character or select the macro from the list that appears as you type. As you type, the program displays the macro in the Macro box, completing it if possible.
4. Press Enter. The character is inserted.

The next time you open the Macro box, it displays the name of the macro you entered most recently, allowing you to enter the same character or symbol repeatedly.

Non-Roman Character Sets

You can create documents that require non-Roman character sets using any TrueType or OpenType font that is installed on your computer. You can enter documents from non-US keyboards, including those for right-left languages. If you typeset your document, you can use the Babel or Polyglossia packages to switch languages inside the document.

Typing Special Punctuation

Besides the standard symbols on your keyboard, the program recognizes several specialized punctuation marks and symbols: curled opening and closing quotation marks (“ and ”), inverted question marks (¿), and inverted exclamation points (¡). The program also recognizes the en dash (–) and the em dash (—). You can enter all these punctuation marks from the symbols palettes or from the keyboard.

Entering a punctuation mark from a symbols palette is identical to entering any other special character; punctuation appears on the last tab at the bottom left.

To enter a punctuation mark from the keyboard

Use the keystrokes in this table:

To enter	From the keyboard
- (hyphen)	Press -
– (en dash)	Press - twice
— (em dash)	Press - three times
¿	Press ? and then press ‘ (backprime)
¡	Press ! and then press ‘ (backprime)
“	Press ‘ (backprime) twice
”	Press ’ (apostrophe) twice

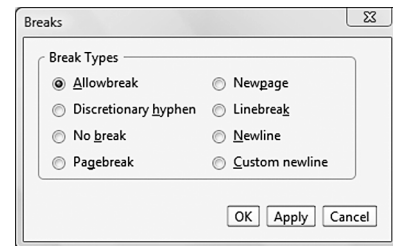
The program automatically hyphenates text when you typeset your document, but not when you produce it without typesetting or when

Chapter 4 | Editing Documents

you use SNB. However, you can request discretionary, or conditional, hyphenation for specific words in case they occur at the end of a line. If you place a discretionary hyphen in a word, the program breaks the word at that point if necessary, both in print (and, if View →Invisibles is selected) in the program window.

To enter a discretionary hyphen

1. Place the insertion point where you want the word to break.
2. Choose Insert →Breaks... The Breaks dialog box appears.
3. Select Discretionary hyphen.
4. Click OK.



Entering Text with Special Tools

In addition to using the redesigned symbols palettes and entering characters with macros, you can use several new and enhanced tools to speed the entry of text.

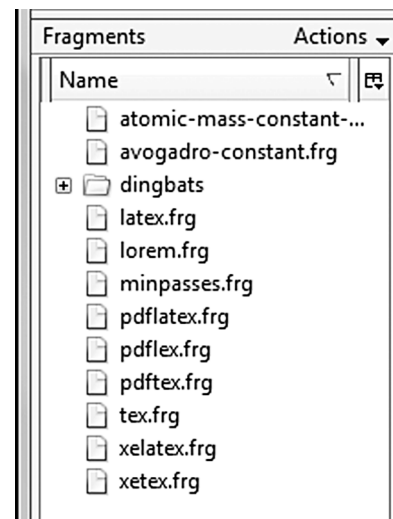
Entering Text with Fragments

You may need to type some text items repeatedly, such as your name or affiliation. You can store these frequently typed items as *fragments*—information saved in separate files for later recall—and import them into your documents quickly. Fragments can contain text, mathematics, T_EX strings, XHTML code, graphics, or anything else that can go on the clipboard. Information in fragments can carry tags. Fragments from each document are available to all.

The program comes with a few pre-defined fragments. The most commonly used fragments are stored in the res/fragments folder of your program installation. The constants subfolder houses some mathematics fragments.

To display a list of all fragments

1. Display a sidebar with enough space.
2. Choose Fragments from the Add menu on the sidebar, if Fragments are not already visible. The program opens the sidebar and displays the Fragments folder tree.



To import a fragment

1. Place the insertion point where you want the fragment to appear.
2. Select the fragment you want and press Enter, double-click it, or drag the fragment to your document.

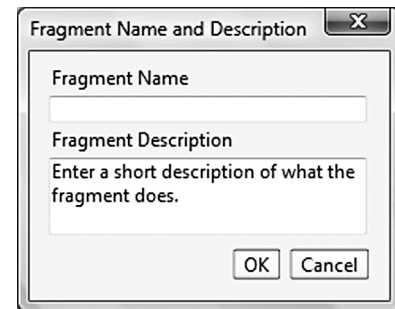
You may also use the Macro box, accessed with Ctrl+spacebar, to enter the name of a fragment to place at the insertion point. (To close the macro box, press Return with the cursor in the Macro box.)

Creating a new fragment is easy. When you do so, the program saves it by default with a file extension of .frg in the res/fragments folder.

To create a fragment

1. Ensure the Fragments area is open on the sidebar.
2. Ensure that the information you wish to turn into a fragment is visible in the program window.
3. Select the desired information and drag it to the fragments area. The Fragment Name and Description dialog box appears.
4. Enter a unique name for the fragment and, if desired, provide a description. This description will become a tooltip.
5. Click OK. The new fragment appears in the Fragment area on the sidebar.

Note



To delete a fragment, right-click its name and choose the Delete *Fragment.frg* command from the context menu.

Entering Text with Automatic Substitution

With automatic substitution, the program substitutes predefined expressions for typed sequences of letters and numbers. In earlier versions, automatic substitution was available only for fast entry of mathematics. In Version 6, it is extended to text. See the next chapter for information about using automatic substitution to enter mathematics.

As with fragments, you can define and edit your own automatic substitution sequences. For example, if you frequently use the phrase "Version 6 of Scientific WorkPlace", you might define an automatic substitution sequence called swp so that you can enter the phrase quickly. You can enable or disable automatic substitution at any time.

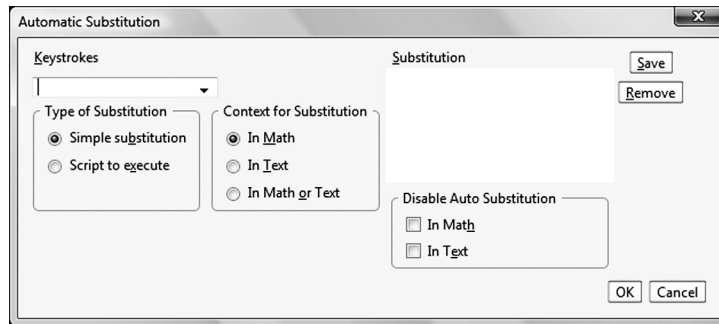
Chapter 4 | Editing Documents

If you disable it, the program doesn't make a substitution when you type the corresponding sequences of letters and numbers.

Your program installation includes many predefined autosubstitution sequences. You can view them by choosing Tools → Automatic Substitution... Click an item in the Keystrokes list at the right to view its definition.

To turn automatic substitution on and off

1. Choose Tools → Automatic Substitution... The Automatic Substitution dialog box appears.



2. Automatic substitution is turned on by default. To disable it for text entry, click the In Text checkbox under Disable Auto Substitution.

To enter text with automatic substitution, you need only type the characters that stand for the text you want to enter. For instance, typing three hyphens will enter an em-dash. You can view which sequences are available by choosing the Keystrokes menu in the Automatic Substitution dialog box.

You must type exactly the keystrokes shown in the order shown. That is, if you type sp, then use the back arrow key to insert a w between the other two letters, there will be no automatic substitution.

Note

To enter your own automatic substitution sequence for use in text

1. Open the Automatic Substitution dialog box.
2. Enter the desired keystrokes in the Keystrokes text edit box.
3. Click the In Text radio button in the Content for Substitution pane.

4. Enter the text that will be substituted in the Substitution text edit box.
5. Click Save.

Try testing your automatic substitution text by entering the keystrokes you chose. (Make sure automatic substitution is enabled first.) For straight text items, you may wish to enter a space as the last character to be substituted.

Enhancing Text

To *emphasize* words in phrases inside a paragraph by changing their appearance, you can use text tags, which are collections of text formatting properties. Text tags common to most document shells include Bold, Em (emphasized), and Sub (subscript). Many shells have additional text tags. Text that doesn't carry any special emphasis tag is tagged as Normal. Some tags, such as Calligraphic and Blackboard Bold, start mathematics automatically.

The text tags available to the active document appear in the Text Tag list on the Standard toolbar.

The appearance and behavior of tagged information depends on the tag properties, which are defined twice in SWP and SW: once in the typesetting specifications, which are used when you typeset your document; and, once in the .css file, which is used when the document is directly printed or displayed. The two sets of properties may differ significantly even though the name of the tag is the same. Thus, the appearance of your document depends on which set of properties is used. In SNB tag properties are defined only once in the .css file.

To apply a text tag to a selection

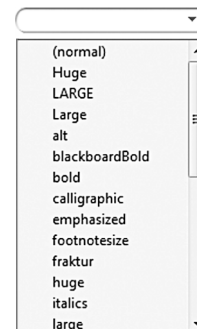
1. Select the text you want to tag.
2. Click the arrow at the right of the Text Tag box.
3. Click the tag you want.

You can also apply a text tag to the next information you type. Select the text tag, type the text to have the tag, then be sure to select the (normal) tag to return to standard text entry. To remove a tag, select the tagged text and apply the (normal) tag.

Bold and Italic have buttons on the Editing toolbar. Click the button to apply the tag.

Note:

You can apply more than one text tag to a selection.



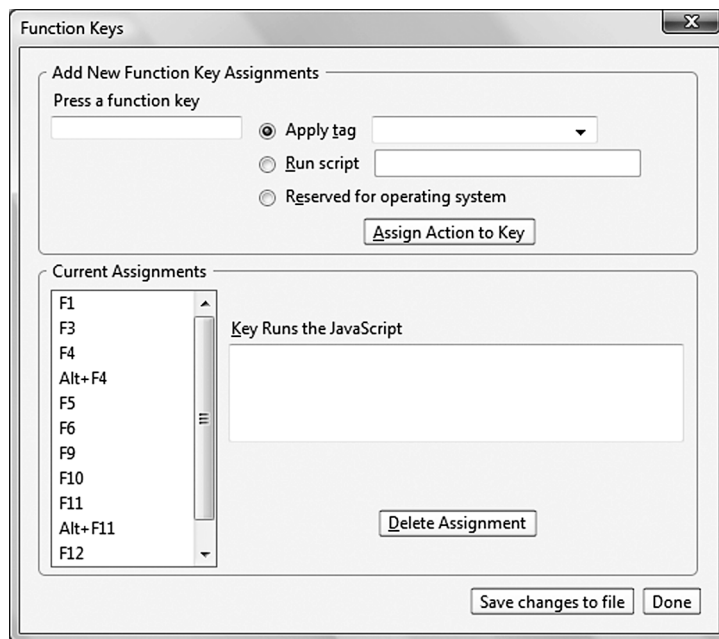
Note

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Also, several function keys on your keyboard are assigned to certain text tags. To apply the tag, press the function key assigned to the tag you want. F4 applies (normal); F5 applies Bold. These settings can be changed using the Functions Keys... command in the Tag menu.

To change a function key assignment

1. Choose Tag > Function Keys... The Function Keys dialog box appears.



2. Press the Function key you wish to assign.
3. Select a tag to apply from the drop-down list.
4. Click the Save changes to file button then click Done. The new function key assignment is put into effect.

Creating Section Headings

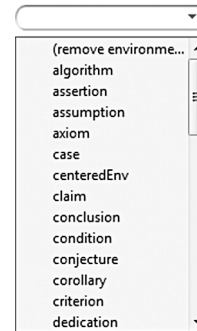
Divisions are the major parts of a document. Usually, they are signaled with headings. The division headings provide the document's heading structure. Each heading is a whole paragraph. By applying

Creating Lists

various section tags to the paragraphs in your document, you can create multiple levels of headings, such as parts, chapters, sections, subsections, and subsubsections, depending on the document shell you use. The section tags available to the active document appear in the Section Tag list on the Standard toolbar.

To create a section heading

1. Place the insertion point where you want the heading paragraph to begin or in the paragraph you want to use as a section heading.
2. Click the arrow at the right of the Section Tag box, then click the tag you want.
3. Type the heading paragraph if it doesn't yet exist.



Creating Lists

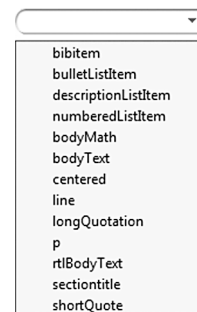
A list is a series of items, each consisting of one or more paragraphs and each beginning with a specific lead-in object—an automatically generated number, a bullet, or some customized text that you supply. You can create nested lists up to four levels deep; within a list, the levels can be of different types; that is, you can create a bulleted list within a numbered list. On the screen, indentation of the list items indicates their level.

Lists are created with Item tags. The available tags and their appearance in the program window and in print depend on the document shell. Most shells have tags for numbered and bulleted lists, as well as lists without lead-in objects. The paragraph box lists the available tags.

You can enter a list tag first and then create the list item, or apply a list tag to an existing paragraph. The paragraph box names the item tag in effect at the insertion point. List tags aren't available in certain environments, such as section headings.

To enter a new list

1. Move the insertion point to the location of the first item in the new list.
2. In the paragraph tag menu, choose the tag for the type of list you want.



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3. To enter an additional paragraph that is part of the current list entry, press Enter.
4. To enter a paragraph that represents a new list entry, press Enter in an empty paragraph.
5. To terminate the list, press Enter in an empty list item.

To create a nested list item

1. Start a list, type a list item, and press Enter.
2. With the insertion point in the new paragraph, start a new list by choosing the appropriate list item tag from the paragraph tag menu.

Note

Depending on the style sheet in use, you may not see different number styles for nested items. These will appear when the document is typeset.

Adding Non-Text Elements

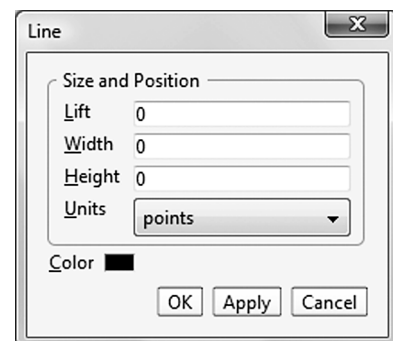
In addition to text, you can add horizontal rules (lines), tables, and images.

Adding Lines

Although the document style determines where lines typically appear in your document, you may want to add solid lines to set off certain portions of the text. You can specify the color, width, height, and lift—the position of the line in relation to the baseline of the surrounding text.

To add a line

1. Choose Insert → Line... The Lines dialog box appears.
2. Select a unit of measure and then specify the lift, width, and height of the line in the corresponding boxes.
3. Click the color box and choose a color from the color palette, if desired, clicking OK on the palette to confirm your choice.
4. Click OK on the Lines dialog box to insert the line.



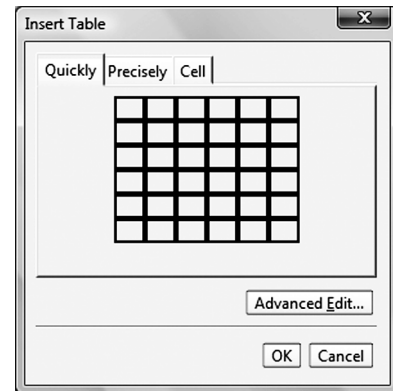
Adding Tables

Rather than attempting to line everything up with tabs, spaces, and returns, you can present tabular information neatly using a table with a specified number of rows and columns. Rows and columns will resize automatically to fit the amount of information being entered, but you can also manually resize them.

To add a table quickly

1. Choose Insert → Table... The Insert Table dialog box appears.
2. On the Quickly tab, click-and-drag the number of rows and columns desired.
3. Click OK. A table with the desired number of rows and columns appears at the insertion point.
4. To enter information in a table cell, click to move the insertion point to the relevant cell and type. (You may also use other text-entry methods discussed in this chapter.)

Other tabs on the Insert Table dialog box allow you to exactly specify the number of rows and columns and to adjust how the table is displayed. Use the context menu to make other editing adjustments such as deleting a cell, adding rows, and the like.



Note

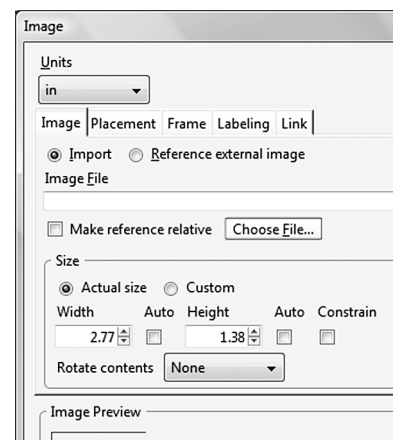
Adding Images

You may insert graphic images in your documents. Version 6 supports the current standard graphics file formats.

Some formats that were supported previously have been dropped in Version 6 because they have turned out to be non-standard.

To insert an image

1. Choose Insert → Image... The Image dialog box appears.
2. Use the Choose File... button on the Image tab to select the image file to insert.
3. Choose whether to Import the image, which brings a copy of it into the .sci file, or to Reference external image, which relies on the image being in a specific place on your computer. The former is recommended because it makes document management easier; you don't have to keep track of graphics files when you move or share your document.



Chapter 4 | Editing Documents

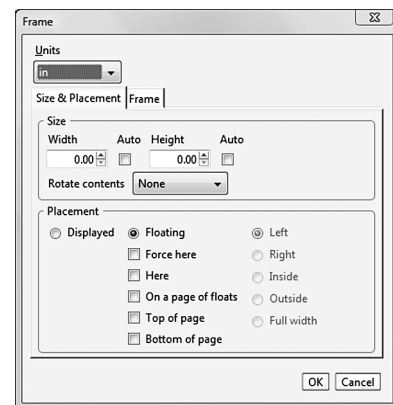
4. Use the Placement tab to determine exactly where the image will be displayed when the document is typeset.
5. Use the Frame tab to provide a frame for the image, if desired.
6. Use the Labeling tab to give the image a caption and determine caption placement, if desired.
7. Click OK to insert the image.

Inserting Frames

A frame is a bordered area that can contain other objects such as images, tables, and even text. You could use a frame to set up a sidebar, which could be anchored to a specific part of your text or to a specific location on a page.

To insert a frame

1. Click to move the insertion point to the location where you want the frame to appear.
2. Choose Insert → Frame... The Frame dialog box appears.
3. Choose the size for the frame by entering a width and height. Units are in pixels but you may change this using the drop-down menu at the top.
4. Specify a placement for the frame. It may be In-Line (displayed within a text line), Displayed (on a line by itself), or Floating. Floating frames get placed in the best possible position at typesetting time. You can anchor them to a specific location (Here) and also indicate where in reference that that position they should be placed (Left, Right, Inside, etc.).
5. On the Frame tab, choose margins and borders as desired.
6. Click OK. The frame is inserted.

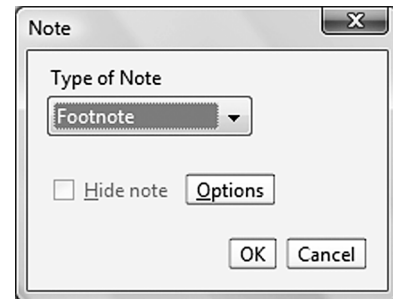


Inserting Notes

A note is an extra item of text appearing outside the normal flow, such as a footnote or a heading appearing in the margin. Notes appear near their insertion point when you are working with your document, but appear in the correct place (i.e., at the bottom of the page for footnotes) at typeset time.

To insert a note

1. Click to move the insertion point to the location where you want the note to appear.
2. Choose Insert → Note... The Note dialog box appears.
3. Choose the type of note from the drop-down list. You may choose footnote, margin note, margin hint, solution note, problem-solving hint, note, and answer note. The placement of each varies; try experimenting with them to get the desired effect.
4. Click OK. The note is inserted; you'll see a frame for it.
5. Click to move the insert point to the note's frame and enter the text, images, or other items you wish to appear.



Information for Power Users

Hints and Tips

Use the **arrow keys** for quick navigation and editing.

- To search forward for a **specific** character, hold down the right arrow key and type the character.
- To search backward for a **specific** character, hold down the left arrow key and type the character.
- To search forward for a **group** of characters, hold down the down arrow key and type the characters.
- To search backward for a **group** of characters, hold down the up arrow key and type the characters.

Because of this functionality, holding down any of the arrow keys will not repeatedly move the insertion point. To do so, press the arrow key *twice*, holding it down the second time.

Edit items with the context menu. For instance, to change a table, right-click the table. The context menu that appears has commands for adding and deleting rows and columns, among other things.

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Shortcuts

The following table shows shortcuts relevant to topics covered in this chapter.

Command	Shortcut
Undo	Ctrl+z or Alt e u
Select All	Ctrl+a or Alt e a
Cut	Ctrl+x or Alt e t
Copy	Ctrl+c or Alt e c
Paste	Ctrl+v or Alt e p
Bold text	B
Italic text	<i>I</i>

5

Working with Mathematics

[T]urning a page is not the same as writing the next chapter. E.J. Dionne (b. 1952)

As with all versions of *Scientific WorkPlace* (SWP), *Scientific Word* (SW), and *Scientific Notebook* (SNB) entering math is straightforward in Version 6. Working right in the program window, you use familiar notation to enter mathematical characters, symbols, and objects into your document. Simple commands let you create displayed or inline mathematics.

Editing mathematics is equally straightforward. You can use standard clipboard and drag-and-drop operations to cut, copy, paste, and delete selections. You can also use the search and replace features to locate or change mathematical information. Although the program automatically formats mathematics correctly, you may occasionally want to modify the appearance of your mathematics. Special editing procedures are available for certain mathematical objects.

This chapter gives instructions for entering and editing mathematical information. It explains how to enter mathematical symbols and characters and how to create automatically formatted objects, such as fractions, radicals, and operators.

Before You Begin

The next sections of this chapter recapitulate the differences between entering text and entering mathematics.

Before You Begin

Entering and Editing Symbols and Characters

Tagging Mathematics

Entering and Editing Mathematical Objects

Information for Power Users

Chapter 5 | Working with Mathematics

Text vs. Mathematics

As we stated in the previous chapter, the default state for Version 6 is text mode; it is easy to toggle between the two modes and it is also easy to determine what mode you are in. Unless you actively change to mathematics, the program displays a "T" on the Standard toolbar and

- Interprets anything you type as text, displaying it in black in the program window.
- Displays alphabetic characters as upright, not italicized.
- Inserts a space when you press the spacebar.

When you start the program, the insertion point is in text mode.

To toggle between text and mathematics

Click the "T" on the standard toolbar. The "T" changes to "M," the insertion point changes to red and appears between brackets.

You may also choose the Math command from the Insert menu.

When you toggle to mathematics, the Math/Text button changes to an "M" and the program

- Displays the insertion point between brackets for mathematics.
- Interprets anything you type as mathematics, displaying it in red in the program window.
- Italicizes alphabetic characters and displays numbers upright.
- Automatically formats mathematical expressions, inserting correct spacing around operators such as + and relations such as =.
- Advances the insertion point to the next mathematical object when you press the spacebar.

About Tagging

To create a Body Math paragraph

1. Place the insertion point where you want the mathematics paragraph to begin.
2. Apply the Body Math tag.

On the screen, most document shells use color to distinguish between mathematics and text. The default color for mathematics is red; the default color for text is black. Math names for functions, operators, and variables appear in gray. The program automatically formats your mathematics correctly when you display or print your document. By default, you enter mathematics in the current line of text, but you can also enter it on a separate line as a mathematical display.

Mathematics behaves differently in the two environments. For inline mathematics, any operators are sized to fit within the line and limits are positioned to the right of operators and functions. The numerators and denominators of fractions are set in small type.

Displayed mathematics appears centered on a separate line and set off from the information above and below by additional space. Operators within the display are larger than inline operators, limits are positioned above and below operators and functions, and the numerators and denominators of fractions are set in full-size type.

Entering and Editing Symbols and Characters

In SWP, SW, and SNB you can enter symbols and characters:

- With the mouse, from the symbols palettes, especially the Symbol Cache.

Let the mouse hover over each item on the palettes to display the name of the symbol or character.

- With the keyboard, using shortcut macros (usually the \TeX name of the symbol).

The Macro list shows the name you entered most recently.

- With an alternate keyboard.

Greek characters are mapped to a Greek keyboard, and many common mathematical symbols and characters are mapped to the Symbol keyboard.

To enter symbols and characters from the symbols palettes

Click the symbol or character you want on the Symbol pane on the sidebar, or click the symbol palette you want on the Symbol toolbar and then from the list of available symbols, click the symbol you want.

Chapter 5 | Working with Mathematics

To enter symbols and characters with shortcut macros

1. Press Ctrl+spacebar to open the Macro box on the Status bar.
2. Type the name of the symbol or character, or type the first letter of the name and select the name from the list that opens.

The Macro list self-completes, so entering macros is a fast way to enter mathematics.

3. Press Enter.

To repeat the most recently entered macro

Press Ctrl+spacebar and then press Enter.

To enter symbols and characters from an alternate keyboard

1. Press Ctrl+7 to change to the Symbol keyboard or Ctrl+g to change to the Greek keyboard.
2. Press the key for the symbol you want.

To convert text to mathematics

1. Select the text.
2. Toggle to mathematics.

The program converts the selection to mathematics, removing all ordinary spaces in the selection, italicizing alphabetic characters and displaying numbers in ordinary text.

Tagging Mathematics

You can add emphasis and meaning to mathematics with text tags. In mathematics, calligraphic text denotes sets or integral transforms; blackboard bold denotes the set of real numbers or natural numbers; and boldface text often indicates vectors and matrices. You can apply these conventions in your document by applying text tags to your mathematical content.

The Blackboard Bold, Calligraphic, Fraktur, and Bold Symbol tags automatically start mathematics. If you apply one of these tags to a selection, the selection is changed to mathematics even if it was originally text. If you apply one of the tags without having made a selection, the next thing you enter will be mathematics. Calligraphic and Blackboard Bold are valid only for uppercase letters.

The Bold and Bold Symbol text tags have similar names but different behaviors. The Bold tag is for text; it doesn't start mathematics. If you apply the Bold tag to a selection in mathematics, the program bolds the selection and changes the mathematics to an upright font. On the other hand, the Bold Symbol tag automatically starts mathematics, bolding the information while maintaining correct mathematical formatting.

To apply a text tag to mathematics

1. Select the mathematics you want to tag.
2. Click the tag you want on the Text tag list.

To remove a text tag from mathematics

1. Select the mathematics.
2. Click the (normal) tag on the Text tag list.

Entering and Editing Mathematical Objects

Entering mathematical objects such as fractions, subscripts, radicals, and operators with limits is as straightforward as entering simple symbols and characters. Mathematical objects are available on the Math toolbar and also from the Insert menu. Many also have keyboard shortcuts and some are available from the alternate Symbol keyboard.

Entering and Editing Objects with Templates

When you enter a mathematical object in your document, the program inserts an expanding template representing the object and places the insertion point inside it in an input box so you can complete the object. Until you move the insertion point outside the template, anything you enter becomes part of the mathematical object. The input boxes appear in the program window if you turn on Input boxes from the View menu.

Depending on the object it represents, a template may have several input boxes, such as for limits. Some input boxes are hidden.

Templates expand as necessary. Bracket and radical templates expand both horizontally and vertically to encompass their contents; fraction bars extend as far as necessary to encompass the longest string of characters within the fraction; and matrix cells expand as needed.

Note

Chapter 5 | Working with Mathematics

To enter a mathematical object

Choose Insert → Math Objects and then choose the object you want.

The program inserts a template representing the object and places the insertion point in the template so you can complete the object.

To move the insertion point outside a mathematical object

Press spacebar or right arrow repeatedly until the insertion point moves outside the template. You may also click the mouse to the right of the template.

Entering Fractions and Binomials

The program treats fractions and binomials similarly, automatically extending the bar of a vertical fraction or binomial as far as necessary to encompass the entire fraction. By default, the numerator and denominator are set in a small-size font for inline mathematics.

To enter a vertical fraction

Choose Insert → Math object and then choose Fraction.

The program treats binomials, the Legendre symbol, and Euler numbers as generalized fractions. The appearance of delimiters and fraction lines and the size of the numerator and denominator are modifiable.

To enter a binomial or generalized fraction

1. Choose Insert → Math object and then choose Binomial

2. Select the left and right delimiters you want, if any.

If you don't want delimiters, uncheck With Delimiters.

3. Make any necessary changes to the fraction line and size.

4. Click OK and then enter the expression.

Entering Radicals

By default, the program enters a radical with the insertion point underneath. You can open an additional input box to enter a root.

To enter a radical

Choose Insert → Math object and then choose Radical.

To add a root to a radical

Enter a radical and press Tab.

Entering Subscripts and Superscripts

The program automatically uses a smaller size type for subscripts and superscripts, which are available from the Insert menu and the Math toolbar. You can enter them quickly with keyboard shortcuts. As with other mathematical templates, you can apply the subscript and superscript templates to selections.

To enter a subscript

Choose Insert → Math object and then choose Subscript.

To enter a superscript

Choose Insert → Math Objects and then choose Superscript.

If you enter a new subscript or superscript when the insertion point is inside an existing subscript or superscript, the program adds a new object. However, if the insertion point is outside and to the right of an existing subscript and you enter a new subscript, the program moves the insertion point into the existing subscript instead of creating a new one. Similarly, if the insertion point is outside and to the right of an existing superscript and you enter a new superscript, the program moves the insertion point into the existing superscript instead of creating a new one.

To apply a subscript or superscript template to a selection

Select the mathematics and enter a subscript or superscript.

To enter an expression with a simultaneous subscript and superscript

1. Enter the expression.
2. Enter the subscript and press Tab.
The program creates a superscript and places the insertion point in it.
3. Enter the superscript.
Alternatively, you can enter the superscript first.
4. Press spacebar or right arrow to move the insertion point back to the baseline.

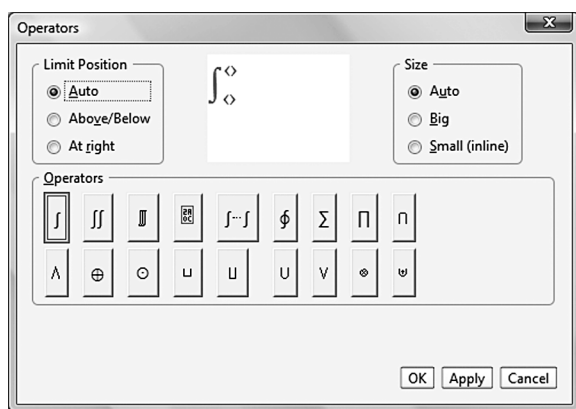
Entering Operators and Limits

A number of mathematical operators are available from the Operators dialog box. Others, such as Σ and \int , are also available from the Math toolbar. Inline operators are set in small type; displayed operators are set in larger type.

Chapter 5 | Working with Mathematics

To enter a mathematical operator

1. Place the insertion point where you want the operator to appear.
2. Choose Insert → Math Objects → Operator. The Operators dialog box appears.



3. Select the operator you want and change the size as necessary.
4. Click OK.

You add limits to operators by entering subscripts and superscripts. By default, when the operator is inline, limits are set to the right. When an operator is displayed, limits are set above and below. The exception is the integral operator, for which limits are always set to the right.

To enter limits for an operator

1. Enter the operator.
2. Enter a subscript and type the lower limit.
3. Press Tab.
4. Type the upper limit.
5. Press spacebar or right arrow to move the insertion point back to the baseline.

Some operators require multiline limits.

To enter a multiline limit

1. Enter the operator.
2. Enter a subscript or superscript.
3. Type the first line of the limit.
4. With the insertion point at the end of the limit, press Enter.
5. Type the next line of the limit.
6. Press spacebar or right arrow to leave the limit.

Entering Brackets

The program has two kinds of brackets. Standard brackets, which you type from any standard keyboard, can be entered singly and don't change in size to encompass their contents. In contrast, expanding brackets are available from the Insert menu and the Math toolbar. They are always entered in matched pairs. As the name implies, expanding brackets are elastic, expanding or contracting with their contents.

You can complete the pair of brackets with an empty bracket. Empty brackets don't appear in print. They are shown as vertical dotted lines in the Brackets dialog box and, if you have turned on View → Helper Lines, in the program window.

To enter expanding brackets

1. Choose Insert → Math Objects and choose Brackets.
2. From the Brackets dialog box, select the left and right brackets you want.
3. Click OK.

To enclose an existing expression in expanding brackets

Select the expression and enter the brackets.

Entering and Editing Matrices and Vectors

A matrix is a rectangular array; a vector is a matrix with one column or one row. You can perform computations with matrices and vectors in SWP and SNB, but remember that computations aren't possible with tables, because they are not mathematical objects, even if they contain mathematics.

The cells of a matrix or vector are elastic and expand to encompass their contents. To work with a matrix or vector more easily, you can

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outline the cells on the screen with the View →Helper lines command; the outlines don't appear in print.

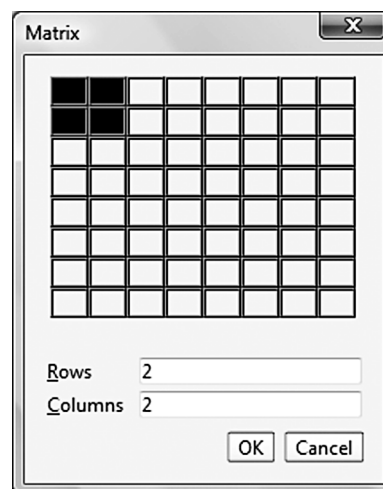
Matrices and vectors can be placed inline or in displays.

To enter a matrix

1. Choose Insert →Math Objects and choose Matrix. The Matrix dialog box appears.
2. In the Matrix dialog box, drag the mouse then click to describe the matrix you want, or enter the number of rows and columns.
3. Click OK.

The program places the insertion point in the top left cell of the matrix.

4. Enter the contents of the cell and press Tab to move to the next cell.
5. When the matrix is complete, press spacebar or right arrow to leave the matrix.



Options for editing matrices are more varied than for other mathematical objects. Once you've created a matrix, use the context menu (right-click) to change its dimensions by adding or deleting rows and columns, changing the alignment of its contents or baseline, and modifying the delimiters.

Entering Math Names

The program defines a special set of multicharacter *math names*. The math names include many common variables, operators, and functions, such as log and sin, that have meaning for the computational engine. (See *Doing Mathematics with Scientific WorkPlace and Scientific Notebook* for detailed information.) You can also create your own math names. Entering a math name automatically starts mathematics. Math names appear in the program window in gray upright text.

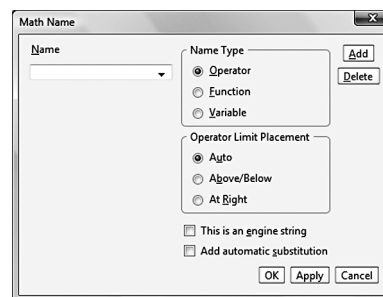
Many of the math names defined in your program installation are also defined as automatic substitution sequences. You can work quickly by entering these sequences directly from the keyboard. When automatic substitution is turned on, the program recognizes math names automatically as you type them. For example, the math name cos is defined as an automatic substitution sequence. When you type cos in mathematics, the co appears on the screen in italics until you type the s, and then the entire function name changes to upright, gray text.

Entering and Editing Mathematical Objects

The program has substituted the function for the three-character sequence.

To enter a recognized math name

1. Choose Insert → Math Objects and choose Math Name. The Math Name dialog box appears.
2. Scroll through the Name list in the Math Name dialog box to select the name you want, or type the name in the box at the top of the Name area.
3. Click OK. The program inserts the name directly into your document.



Some math names, such as \max and \lim , can have limits. When a math name is inline, the program places the limits to the right. When the math name is displayed, the program places the limits above or below.

To add limits to a math name

1. Enter the math name.
2. Use the Subscript or Superscript command to enter the limits.

In addition to using predefined math names, you can create your own multicharacter variable names for use in mathematics. The program can automatically recognize the math names you create if you define them as automatic substitution sequences. If you designate a math name as an operator, you can also designate the placement of its limits, if any. With SWP and SNB, you can use math names in computations. For example, you can create the names *Force*, *Mass*, and *Acceleration*, and assign a value to *Mass* and *Acceleration*. Then, you can use the math names to write the equation

$$\text{Force} = \text{Mass} \times \text{Acceleration}$$

and compute the value of *Force*. However, if you start mathematics and enter the words *Force*, *Mass*, and *Acceleration* without having first defined them as multicharacter variable names, the program considers each letter in each word to be a variable.

To create a math name

1. Choose Insert → Math Objects → Math Name. The Math Name dialog box appears.
2. Enter your unique math name in the text area at the top left.

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3. Choose the type of name to create.
4. Choose the kind of operator limit placement.
5. Choose whether to support auto-substitution.
6. Click Add. The new math name is added to the list of choices.

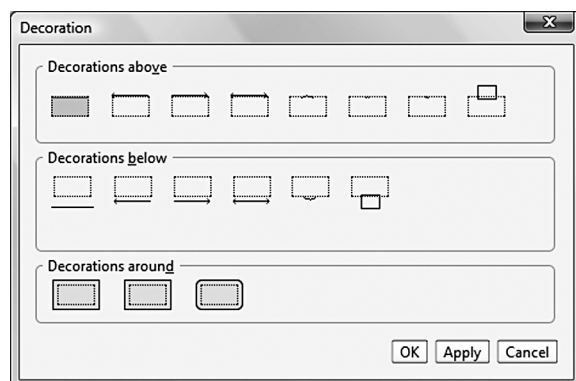
If you click OK to dismiss the dialog box, the newly created math name is added at the insertion point. If you click Cancel, it is not.

Entering Decorations and Labeled Expressions

You can add decorations including wide accents, bars, arrows, and boxes above, below, and around expressions. Additionally, you can add labels above and below expressions. When you enter a decoration or a label, the program creates a template with two parts: the expression to be decorated or labeled and the decoration or label itself. Decorations are elastic; they expand to encompass the expression they decorate. Labels are set in small type.

To enter a decoration or label

1. Choose Insert → Math Objects and then choose Decoration. The Decorations dialog box appears.



2. Select the template for the decoration or label you want and click OK.

The program inserts a template for the decoration or label you selected.

Entering and Editing Mathematical Objects

3. If you entered a decoration, complete the expression.

If you entered a label, enter both the expression and the label.
Press Tab to move between the two.

4. Press Spacebar or Right arrow to leave the expression.

To apply a decoration or label to an existing expression

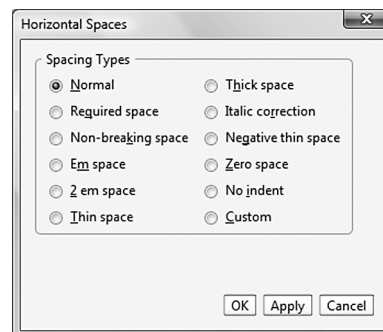
Select the expression and enter the decoration or label.

Entering Horizontal Space in Mathematics

Because the program automatically provides appropriate spacing for mathematics, you don’t need to use the spacebar to type horizontal spaces in mathematics. In fact, by default the spacebar doesn’t add space when the insertion point is in mathematics. Occasionally, however, you may want to add extra space to an expression. Additionally, you can enter positive and negative custom space, which the program applies when you typeset your document. You can indicate places in an expression where a break is appropriate, required, or prohibited.

To enter a horizontal space in mathematics

1. Choose Insert → Spacing Objects and choose Horizontal Spaces. The Horizontal Spaces dialog box appears.
2. In the Horizontal Spaces dialog box, select the space you want and click OK.



Entering Units of Measure

In SWP and SNB, you can add units of measure for physical quantities to mathematical values. You can convert the values from one unit of measure to another and perform computations on equations containing values that have units of measure. Also, you can enter compound unit names, such as ((ft)/(s)) or ft lb, by writing them as fractions or products. You can enter a unit of measure from the Unit Name dialog box. You can also enter units using automatic substitution; a number of units are predefined.

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To enter units of measure	Type
hour symbol h	uhr
meter symbol and its derivatives m	ume
angstrom symbol Å	uan
Columb symbol C	uCo
Tesla symbol T	uTe
Liter symbol l	uli
symbols for ohm and ist derivatives Ω	uohm
degrees Celsius °C	ucel
degrees Fahrenheit °F	ufahr
degree symbol (plane angle) °	udeg
(degree) minute '	udmn
(degree) second "	uds
pound-force lbf	ulbf
pound-mass lb	ulbm

Although you can enter units of measure by typing them as text or by using symbols or characters available from the symbols palettes, units entered in these ways have no computational value.

To enter a unit of measure

1. Start mathematics and enter a value.

2. Enter the unit:

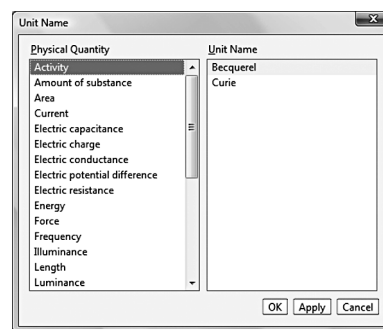
Type u followed by the symbol for the unit you want.

OR

Choose Insert → Math Objects → Unit Name... The Unit Name dialog box appears.

3. Select a measurement category and a unit, then click Insert. The unit is inserted.

Note



Entering and Editing Mathematical Displays

By default, the program enters mathematics on the same line as text, but you can create mathematical displays that appear centered on a separate line. You can also change inline mathematics to displayed mathematics, and vice versa.

Several View menu commands help you work with displayed mathematics. If you check Helper lines, the program displays a box outlining the display. If you check Input boxes, the program displays

outlines for the template input boxes. These outlines don’t appear in print when you typeset.

The program correctly formats displayed mathematics, but you may want to add custom equation numbers or custom labels. A display can have a key, or unique name, so that you can create automatic cross-references or hypertext links to the display from elsewhere in your document.

To create a mathematical display

Choose Insert → Math Objects and choose Display.

The program centers an input box for a display on a new line and places the insertion point inside the display in an input box so you can enter your mathematics.

To display inline mathematics

1. Select the mathematics to be displayed.
2. Create a display.

The program places the selection in a new display, formatting the size and position of mathematical elements appropriately.

About Automatic Equation Numbers

SWP, SW, and SNB can automatically number the displayed equations in your document. By default, the program numbers displayed equations, but you can change the default using the Document Format dialog box.

$$a^2 + b^2 = c^2 \quad (5.1)$$

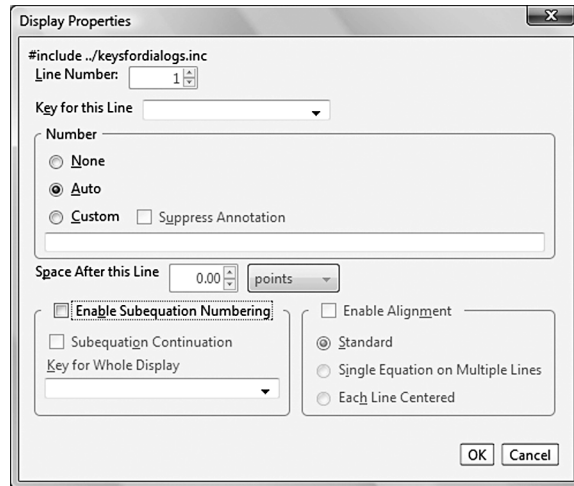
Adding Custom Equation Numbers and Labels

Instead of numbering a display automatically, you can give the display a custom number or use text to label it. If automatic numbering is turned on in SWP or SW, the custom numbers and labels you enter replace the automatically generated numbers.

To add a custom number or label to a mathematical display

1. Right-click the automatic number for the display and choose Equation Array Properties from the Properties submenu of the context menu. The Display Properties dialog box appears.

Chapter 5 | Working with Mathematics



2. Enter information to define the customer number/label and click OK. The number is changed to your entered values.

Entering Theorem Statements

The program creates theorems, corollaries, lemmas, axioms, and other theorem-like statements with tags. Theorem tags aren't available in all shells. If you need to include theorem statements in your document, make sure the shell you use includes the tags you need.

If you have SWP or SW, you can number theorem statements automatically. When you typeset, the program automatically formats and numbers any theorems and, if you've created keys for the theorems, creates any cross-references to them. The typesetting specifications for most shells number theorems sequentially throughout a document and display cross-references as the number of the theorem.

Once you've created a theorem, you can add an explanatory label for it.

To enter a theorem statement

1. Place the insertion point at the end of the paragraph that is to precede the theorem statement and press Enter.
2. Apply the theorem tag you want.

The program indicates the tag by placing a corresponding word, such as Theorem or Corollary in a lead-in object at the beginning of a new paragraph.

Note

Not all shells support theorem tags.

3. Type the statement of the theorem and press Enter.

To convert one or more existing paragraphs to a theorem statement

1. Select the paragraphs.
2. Apply the theorem tag you want.
3. If the selection included more than one paragraph, delete the lead-in object at the start of each continuation paragraph to avoid creating a series of separate theorem statements.

Using Fragments to Enter Mathematics

The program contains predefined fragments for mathematical constants, expressions, and theorems. The instructions given for entering text fragments in the previous chapter apply to entering/editing mathematical fragments. Fragments are shown on the sidebar.

When you import a mathematical fragment, the program pastes its contents into your document at the insertion point, toggling between text and mathematics as necessary. You don't have to start mathematics first.

To import a fragment

1. Place the insertion point where you want the fragment to appear.
2. On the Fragments pane, select the fragment you want and press Enter, or drag the fragment to your document.

As with text, you can create any new mathematical fragments that you need. When you create a fragment, the program saves it by default with an extension of .frg in the fragments folder of your user profile. If you prefer, you can create subfolders for your fragments. If you save fragments outside the profile/fragments folder tree, they will not appear in the sidebar list. Any fragments that you save while working in one document are available to all other documents.

To create a fragment containing mathematics

1. Ensure the Fragments pane is visible on an open sidebar.
2. In your document, select the information you want to save and drag it to the sidebar. The Enter Fragment Name and Description dialog box appears.
3. Enter a name and description for the fragment and click OK.

Chapter 5 | Working with Mathematics

Using Automatic Substitution to Enter Mathematics

You can enter mathematics quickly using automatic substitution. When automatic substitution is turned on and the insertion point is in mathematics the program replaces special sequences of letters or numbers that you enter with predefined mathematical expressions.

Automatic substitution of mathematics works like automatic substitution for text. You activate it for mathematics just as you do for text, using the Autosubstitution dialog box accessed via Tools → Auto Substitution. Using this dialog box, you can view the various predefined mathematical auto substitution sequences. For more information on auto substitution in general, consult the previous chapter.

Information for Power Users

Hints and Suggestions

Use the spacebar to advance through an expression.

Shortcuts

The following table shows shortcuts and accelerators for commands covered in this chapter.

Command	Shortcut
Toggle text/math	Ctrl+m or Ctrl+t
Enter fraction	Ctrl+/ or $\frac{\square}{\square}$
Insert radical	Ctrl+r or $\sqrt{\square}$
Insert superscript	Ctrl+h, Ctrl+ or \mathbf{N}^x
Insert subscript	Ctrl+l, Ctrl+ or \mathbf{N}_x
Insert display	Ctrl+d or $\frac{\square}{\square}$

6

Final Touches: Document Production

Virgil is related to have poured out a great number of lines in the morning, and to have passed the day in reducing them to fewer.
Samuel Johnson (1709–1784), Dryden (Lives of the Poets)

Scientific WorkPlace (SWP), Scientific Word (SW), and Scientific Notebook (SNB) offer different ways to produce printed documents. With SWP and SW, you have different ways to produce printed documents. With SWP and SW, you can typeset with \LaTeX when you want to create formatted documents with automatically generated cross-references, citations, numbered elements, tables of contents, and other document elements. When you don't need typeset formatting or when you're using SNB, you can directly produce documents without \TeX .

This chapter looks at various aspects of preparing a document for final production: adding index and bibliographic entries, spell-checking, making overall formatting adjustments, and the like. It also explains the important differences between the two methods of document production and provides detailed information about using direct previewing and printing. Finally, the chapter shows you how to prepare documents for use on the web.

Understanding Differences in Document Production

Whether or not you typeset, you can create appealing documents with SWP, SW, and SNB. Understanding the differences in the document production methods will help you decide when to use each one.

Understanding Differences in Document Production

Readying a Document for Production

Previewing and Printing a Document

Creating Documents for the Web

Information for Power Users

About Typesetting

When you typeset your document, SWP or SW previews or prints your document after compiling it. (Typesetting isn't available in SNB.) The compilation process invokes T_EX to provide automatic hyphenation, kerning, ligatures, sophisticated paragraph and line breaking, sophisticated mathematics layout, and other fine formatting features. It also provides automatic generation or placement of document elements including tables of contents, lists of figures and tables, cross-references, footnotes and margin notes, automatically numbered sections and equations, indexes, and bibliographies.

In Version 6, T_EX typesetting yields a Portable Document Format, or PDF file that contains your typeset document embedded with all necessary fonts and with graphics that have been converted. Note that the previewed or printed appearance of your document depends on specifications initially set by the document shell. These specifications have no effect on your document when you don't typeset it.

You can override options specified by the shell and set others using the Document Format dialog box accessed via the Typeset menu. Information on doing so is given later in this chapter.

About Direct Production

When you use direct preview or direct print instead of typesetting, the appearance of your document depends on specifications in the .css file, which are initially set by the document shell you choose. These specifications have no effect on your document when you typeset it, although they do control how the document appears on the Web. You can modify the specifications as needed using the CSS Editor accessed via the Tag menu.

When you produce your document without typesetting it, the program sends the document to a previewer or to the printer using many of the same routines with which it displays the document in the program window. That means that what you see in the preview window or on paper is similar to what you see as you work on your document.

Because the program window doesn't reflect the page setup specifications or the print options, you don't see page breaks, margins, headers, footers, or page numbers on the screen unless you use Print Preview.

Note

Differences in the Final Product

We emphasize that producing your document with and without typesetting yields noticeably different results. While direct production yields a document similar in appearance to what you see in the program window, typesetting your document usually yields an appearance much different.

If you have SWP or SW, we suggest you follow these general guidelines to choose how to produce your document:

- When a finely typeset document appearance is a high priority, typeset preview or typeset print the document with pdf \LaTeX or X \LaTeX .
- When a finely typeset appearance and automatically generated document elements aren't a priority, when you need output quickly, or when you're producing for Web viewing, use direct print.

Readying a Document for Production

Once you understand the differences between direct and typeset production, you can begin getting a document ready for completion. This includes adding items such as index entries and cross references, preparing a bibliography, and adjusting the document's appearance.

Adding Typeset Objects

Version 6 gives you the tools to easily create indexes, cross-references, and citations. Commands for creating all such entries are found on the Insert menu.

Index Entries

Add index entries to a document using the Index Entry dialog box accessed via Insert → Typeset Objects.

If you wish to specify different item levels, you can use the Secondary and Tertiary index entry fields. For example, if the primary entry is Files, the secondary entry might be Opening, and the tertiary entry might be With Scientific Workplace. This allows you to create indexes that are organized and easier for a reader to search. For instance:

Chapter 6 | Final Touches: Document Production

Files

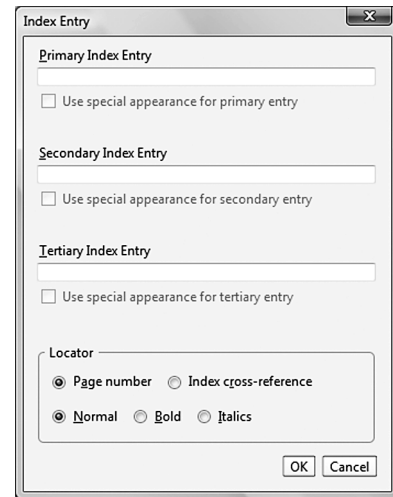
- Opening
 - with Scientific Workplace
 - with another program

Saving

To add an index entry

1. Move the insertion point to the location you wish to index.
2. Choose Insert → Typeset Object → Index Entry. The Index Entry dialog box appears.
3. Choose and enter the form for the Primary Index Entry and the Secondary and Tertiary entries, if desired.
4. Specify the locator (page number or cross-reference) and the style.
5. Click OK. The entry is created.

The appearance of the index itself is controlled by your document shell and by settings in the Document Format dialog under the Typeset menu. For instance, you can choose whether to actually display an index and also whether to show entries in your draft (working) document.

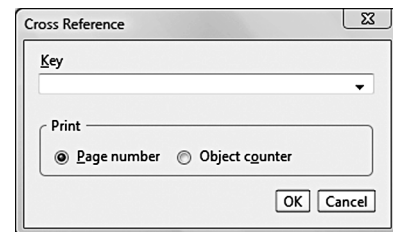


Cross-References

Cross-references are useful tools to point readers in the direction of material elsewhere in a manuscript that has bearing upon the topic immediately at hand. Cross-references in Version 6 are defined based on keys that you must previously define using the Insert Marker dialog box.

To insert a cross-reference

1. Move to the location you want to reference. Access the Marker dialog box, enter the desired key for the location, and click OK.
2. Move the insertion point to the location for your cross-reference. Choose Insert → Typeset Object → Cross Reference. The Cross Reference dialog box appears.
3. Choose the previously defined key from the Key drop-down list.
4. Choose whether to use a page number or an object counter.
5. Click OK. The cross-reference is established.



Preparing a Bibliography

Bibliographies, or reference lists, usually appear at the end of a document. The body of the document can contain citations, which are cross-references to the individual items in the bibliography list. When you typeset your document, the formatter automatically generates the cross-references between the citations and the bibliography item to which they refer. The appearance of the bibliography and the citations depends on the typesetting specifications for the shell. You can create a bibliography manually or automatically using `BIBTEX`.

Creating Manual Bibliographies

A manual bibliography, which works just like a series of cross-references, is convenient when the list of references is short and you don't plan to use those references in other articles or books. You must format entries yourself, a disadvantage if you later decide to change the style of the bibliography to suit a different requirement. For example, if you format the bibliography of an article for a journal that requires book titles in italics, then later decide to submit the article to a different journal that requires those same titles in boldface, you must make the format changes manually.

To establish a manual bibliography

1. Choose Typeset → Bibliography Choice... The Bibliography Choice dialog box appears.
2. Choose Manual entry.
3. Click OK.

To create a list of bibliography items

1. Move the insertion point to the end of the line that is to precede the bibliography and press enter.
2. In the paragraph tag menu, choose the tag bibitem. The program displays a dialog box so that you can assign a key and an optional label to the item.
3. Enter a unique key for the item.

You use this name when you create a citation for the bibliography item. Click the arrow next to the Key box to display a list of keys already in use in your document, or press down arrow to scroll through the list. The keys don't appear when you typeset your document.

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4. If you want the item to appear in the list with a label instead of the number automatically generated for the item, enter the label in the Label box.

The label can include mathematics. If you include a label for a list item, the program continues sequential numbering with the next list item. The label can also be used to create author/date citations.

5. Choose OK.

In the document window, the key for the item appears in the lead-in box.

6. Type the bibliographic information for the item, using text tags to format the information correctly.

In the document window, the information appears next to the lead-in box.

7. If you want to create another bibliographic item, press enter and repeat steps 3–6.

8. At the end of the bibliography, press enter to complete the last item.

9. Choose Cancel and then apply the Remove Item Tag to complete the list.

To create a citation for a manually created bibliography item

1. Place the insertion point where you want the citation to appear.
2. Choose Insert → Typeset Object → Citation. The Citation dialog box appears.

3. Enter the key for the bibliographic item you want to cite.

Click the arrow next to the Key box to display a list of all keys defined for the document.

4. If you want to add a comment to the citation, enter it in the Remark box.

Comments, which can contain both text and mathematics, appear only when you typeset preview or print your document. They don't appear in the document window.

5. Choose OK.

The citation is displayed on the screen in a small box containing the word Cite and the key you entered. When you typeset the document, the formatter creates the correct reference by replacing the key with the number of the keyed bibliography item. If you also entered a comment, it appears after the number.

The typesetting specifications for the shell determine the citation appearance in print.

Creating Automatic Bibliographies

You can create an automatic bibliography with `BIBTEX`. A `BIBTEX` bibliography is convenient if you have a long list of references that you plan to use in other articles or books, because you don't have to create the bibliography list yourself. `BIBTEX` generates the list automatically by extracting references from a database using the citations you insert into your document. `BIBTEX` bibliographies, which are ASCII files that you create and edit with a standard text editor, can be used as often as you like in other documents. Also, you can change the appearance of a `BIBTEX` bibliography automatically by specifying a different bibliography style. Creating a `BIBTEX` bibliography involves these steps:

- Creating or obtaining a `BIBTEX` database.
- Specifying a `BIBTEX` bibliography and bibliography style, and inserting an instruction to include the bibliography.
- Creating a series of citations in the body of your document.
- Generating the bibliography.

When you typeset compile your document to generate a `BIBTEX` bibliography, the program passes the document through `BIBTEX` which generates the bibliography by extracting the cited references from the database. The file is formatted according to the specified bibliography style. The next time you typeset the document, the formatter includes the bibliography file in the document, formatting the citations according to the typesetting specifications.

Before you can create a `BIBTEX` bibliography for your document, you must first create or obtain a database of bibliographic items in `BIBTEX` form.

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To establish an automatic bibliography

1. Choose Typeset → Bibliography Choice... The Bibliography Choice dialog box appears.
2. Choose BibTeX.
3. Click OK.

To insert an instruction to include the bibliography

1. Move the insertion point to the end of the line that is to precede the bibliography and press enter.
2. Choose Insert → Typeset Object → Bibliography to open the BibTeX Bibliography dialog box.
3. Select the BibTeX database files containing your references.
You can select more than one database.
4. Select a BibTeX style for formatting the references.
5. Choose OK.

The program inserts into your document a gray [BibTeX] box.

Creating a citation for a BibTeX reference ensures that it will be included in the bibliography list when you generate the bibliography. You can also use the citation process to include a reference in the bibliography without citing it in the body of your document.

Specifying a BibTeX bibliography changes the Citation dialog box so that you can select citations from a BibTeX database. If your database of bibliography entries is very large, finding the reference you want to cite can be time-consuming. You can narrow your search by specifying search criteria, or key filters, for the database items, then choosing the reference you want from among those that fit the filters.

If you add the `authordate1-4`, `chicago`, or `harvard` package to your document, you can create author/date citations for BibTeX bibliographies.

To create a citation for an item in a BibTeX database

1. Place the insertion point in your document where you want the citation to appear.
2. Choose Insert → Typeset Object → Citation. The Citation dialog box appears.

3. If the selected database is the one you want and you know the key for the database item you want to cite, enter it in the Key box. Otherwise, select the key for the item directly from a BibTeX database:
 - a. Scroll the Database File list to select one of the databases listed. If necessary, choose Select BibTeX Directory to navigate to the directory containing your BibTeX database.
 - b. Choose View Keys to display a Keys dialog box. The box lists the keys for those items in the selected database that satisfy the current search criteria.
 - c. Scroll the list to select the item you want.
If the item doesn't appear on the list, change the search criteria.
 - d. If you want to view the full text of the item, choose View Entry.
The program displays the item in a BibTeX Database Entry dialog box.
 - e. Choose Cancel to return to the list of keys.
4. When you have selected the item you want, choose OK to return to the BibTeX Citation dialog box.
5. If you want to add a text comment to the citation, enter it in the Remark box.

Comments appear only when you typeset, not in the document window.
6. If you want the reference to be uncited—that is, you want it to appear in the bibliography without a corresponding citation in your document—check the box labeled Bibliography Entry Only - No Citation.
7. Choose OK to return to your document.

The program inserts a citation for the item whose key you selected.

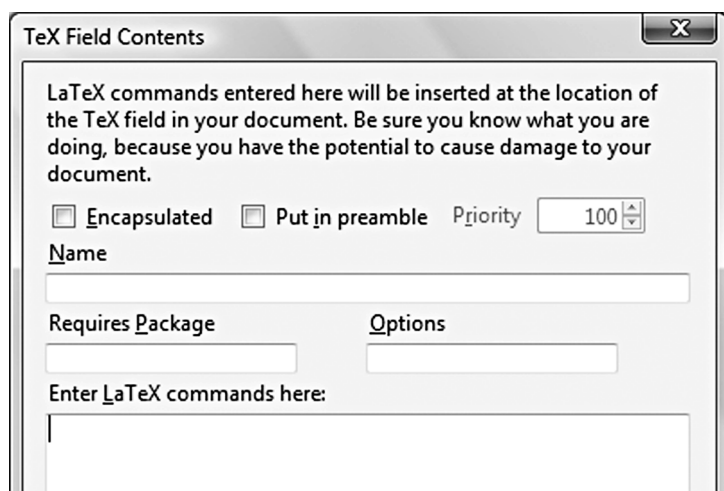
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Adding a T_EX Field

If you are proficient with T_EX, you can insert a T_EX field wherever you like to achieve certain special effects. For instance, the drop capital letters used in this document were created with objects that reference the letrine package.

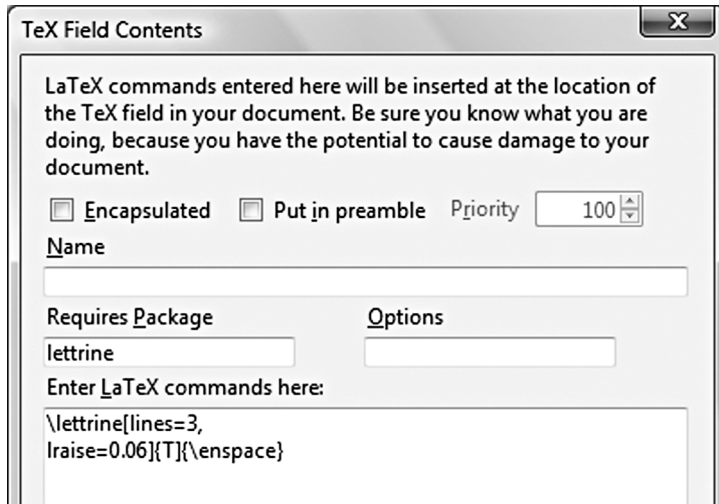
To add a T_EX field

1. Choose Insert → Typeset Object → Tex Field. The Tex Button Contents dialog box appears.



2. Enter a name for the field, if desired. This can make it easier to locate fields for reuse.
3. Specify whether it uses a specific package and any options for that package.
4. Enter the code for the field.
5. Click OK. The T_EX field is inserted.

The following illustration shows the dialog box as filled out for the dropped-capital field.



Adjusting a Document's Appearance

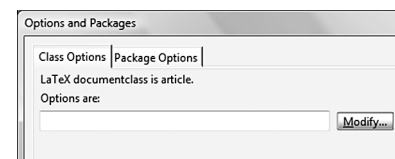
Although much of a document's appearance is established by the document shell, you have certain choices available to you for either supplementing or overriding the shell defaults. You can choose to specify TeX options and add packages to give you additional formatting capabilities. You can also use the Document Format dialog box to override default options and set preferences for how a document appears. In Version 6, virtually all of the ways to set a document's appearance outside of shell choice are controlled with the Document Format dialog box.

Using Options and Packages

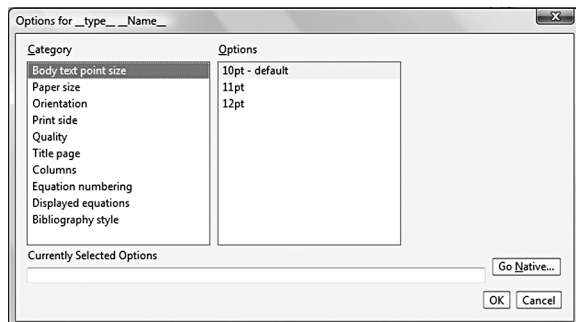
To specify shell and package options, and to call for the use of desired packages, use the Options and Packages dialog box accessed via the Typeset menu.

To modify document class options

1. Choose Typeset → Options and Packages... The Options and Packages dialog box appears.
2. On the Class Options tab, click Modify. The *Class Options* dialog box appears.



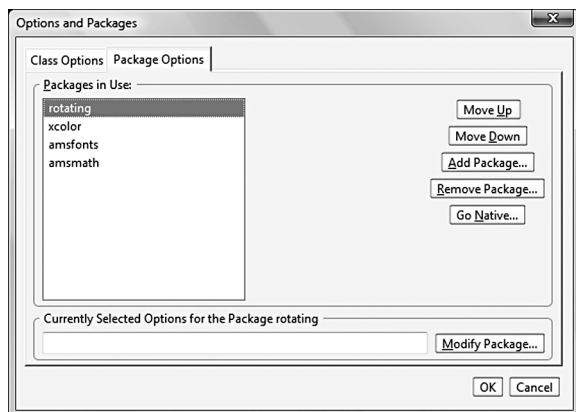
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3. Click a category on the left to see the options available for that category. Click an option on the left to select the option you want for that category. In the dialog shown above, the 10pt. option has been selected for the body font point size.
4. Click OK on the *Class* Options dialog.
5. Click OK on the Options and Packages dialog. Your choice is put into effect.

To modify package options

1. Choose Typeset → Options and Packages. The Options and Packages dialog box appears.
2. Click the Package Options tab.



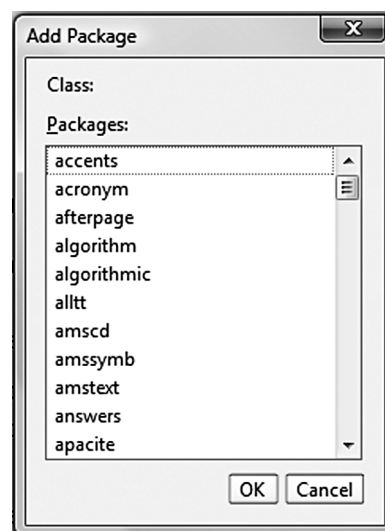
3. Click to set a package in use.

Readying a Document for Production

4. Click Modify Packages to access the Modify packages dialog box. Make desired changes and click OK.
5. Click OK on the Options and Packages dialog box to put changes into effect.

To add a package

1. Choose Typeset → Options and Packages. The Options and Packages dialog box appears.
2. Click the Package Options tab.
3. Click Add Package... The Add Package dialog box appears.
4. Click in the list to choose the package to add.
5. Click OK.
6. If desired, select package options for the package you just added.
7. Click OK on the Options and Packages dialog box.



Setting the Document Format

Version 6 has centralized almost all of a document's appearance options in the Document Format dialog box. Using this dialog, you may:

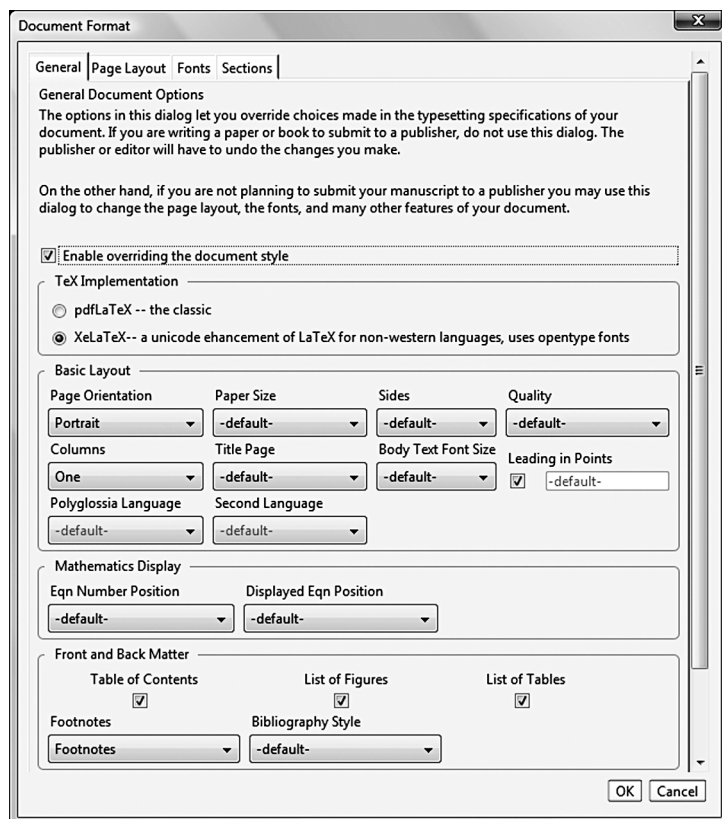
- Specify font choices for specific contexts
- Control the appearance of front-and backmatter items.
- Set the document margins, page size, and other page layout items
- Set the appearance of headers and footers
- Choose footnotes or endnotes
- Turn section numbering on and off and specify the style of numbering to use
- Set the number of columns

and much more.

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To set document formatting

1. Choose Typeset → Document Format. The Document Format dialog box appears.



2. When the dialog box first appears, options on the first three tabs are likely to be grayed out. To specify that you want to be able to change them, click the relevant override checkbox at the top of the tab.
3. If you wish to use OpenType fonts or Unicode for a variety of languages, click the XeLaTeX option.
4. There are tabs for general settings, page layout, fonts, and sections. Make your desired choices for each tab.
5. Click OK to put your choices into effect.

Your changes will appear in the typeset version of the document.

Note

Previewing and Printing a Document

The previous notes about typeset vs. direct production apply to printing.

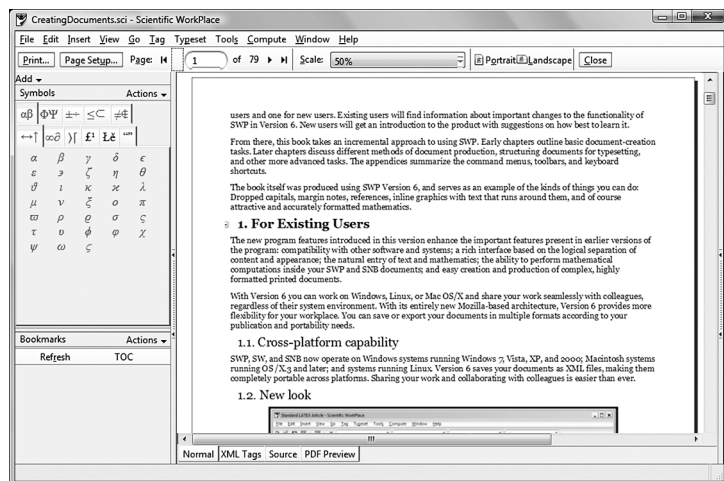
Direct Preview and Print

You can preview and print without typesetting in SWP, SW, and SNB. The program previews or prints your document according to the style, print options, and page setup specifications in effect for the document, and the page orientation and paper size specifications in effect for the default printer.

When you preview or print without typesetting, you can set options to turn on or off certain items such as helper lines and invisibles. You can also print using the zoom factor in effect for the program window or using a different zoom factor that you set, which can be useful when creating presentation materials. If you have a color printer, you can enable the color printing of lines, text, and backgrounds. The print options available are controlled from the Print Options tab in the Document Info dialog box on the File menu. Remember that these options don’t affect typesetting in any way.

To preview and print a document without typesetting

1. Choose File → Print Preview → Direct print preview. The document window changes to the direct print preview mode.



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2. You may change page setup and page orientation options if desired.
3. To print the previewed document, click the Print button. The Print dialog box appropriate to your printer appears, from which you may specify further options and begin the printing process.

Typeset Preview and Print

With Version 6, obtaining a typeset preview is easy. You need only click the PDF Preview tab at the bottom of the document window. If you have edited your document since the last such preview, your document is compiled and a new .pdf file is generated. You may directly print this .pdf if you wish.

To print a typeset document

1. Choose File → Print → PDF Print... Your document is compiled and the display changes to the PDF Preview.

The printer and disk icons at the top left of the PDF display (above Bookmarks) allow you to print and save the .pdf file outside of the program.

Tip

2. Click the printer icon at the upper left corner of the PDF display to access the print dialog box. From here you may specify print options and send the job to the printer.

Creating Documents for the Web

You can produce documents for use online as well as in print. With Version 6, the variety of formats available for online use makes it easy to share your documents across platforms, installations, and systems, on a network or on the Web.

When you create information for use online rather than in print, the information doesn't have to be contained in a single linear document. Instead, from any place in your information, you can include hypertext links, or jumps, that point readers to key ideas, related topics, and supplementary material located inside or outside your document.

Creating Hypertext Links

You can create hypertext links to information located in the same document, in other SWP, SW, and SNB documents on the current

system or network, or in documents on the Web. Hypertext links have two parts: the link and the target. The link creates a pointer to a target and defines how that pointer appears in your document. By default, text for hypertext links appears in the document window in color and in print as ordinary text.

The target can be a file, including files on the Web, or an object in a file—such as a figure, a section, or equation in SWP, SW, or SNB documents—to which you’ve assigned an identifying key or marker. Specifically, you can create links from your document to

- A marker elsewhere in the current document.
- A different document located on your computer or network, or a marker in that document.
- Any URL location or file on the Web.

The link specifies the address of the target. The form of the address differs depending on the target itself and following the model used in standard Web browsers.

When you want to link to a place within the current document, you must first establish a marker to which to link.

To add a marker for a future hyperlink

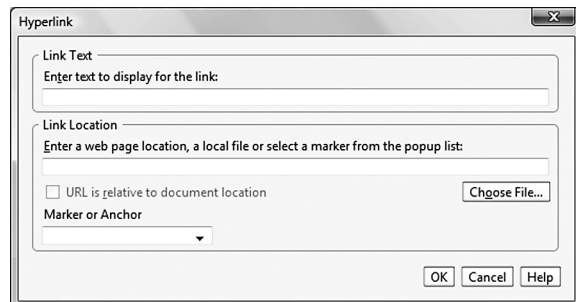
1. Click to move the insertion point to the place where you’d like to be able to link.
2. Choose Insert →Marker... The Insert Marker dialog box appears.
3. Provide a unique name for the link.
4. Click OK. The marker is added at the insertion point.

Markers may be used for hyperlink and for cross-reference destinations

To create a hyperlink to a marked location

1. Click to place the insertion point where you want the link to appear.
2. Choose Insert →Hyperlink. The Hypelink dialog box appears.

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3. Enter text to display for the link, if desired.
4. Select the marker to which to link from the Marker or anchor pop-up list.
5. Click OK.

Using the Link Location field, you can specify an external web page to which to link. Clicking Choose File... allows you to specify a location in an external file.

Exporting Web Documents

Exporting your SWP, SW, or SNB documents as web files provides a way for others to view your documents on a variety of platforms via the Internet. The Web export feature in Version 6 provides a fast way to create accurate HTML versions of your SWP, SW, or SNB documents. The files can be viewed with recent versions of the most popular browsers, provided they display MATHML (if your document contains mathematics). Several export formats are available.

When you export documents as HTML files, the program uses default formats for graphics used to represent mathematics, plots, and graphics. Also by default, the filter exports any graphics contained in your document as PNG files, saving them to a subdirectory of the folder containing the HTML file.

When you export to HTML, the program automatically creates ALT text for each graphic in your document. By default, the ALT text is the full path name of the graphic.

Because HTML files are designed for use online instead of in print, the HTML filter doesn't create those document elements that are automatically generated when you typeset your document. Those elements, which include indexes, tables of contents, section and equation numbers, and internal cross-references, don't appear in the HTML

Note

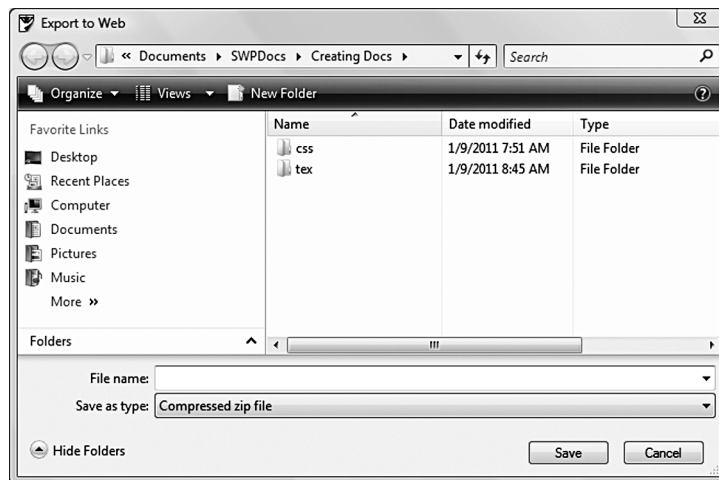
The program no longer saves mathematics as graphics. html5-compliant browsers will display math, as will Firefox or Internet Explorer with the Math Player plug-in installed.

Information for Power Users

file you export. The HTML filter completes any cross-references in the document with the key for the cross-reference target instead of the automatically generated number for the target.

To export a document as an HTML file

1. With the document open, choose File → Export to Web... The Export to Web dialog box appears.



2. Enter a name for the file.
3. Choose whether the file should be saved as a compressed file or as a set of uncompressed files in a directory.
4. Click OK. The file is exported.

Information for Power Users

Hints and Suggestions

As you write, pay attention to items that you might want to refer to either with index entries or cross references. It's easier to put markers in as you write than it is to go back later.

Keep a list of the important terms and concepts in your document. Such a 'project vocabulary' is a useful tool later on when you're building an index.








Chapter 6 | Final Touches: Document Production

Be sure and check out your print preview documents thoroughly, particularly for pagination. This can save you time, trouble, and paper.

You can set your preferred default method (direct, .pdf) for previewing and printing. Use the drop-down icon on the toolbar next to the button for either command. Choose Select Default and then your preferred method.

Shortcuts

The following shows shortcuts and accelerators for the commands and capabilities covered in this chapter.




Command	Shortcut
Print (default method)	Ctrl+p or Alt f p or 
Preview	
Document Format	Alt p d
Insert marker	
Insert cross reference	
Insert citation	
Insert hyperlink	
Insert index entry	
Insert T _E X field	T_EX



Shortcut Reference

A complete list of all the shortcuts documented in the book is included here.

Document Creation Shortcuts

Command	Shortcut
Save	Ctrl+s or Alt f s or 
New Document	Ctrl+n or Alt f n or 
Open Document	Ctrl+o or Alt f o or 
Quit program	Ctrl+q or Alt f q
Close Document	Alt f c
Save As	Alt f a
Revert	Alt f v

Appendix A | Shortcut Reference








Document Editing Shortcuts

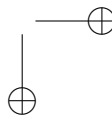
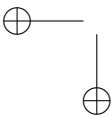
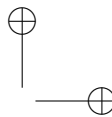
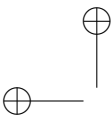
Command	Shortcut
Undo	Ctrl+z or Alt e u
Redo	Ctrl+y or Alt e r
Select All	Ctrl+a or Alt e a
Cut	Ctrl+x or Alt e t
Copy	Ctrl+c or Alt e c
Paste	Ctrl+v or Alt e p
Bold text	B
Italic text	<i>I</i>

Math Editing Shortcuts

Command	Shortcut
Toggle text/math	Ctrl+m or Alt i m
Enter fraction	Ctrl+/ or $\frac{\square}{\square}$
Insert radical	Ctrl+r or $\sqrt{\square}$
Insert superscript	Ctrl+h, Ctrl+ or N^x
Insert subscript	Ctrl+l, Ctrl+ ? or N_x
Insert display	Ctrl+d or $\frac{\square}{\square}$

Document Production Shortcuts

Command	Shortcut
Print (default method)	Ctrl+p or Alt f p or 
Preview	
Document Format	Alt p d
Insert marker	
Insert cross reference	
Insert citation	
Insert hyperlink	
Insert index entry	
Insert T _E X object	T_EX



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