
Part I. Quickbook 1.5

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Introduction

“Why program by hand in five days what you can spend five years of your life automating?”

-- Terrence Parr, author ANTLR/PCCTS

Well, QuickBook started as a weekend hack. It was originally intended to be a sample application using [Spirit](#). What is it? What you are viewing now, this documentation, is autogenerated by QuickBook. These files were generated from one master:

[quickbook.qbk](#)

Originally named QuickDoc, this funky tool that never dies, evolved into a funkier tool thanks to Eric Niebler who resurrected the project making it generate [BoostBook](#) instead of HTML. The [BoostBook](#) documentation format is an extension of [DocBook](#), an SGML or XML based format for describing documentation.



Tip

You don't need to know anything about [BoostBook](#) or [DocBook](#) to use QuickBook. A basic understanding of [DocBook](#) might help, but shouldn't be necessary. For really advanced stuff you will need to know [DocBook](#), but you can ignore it at first, and maybe continue to do so.

QuickBook is a WikiWiki style documentation tool geared towards C++ documentation using simple rules and markup for simple formatting tasks. QuickBook extends the WikiWiki concept. Like the WikiWiki, QuickBook documents are simple text files. A single QuickBook document can generate a fully linked set of nice HTML and PostScript/PDF documents complete with images and syntax- colored source code.

Features include:

- generate [BoostBook](#) xml, to generate HTML, PostScript and PDF
- simple markup to link to Doxygen-generated entities
- macro system for simple text substitution
- simple markup for italics, bold, preformatted, blurbs, code samples, tables, URLs, anchors, images, etc.
- automatic syntax coloring of code samples
- CSS support

Change Log

Version 1.1 - Boost 1.33.0

- First version to be included in boost.

Version 1.3 - Boost 1.34.0 to 1.34.1

- Quickbook file inclusion [include].
- Better xml output (pretty layout). Check out the generated XML.
- Regression testing facility: to make sure your document will always be compatible (full backward compatibility) regardless of changes to QuickBook.
- Code cleanup and refactoring.
- Allow phrase markup in the doc-info.
- Preformatted code blocks via ``code`` (double ticks) allows code in tables and lists, for example.
- Quickbook versioning; allows full backward compatibility. You have to add [quickbook 1.3] to the doc-info header to enable the new features. Without this, QuickBook will assume that the document is a pre-1.3 document.
- Better (intuitive) paragraph termination. Some markups may terminate a paragraph. Example:

```
[section x]
blah...
[endsect]
```

- Fully qualified section and headers. Subsection names are concatenated to the ID to avoid clashing. Example: doc_name.sect_name.sub_sect_name.sub_sub_sect_name
- Better and whitespace handling in code snippets.
- [xinclude] fixes up the relative path to the target XML file when input_directory is not the same as the output_directory.
- Allow untitled tables.
- Allow phrase markups in section titles.
- Allow escaping back to QuickBook from code, code blocks and inline code.
- Footnotes, with the [footnote This is the footnote] syntax.
- Post-processor bug fix for escaped XML code that it does not recognize.
- Replaceable, with the [~replacement] syntax.

Version 1.4 - Boost 1.35.0 to 1.40.0

- Generic Headers
- Code changes to allow full recursion (i.e. Collectors and push/pop functions)
- Various code cleanup/maintenance

- Templates!
- `[conceptref]` for referencing BoostBook `<concept>` entities.
- Allow escape of spaces. The escaped space is removed from the output. Syntax: `\ .`
- Nested comments are now allowed.
- Quickbook blocks can nest inside comments.
- [Import](#) facility.
- Callouts on imported code
- Simple markups can now span a whole block.
- [Blurbs](#), [Admonitions](#) and table cells (see [Tables](#)) may now contain paragraphs.
- `\n` and `[br]` are now deprecated.
- [Conditional Generation](#). Ala C++ `#ifdef`.
- Searching of included and imported files in an extensible search path with `--include-path (-I)` option.

Version 1.5 - Boost 1.41.0 to 1.42.0

- Support multiple copyright entries in document info.
- Improved SVG support.
- `[globalref]` for referencing BoostBook `<global>` entities.
- Fail on error.
- Fix crash for templates with too many arguments or trailing space.
- Improved handling of unexpected characters in code blocks.
- Improved handling of unmatched escape in code blocks.
- Support for python snippets.
- `teletype` source mode.
- Use static scoping in templates, should be a lot more intuitive.
- Accept a space between `section:` and the section id.
- Support table ids.

Version 1.5.1 - Boost 1.43.0

- Improve the post processor's list of block elements. `table`, `entry` and `varlistentry` are treated as blocks. `replaceable` is treated as an inline element.
- Check that `[section]` and `[endsect]` tags are balanced in templates.
- Add unicode escape characters, eg. `\u03B1` for α .
- Support UTF-8 files with a unicode byte order mark.

- Disallow [in simple markup. Fixes some errors with mismatched punctuation.
- Add command line flag to define macros at the command line, e.g. `quickbook "-D__italic_foo__=/foo/"`.

Version 1.5.2 - Boost 1.44.0

- Use the cygwin 1.7 API for better path handling.
- Improved boostbook generation:
 - XML encode the documentation info correctly.
 - Avoid generating empty paragraphs.
 - No longer wraps block templates in paragraphs.
 - Warns if you use invalid `doc_info` members for docbook document types.
 - Fixes some other causes of invalid boostbook, although it still generates invalid boostbook in places.
- Improved grammar:
 - Supports multiple categories in library `doc_info`.
 - No longer requires commas between authors in `docinfo`.
 - Allows empty document bodies.
 - A line containing only a comment is no longer interpreted as a paragraph break.
 - If a line starts with a comment, interpret it as a paragraph even if it's followed by whitespace or a list character.
 - Doesn't treat several consecutive blank lines as multiple paragraph breaks.
- Fixes duplicate image attribute detection.
- Fixes using code snippets more than once.
- Early work on quickbook 1.6, available using the `[quickbook 1.6]` version switch, but liable to change in future versions.
 - When automatically generating ids for headers, use the quickbook source, rather than the generated docbook.
 - Fix id generation in included files. It wasn't correctly using the main document's documentation id.
 - Correctly restore the quickbook version switch after including a file with a different version.

Version 1.5.3 - Boost 1.45.0

- Fix command line flag for defining macros.
- Fix a couple of issues with the code block parser:
 - A comment with no indentation will now end a code block.
 - Code blocks no longer have to be followed by a blank line.
- Improved tracking of file position in templates and imported code blocks.
- Better generated markup for callout lists.
- In docbook, variable list entries can only have one `listitem`, so if an entry has multiple values, merge them into one `listitem`.

- Support nested code snippets.
- Support nested blocks in document info comments.
- Revert xml escaping document info, it broke some documentation files (now a 1.6 feature).
- Further work on quickbook 1.6, still not stable.
 - Allow heading to have ids, using the syntax: [heading:id title].
 - XML escape documentation fields, with escapes to allow encoding unicode in ASCII.

Version 1.5.4 - Boost 1.46.1

Boost 1.46.0:

- Add support for lang attribute in documentation info.
- Improved anchor implementation. Especially for using an anchor before a section or heading.
- Fixed some more issues where lines containing comments were treated as blank lines.
- Allow import, include and xinclude in conditional phrases. Will allow more block elements in a future version.
- Rearrange the structure of the grammar.
- Use filesystem 3. Remove cygwin 1.5 support.

Boost 1.46.1:

- Work around optimization bug in g++ 4.4 on 64 bit linux.

Version 1.5.5 - Boost 1.47

- Tweak anchor placement for titles.
- Hard code the quickbook path into the quickbook testing tools. This means that they can be used from multiple locations.
- Generate an id for boostbook `bridgehead` elements. This results in more consistent html, since docbook generates a random id if they don't have one.
- Improved unicode support on windows. Unicode can now be used from the command line, and unicode filenames are supported. Unicode output is a bit weak.
- Check for windows paths, and warn about them.
- Fix relative path detection on windows.
- Reverse deprecation of [br], printing a single warning about generating invalid boostbook.
- Fix handling empty category attributes.
- Store data from the parser in a dynamic data structure. This simplifies the implementation and makes it easier to parse more complicated data structures.
- Improved error messages for unknown doc info attributes.
- Richer copyright syntax. Now understands: [copyright 2001-2006, 2010 One person, 2008 Another person].
- Fix delimiter checking for simple markup.

- Allow more block elements to be nested.
- Go back to using invalid markup for lists. It generates better html.
- Better anchor placement for lists.
- Pass-thru comments in code snippets.
- Use relative paths for `__FILENAME__` macro.
- Rewrite `xinclude` path generator so that it doesn't use deprecated filesystem functions.
- Allow quickbook escapes inside comments in syntax highlighted code.
- Quickbook 1.6:
 - Scope source mode changes to the file they're made in.
 - Explicit markup for lists. e.g. `[ordered_list [item1][item2]]` or `[itemized_list [item1][item2]]`.

Version 1.5.6 - Boost 1.48

- Xml encode escaped punctuation (eg. `\<` is correctly encodes to `<`).
- Rename duplicate generated ids.
- Close open sections at end of document (still warns about them).
- New anchor markup for headers, will hopefully generate better pdfs.
- Remove some whitespace around code from post processed output.

Version 1.5.7 - Boost 1.49

- Several internal changes.
- Some improved error messages.
- Better handling of block templates expanded in a phrase context.
- Avoids empty simple markup (i.e. `//` is not treated as an italic empty space).
- Better anchor markup for headers, which should be better for printing - suggested by John Maddock.
- Further improvements to the id generator.
- If sections are left unopened at the end of a document, then close them in the generated markup.
- Try to handle whitespace better at the beginning and end of code blocks.
- Handle lists that come immediately after an anchor.
- Make horizontal rules followed by multi-line comments a little more sensible.
- Better support for empty ids and titles in docinfo.
- Fix some minor regressions in SVG handling.
- Better handling of invalid command line macros.
- When auto-building quickbook, build the release version.

- Lots of changes for 1.6:
 - Scope templates in included files.
 - Support import of templates and macros.
 - Including top level quickbook blocks from source files.
 - Use doc info blocks in included quickbook files.
 - Better handling of macros with the same name.
 - `block` element.
 - Better handling of significant punctuation (e.g. escapes, square brackets).
 - Support escapes in links, anchors, images, includes etc.
 - Improved table title syntax.
 - Paragraphs nested in lists.
 - New docinfo attributes:
 - `compatibility-mode` to make it possible to upgrade documents without breaking ids.
 - `xmlbase` for escaped `xi:includes`.
 - Allow some docinfo attributes to be used before, or without, a doc info block (`quickbook`, `compatibility-mode`, `source-mode`).
 - Only add explicit alt text to images.
 - Don't put 'inline' code blocks inside paragraphs.

Version 1.5.8 - Boost 1.50

- Write dependencies to a file, using `--output-deps` ([#6691](#)).
- Fix handling of section tags in lists.
- Fix indented code blocks in lists.
- Fix handling UTF-8 code points in the syntax highlighter. Was treating each individual byte as a character. Still doesn't deal with combining code points.
- Internal changes:
 - A lot of restructuring.
 - Stop using 'v3' filesystem paths and namespaces, it's now the default version.
 - Remove awkward intrusive reference counting implementation, avoids a gcc internal compiler error ([#6794](#)), but is also a cleaner implementation.
- 1.6 changes:
 - Better handling of brackets in link values.
 - Improved handling of escaped characters in include paths.
- Starting to develop 1.7:

- Source mode for single entities.
- Callouts in code blocks.
- Escaped docbook in docinfo blocks.
- Starting to implement calling templates from link values.

Syntax Summary

A QuickBook document is composed of one or more blocks. An example of a block is the paragraph or a C++ code snippet. Some blocks have special mark-ups. Blocks, except code snippets which have their own grammar (C++ or Python), are composed of one or more phrases. A phrase can be a simple contiguous run of characters. Phrases can have special mark-ups. Marked up phrases can recursively contain other phrases, but cannot contain blocks. A terminal is a self contained block-level or phrase-level element that does not nest anything.

Blocks, in general, are delimited by two end-of-lines (the block terminator). Phrases in each block cannot contain a block terminator. This way, syntax errors such as un-matched closing brackets do not go haywire and corrupt anything past a single block.

Comments

Can be placed anywhere.

```
[/ comment (no output generated) ]
```

```
[/ comments can be nested [/ some more here] ]
```

```
[/ Quickbook blocks can nest inside comments. [*Comment this out too!]] ]
```

Document Structure

Document Info

Every document must begin with a Document Info section, which looks something like this:

```
[article The Document Title
  [quickbook 1.5]
  [version 1.0]
  [id the_document_name]
  [copyright 2000 2002 2003 Joe Blow, Jane Doe]
  [authors [Blow, Joe] [Doe, Jane]]
  [license The document's license]
  [source-mode c++]
]
```

`article` is the document type. There are several possible document types, most of these are based on docbook document elements. These are fully described in [DocBook: The Definitive Guide](#):

- [book](#)
- [article](#)
- [chapter](#)
- [part](#)
- [appendix](#)
- [preface](#)
- [qandadiv](#)
- [qandaset](#)
- [reference](#)
- [set](#)

Boostbook also adds another document type [library](#) for documenting software libraries.

So the documentation for the 'foo' library might start:

```
[library Foo
  [quickbook 1.5]
  [id foo]
  [version 1.0]
]
```

Document Info Attributes

The document info block has a few different types of attributes. They are all optional.

Quickbook specific meta data

```
[quickbook 1.5]
```

The `quickbook` attribute declares the version of quickbook the document is written for. In its absence, version 1.1 is assumed. It's recommended that you use `[quickbook 1.5]` which is the version described here.

```
[source-mode teletype]
```

The `source-mode` attribute sets the initial [Source Mode](#). If it is omitted, the default value of `c++` will be used.

Boostbook/Docbook root element attributes

```
[id foo]
```

`id` specifies the id of the document element. If it isn't specified the id is automatically generated from the title. This id is also used to generate the nested ids.

```
[lang en]
```

`lang` specifies the document language. This is used by docbook to localize the documentation. Note that Boostbook doesn't have any localization support so if you use it to generate the reference documentation it will be in English regardless.

It should be a language code drawn from ISO 639 (perhaps extended with a country code drawn from ISO 3166, as `en-US`).

```
[dirname foo]
```

`dirname` is used to specify the directory name of the library in the repository. This is a boostbook extension so it's only valid for `library` documentation blocks. It's used for some boostbook functionality, but for pure quickbook documentation has no practical effect.

Docbook Metadata

`version`, `copyright`, `authors`, `license`, `last-revision` and `bibliod` are optional information.

Boostbook Metadata

`purpose` and `category` are boostbook attributes which are only valid for `library` documents. If you use them for other document types, quickbook will warn about them, but still use them, generating invalid markup, that's just ignored by the style sheets.

Sections

Quickbook documents are structured using 'sections'. These are used to generate the table of contents, and, when generating html, to split the document into pages. This is optional but a good idea for all but the simplest of documents.

A sectioned document might look like:

```
[book Title
  [quickbook 1.5]
]

[section First Section]

[/...]

[endsect]

[section Second Section]

[/...]

[endsect]
```

Sections start with the `section` tag, and end with the `[endsect]` tag. (`[/...]` is a comment, [described later](#)).

Sections can be given an optional id:

```
 [#quickbook.ref.id]
[section:id The Section Title]
```

`id` will be the filename of the generated section. If it is not present, "The Section Title" will be normalized and become the id. Valid characters are `a-z`, `A-Z`, `0-9` and `_`. All non-valid characters are converted to underscore and all upper-case are converted to lower case. Thus: "The Section Title" will be normalized to "the_section_title".

Sections can nest, and that results in a hierarchy in the table of contents.

Phrase Level Elements

Font Styles

```
['italic], [*bold], [_underline], [^teletype], [-strikethrough]
```

will generate:

italic, **bold**, underline, teletype, ~~strikethrough~~

Like all non-terminal phrase level elements, this can of course be nested:

```
[*['bold-italic]]
```

will generate:

bold-italic

Replaceable

When you want content that may or must be replaced by the user, use the syntax:

```
[~replacement]
```

This will generate:

replacement

Quotations

```
["A question that sometimes drives me hazy: am I or are the others crazy?"]--Einstein
```

will generate:

“A question that sometimes drives me hazy: am I or are the others crazy?”--Einstein

Note the proper left and right quote marks. Also, while you can simply use ordinary quote marks like "quoted", our quotation, above, will generate correct DocBook quotations (e.g. <quote>quoted</quote>).

Like all phrase elements, quotations may be nested. Example:

```
["Here's the rule for bargains: ["Do other men, for they would do you.] That's  
the true business precept.]
```

will generate:

“Here's the rule for bargains: ‘Do other men, for they would do you.’ That's the true business precept.”

Simple formatting

Simple markup for formatting text, common in many applications, is now supported:

```
/italic/, *bold*, _underline_, =teletype=
```

will generate:

italic, **bold**, underline, teletype

Unlike QuickBook's standard formatting scheme, the rules for simpler alternatives are much stricter¹.

- Simple markups cannot nest. You can combine a simple markup with a nestable markup.
- Simple markups cannot contain any other form of quickbook markup.
- A non-space character must follow the leading markup
- A non-space character must precede the trailing markup
- A space or a punctuation must follow the trailing markup
- If the matching markup cannot be found within a block, the formatting will not be applied. This is to ensure that un-matched formatting markups, which can be a common mistake, does not corrupt anything past a single block. We do not want the rest of the document to be rendered bold just because we forgot a trailing '*'. A single block is terminated by two end of lines or the close bracket: ']'.
A line starting with the star will be interpreted as an unordered list. See [Unordered lists](#).

¹ Thanks to David Barrett, author of [Qwiki](#), for sharing these samples and teaching me these obscure formatting rules. I wasn't sure at all if [Spirit](#), being more or less a formal EBNF parser, can handle the context sensitivity and ambiguity.

Table 1. More Formatting Samples

Markup	Result
<code>*Bold*</code>	Bold
<code>*Is bold*</code>	Is bold
<code>* Not bold* *Not bold * * Not bold *</code>	<code>* Not bold* *Not bold * * Not bold *</code>
<code>This*Isn't*Bold (no bold)</code>	<code>This*Isn't*Bold (no bold)</code>
<code>(*Bold Inside*) (parenthesis not bold)</code>	(Bold Inside) (parenthesis not bold)
<code>*(Bold Outside)* (parenthesis bold)</code>	(Bold Outside) (parenthesis bold)
<code>3*4*5 = 60 (no bold)</code>	<code>3*4*5 = 60 (no bold)</code>
<code>3 * 4 * 5 = 60 (no bold)</code>	<code>3 * 4 * 5 = 60 (no bold)</code>
<code>3 *4* 5 = 60 (4 is bold)</code>	<code>3 4 5 = 60 (4 is bold)</code>
<code>*This is bold* this is not *but this is*</code>	This is bold this is not but this is
<code>*This is bold*.</code>	This is bold.
<code>*B*. (bold B)</code>	B. (bold B)
<code>['*Bold-Italic*]</code>	<i>Bold-Italic</i>
<code>*side-by*/-side/</code>	side-by-side

As mentioned, simple markups cannot go past a single block. The text from "have" to "full" in the following paragraph will be rendered as bold:

```
Baa baa black sheep, *have you any wool?
Yes sir, yes sir, three bags full!*
One for the master, one for the dame,
And one for the little boy who lives down the lane.
```

Baa baa black sheep, **have you any wool? Yes sir, yes sir, three bags full!** One for the master, one for the dame, And one for the little boy who lives down the lane.

But in the following paragraph, bold is not applied:

```
Baa baa black sheep, *have you any wool?
Yes sir, yes sir, three bags full!
One for the master, one for the dame,
And one for the little boy who lives down the lane.
```

Baa baa black sheep, **have you any wool? Yes sir, yes sir, three bags full!* One for the master, one for the dame, And one for the little boy who lives down the lane.

Inline code

Inlining code in paragraphs is quite common when writing C++ documentation. We provide a very simple markup for this. For example, this:

```
This text has inlined code `int main() { return 0; }` in it.
```

will generate:

This text has inlined code `int main() { return 0; }` in it. The code will be syntax highlighted.



Note

We simply enclose the code with the tick: "```", not the single quote: "'". Note too that ``some code`` is preferred over `[^some code]`.

Code blocks

Preformatted code simply starts with a space or a tab (See [Code](#)). However, such a simple syntax cannot be used as phrase elements in lists (See [Ordered lists](#) and [Unordered lists](#)), tables (See [Tables](#)), etc. Inline code (see above) can. The problem is, inline code does not allow formatting with newlines, spaces, and tabs. These are lost.

We provide a phrase level markup that is a mix between the two. By using the double-tick or triple-tick, instead of the single-tick, we are telling QuickBook to use preformatted blocks of code. Example:

```
``
    #include <iostream>

    int main()
    {
        std::cout << "Hello, World!" << std::endl;
        return 0;
    }
``
```

or:

```
```
 #include <iostream>

 int main()
 {
 std::cout << "Hello, World!" << std::endl;
 return 0;
 }
```
```

will generate:

```
#include <iostream>

int main()
{
    std::cout << "Hello, World!" << std::endl;
    return 0;
}
```

Source Mode

If a document contains more than one type of source code then the source mode may be changed dynamically as the document is processed. All QuickBook documents are initially in C++ mode by default, though an alternative initial value may be set in the [Document](#) section.

To change the source mode, use the `[source-mode]` markup, where `source-mode` is one of the supported modes. For example, this:

```
Python's [python] `import` is rather like C++'s [c++] `#include`. A
C++ comment `// looks like this` whereas a Python comment [python]
`# looks like this`.
```

will generate:

Python's import is rather like C++'s #include. A C++ comment // looks like this whereas a Python comment #looks like this.

Table 2. Supported Source Modes

Mode	Source Mode Markup
C++	[c++]
Python	[python]
Plain Text	[teletype]



Note

The source mode strings are lowercase.

line-break

```
[br]
```



Warning

[br] generates invalid docbook. It seems to mostly work okay but there might be problems, especially when using an alternative docbook processor.

Anchors

```
[#named_anchor]
```

A named anchor is a hook that can be referenced by a link elsewhere in the document. You can then reference an anchor with [link named_anchor Some link text]. See [Anchor links](#), [Section](#) and [Heading](#).

These anchors are global and can be accessed from anywhere in the quickbook documentation. Be careful to avoid clashes with anchors in other sections.

Links

```
[@http://www.boost.org this is [*boost's] website....]
```

will generate:

this is [boost's website](http://www.boost.org)....

URL links where the link text is the link itself is common. Example:

```
see http://spirit.sourceforge.net/
```

so, when the text is absent in a link markup, the URL is assumed. Example:

```
see [@http://spirit.sourceforge.net/]
```

will generate:

see <http://spirit.sourceforge.net/>

Boostbook also support a custom url schema for linking to files within the boost distribution:

```
[@boost:/libs/spirit/index.html the Boost.Spirit documentation]
```

will generate: [the Boost.Spirit documentation](#)

Note that this is only available when using BoostBook, and only for links - it can't be used for images.

Anchor links

You can link within a document using:

```
[link document_id.section_id.normalized_header_text The link text]
```

See sections [Section](#) and [Heading](#) for more info.

refentry links

In addition, you can link internally to an XML refentry like:

```
[link xml.refentry The link text]
```

This gets converted into `<link linkend="xml.refentry">The link text</link>`.

Like URLs, the link text is optional. If this is not present, the link text will automatically be the refentry. Example:

```
[link xml.refentry]
```

This gets converted into `<link linkend="xml.refentry">xml.refentry</link>`.

Code Links

If you want to link to a function, class, member, enum, concept, global, or header in the reference section, you can use:

```
[funcref fully::qualified::function_name The link text]
[classref fully::qualified::class_name The link text]
[memberref fully::qualified::member_name The link text]
[enumref fully::qualified::enum_name The link text]
[macroref MACRO_NAME The link text]
[conceptref ConceptName The link text]
[headerref path/to/header.hpp The link text]
[globalref fully::qualified::global The link text]
```

Again, the link text is optional. If this is not present, the link text will automatically be the function, class, member, enum, macro, concept, global, or header name. Example:

```
[classref boost::bar::baz]
```

would have "boost::bar::baz" as the link text.

Escape

The escape mark-up is used when we don't want to do any processing.

```
'''  
escape (no processing/formatting)  
'''
```

Escaping allows us to pass XML markup to [BoostBook](#) or [DocBook](#). For example:

```
'''  
<emphasis role="bold">This is direct XML markup</emphasis>  
'''
```

This is direct XML markup



Important

Be careful when using the escape. The text must conform to [BoostBook/DocBook](#) syntax.

Single char escape

The backslash may be used to escape a single punctuation character. The punctuation immediately after the backslash is passed without any processing. This is useful when we need to escape QuickBook punctuations such as [and]. For example, how do you escape the triple quote? Simple: `\'\'\'`

`\n` has a special meaning. It is used to generate line breaks.



Warning

`\n` is now deprecated, use [\[br\]](#) instead. Although, use it sparingly as it can generate invalid docbook

The escaped space: `\` also has a special meaning. The escaped space is removed from the output.

Unicode escape

You can enter any 16-bit unicode character by using `\u` followed by its 4 digit hexadecimal code, or a 32-bit character by using `\U` followed by an 8 digit hexadecimal code. eg.

```
\u03B1 + \u03B2
```

will generate:

$\alpha + \beta$

Images

```
[$image.jpg]
```

From version 1.5, you can also use [DocBook imagedata attributes](#):

```
[$image.jpg [width 200in] [height 200in]]
```

Footnotes

As of version 1.3, QuickBook supports footnotes. Just put the text of the footnote in a `[footnote]` block, and the text will be put at the bottom of the current page. For example, this:

```
[footnote A sample footnote]
```

will generate this².

² A sample footnote

Macro Expansion

```
__a_macro_identifier__
```

See [Macros](#) for details.

Template Expansion

[a_template_identifier]

See [Templates](#) for details.

Conditional Generation

Like C++ `#ifdef`, you can generate phrases depending on the presence of a macro. Example:

```
[? __to_be__ To be or not to be]
```

Here, the phrase "To be or not to be" will only be generated if the macro symbol `__to_be__` has been previously defined. The phrase above will not do anything since we haven't defined `__to_be__`. Now, let's define the symbol:

```
[def __to_be__]
```

And try again:

To be or not to be

Yes!

Block Level Elements

xinclude

You can include another XML file with:

```
[xinclude file.xml]
```

This is useful when file.xml has been generated by Doxygen and contains your reference section.

Paragraphs

Paragraphs start left-flushed and are terminated by two or more newlines. No markup is needed for paragraphs. QuickBook automatically detects paragraphs from the context. Block markups [section, endsect, h1, h2, h3, h4, h5, h6, blurb, (block-quote) ':', pre, def, table and include] may also terminate a paragraph. This is a new paragraph...

Lists

Ordered lists

```
# One  
# Two  
# Three
```

will generate:

1. One
2. Two
3. Three

List Hierarchies

List hierarchies are supported. Example:

```
# One  
# Two  
# Three  
  # Three.a  
  # Three.b  
  # Three.c  
# Four  
  # Four.a  
    # Four.a.i  
    # Four.a.ii  
# Five
```

will generate:

1. One
2. Two
3. Three
 - a. Three.a
 - b. Three.b
 - c. Three.c
4. Fourth
 - a. Four.a
 - i. Four.a.i
 - ii. Four.a.ii
5. Five

Long List Lines

Long lines will be wrapped appropriately. Example:

```
# A short item.
# A very long item. A very long item. A very long item.
  A very long item. A very long item. A very long item.
  A very long item. A very long item. A very long item.
  A very long item. A very long item. A very long item.
  A very long item. A very long item. A very long item.
# A short item.
```

1. A short item.
2. A very long item. A very long item.
3. A short item.

Unordered lists

```
* First
* Second
* Third
```

will generate:

- First
- Second
- Third

Mixed lists

Mixed lists (ordered and unordered) are supported. Example:

```
# One
# Two
# Three
  * Three.a
  * Three.b
  * Three.c
# Four
```

will generate:

1. One
2. Two
3. Three
 - Three.a
 - Three.b

- Three.c

4. Four

And...

```
# 1
  * 1.a
    # 1.a.1
    # 1.a.2
  * 1.b
# 2
  * 2.a
  * 2.b
    # 2.b.1
    # 2.b.2
      * 2.b.2.a
      * 2.b.2.b
```

will generate:

1. 1

- 1.a
 - a. 1.a.1
 - b. 1.a.2

- 1.b

2. 2

- 2.a
- 2.b
 - a. 2.b.1
 - b. 2.b.2
 - 2.b.2.a
 - 2.b.2.b

Code

Preformatted code starts with a space or a tab. The code will be syntax highlighted according to the current [Source Mode](#):

```
#include <iostream>

int main()
{
    // Sample code
    std::cout << "Hello, World\n";
    return 0;
}
```

```
import cgi

def cookForHtml(text):
    '''"Cooks" the input text for HTML.'''

    return cgi.escape(text)
```

Macros that are already defined are expanded in source code. Example:

```
[def __array__ [@http://www.boost.org/doc/html/array/reference.html array]]
[def __boost__ [@http://www.boost.org/libs/libraries.htm boost]]

using __boost__::__array__;
```

Generates:

```
using boost::array;
```

Escaping Back To QuickBook

Inside code, code blocks and inline code, QuickBook does not allow any markup to avoid conflicts with the target syntax (e.g. c++). In case you need to switch back to QuickBook markup inside code, you can do so using a language specific *escape-back* delimiter. In C++ and Python, the delimiter is the double tick (back-quote): ```` and `````. Example:

```
void foo()  
{  
}
```

Will generate:

```
void foo()  
{  
}
```

When escaping from code to QuickBook, only phrase level markups are allowed. Block level markups like lists, tables etc. are not allowed.

Preformatted

Sometimes, you don't want some preformatted text to be parsed as source code. In such cases, use the `[pre ...]` markup block.

```
[pre
  Some *preformatted* text                Some *preformatted* text
      Some *preformatted* text            Some *preformatted* text
          Some *preformatted* text        Some *preformatted* text
]
```

Spaces, tabs and newlines are rendered as-is. Unlike all quickbook block level markup, `pre` (and `Code`) are the only ones that allow multiple newlines. The markup above will generate:

```
Some preformatted text                Some preformatted text
      Some preformatted text            Some preformatted text
          Some preformatted text        Some preformatted text
```

Notice that unlike `Code`, phrase markup such as font style is still permitted inside `pre` blocks.

Blockquote

[:sometext...]

Indents the paragraph. This applies to one paragraph only.

Admonitions

```
[note This is a note]
[tip This is a tip]
[important This is important]
[caution This is a caution]
[warning This is a warning]
```

generates [DocBook](#) admonitions:



Note

This is a note



Tip

This is a tip



Important

This is important



Caution

This is a caution



Warning

This is a warning

These are the only admonitions supported by [DocBook](#). So, for example `[information This is some information]` is unlikely to produce the desired effect.

Headings

```
[h1 Heading 1]
[h2 Heading 2]
[h3 Heading 3]
[h4 Heading 4]
[h5 Heading 5]
[h6 Heading 6]
```

Heading 1

Heading 2

Heading 3

Heading 4

Heading 5

Heading 6

Headings 1-3 [h1 h2 and h3] will automatically have anchors with normalized names with `name="document_id.section_id.normalized_header_text"` (i.e. valid characters are a-z, A-Z, 0-9 and `_`. All non-valid characters are converted to underscore and all upper-case are converted to lower-case. For example: Heading 1 in section Section 2 will be normalized to `section_2.heading_1`). You can use:

```
[link document_id.section_id.normalized_header_text The link text]
```

to link to them. See [Anchor links](#) and [Section](#) for more info.

Generic Heading

In cases when you don't want to care about the heading level (1 to 6), you can use the *Generic Heading*:

```
[heading Heading]
```

The *Generic Heading* assumes the level, plus one, of the innermost section where it is placed. For example, if it is placed in the outermost section, then, it assumes *h2*.

Headings are often used as an alternative to sections. It is used particularly if you do not want to start a new section. In many cases, however, headings in a particular section is just flat. Example:

```
[section A]
[h2 X]
[h2 Y]
[h2 Z]
[endsect]
```

Here we use *h2* assuming that section A is the outermost level. If it is placed in an inner level, you'll have to use *h3*, *h4*, etc. depending on where the section is. In general, it is the section level plus one. It is rather tedious, however, to scan the section level everytime. If you rewrite the example above as shown below, this will be automatic:

```
[section A]
[heading X]
[heading Y]
[heading Z]
[endsect]
```

They work well regardless where you place them. You can rearrange sections at will without any extra work to ensure correct heading levels. In fact, with *section* and *heading*, you have all you need. *h1..h6* becomes redundant. *h1..h6* might be deprecated in the future.

Macros

```
[def macro_identifier some text]
```

When a macro is defined, the identifier replaces the text anywhere in the file, in paragraphs, in markups, etc. `macro_identifier` is a string of non- white space characters except `]`. A macro may not follow an alphabetic character or the underscore. The replacement text can be any phrase (even marked up). Example:

```
[def sf_logo [http://sourceforge.net/sflogo.php?group_id=28447&type=1]]
sf_logo
```

Now everywhere the `sf_logo` is placed, the picture will be inlined.



Tip

It's a good idea to use macro identifiers that are distinguishable. For instance, in this document, macro identifiers have two leading and trailing underscores (e.g. `__spirit__`). The reason is to avoid unwanted macro replacement.

Links (URLS) and images are good candidates for macros. **1)** They tend to change a lot. It is a good idea to place all links and images in one place near the top to make it easy to make changes. **2)** The syntax is not pretty. It's easier to read and write, e.g. `__spirit__` than `[@http://spirit.sourceforge.net Spirit]`.

Some more examples:

```
[def :-)          [theme/smiley.png]]
[def __spirit__  [http://spirit.sourceforge.net Spirit]]
```

(See [Images](#) and [Links](#))

Invoking these macros:

```
Hi __spirit__ :-)
```

will generate this:

Hi [Spirit](#) 

Predefined Macros

Quickbook has some predefined macros that you can already use.

Table 3. Predefined Macros

Macro	Meaning	Example
__DATE__	Today's date	2013-Feb-12
__TIME__	The current time	10:18:34 AM
__FILENAME__	Quickbook source filename	block.qbk

Templates

Templates provide a more versatile text substitution mechanism. Templates come in handy when you need to create parameterizable, multi-line, boilerplate text that you specify once and expand many times. Templates accept one or more arguments. These arguments act like place-holders for text replacement. Unlike simple macros, which are limited to phrase level markup, templates can contain block level markup (e.g. paragraphs, code blocks and tables).

Example template:

```
[template person[name age what]
Hi, my name is [name]. I am [age] years old. I am a [what].
]
```

Template Identifier

Template identifiers can either consist of:

- An initial alphabetic character or the underscore, followed by zero or more alphanumeric characters or the underscore. This is similar to your typical C/C++ identifier.
- A single character punctuation (a non-alphanumeric printable character)

Formal Template Arguments

Template formal arguments are identifiers consisting of an initial alphabetic character or the underscore, followed by zero or more alphanumeric characters or the underscore. This is similar to your typical C/C++ identifier.

A template formal argument temporarily hides a template of the same name at the point where the [template is expanded](#). Note that the body of the `person` template above refers to `name` `age` and `what` as `[name]` `[age]` and `[what]`. `name` `age` and `what` are actually templates that exist in the duration of the template call.

Template Body

The template body can be just about any QuickBook block or phrase. There are actually two forms. Templates may be phrase or block level. Phrase templates are of the form:

```
[template sample[arg1 arg2...argN] replacement text... ]
```

Block templates are of the form:

```
[template sample[arg1 arg2...argN]
replacement text...
]
```

The basic rule is as follows: if a newline immediately follows the argument list, then it is a block template, otherwise, it is a phrase template. Phrase templates are typically expanded as part of phrases. Like macros, block level elements are not allowed in phrase templates.

Template Expansion

You expand a template this way:

```
[template_identifier arg1..arg2..arg3]
```

At template expansion, you supply the actual arguments. The template will be expanded with your supplied arguments. Example:

```
[person James Bond..39..Spy]
[person Santa Clause..87..Big Red Fatso]
```

Which will expand to:

Hi, my name is James Bond. I am 39 years old. I am a Spy.

Hi, my name is Santa Clause. I am 87 years old. I am a Big Red Fatso.



Caution

A word of caution: Templates are recursive. A template can call another template or even itself, directly or indirectly. There are no control structures in QuickBook (yet) so this will always mean infinite recursion. QuickBook can detect this situation and report an error if recursion exceeds a certain limit.

Each actual argument can be a word, a text fragment or just about any [QuickBook phrase](#). Arguments are separated by the double dot " ." and terminated by the close parenthesis.

Note that templates and template parameters can't be expanded everywhere, only where text is interpreted as a phrase. So they can't be expanded in places such as table titles and link's urls. If you want to use a template to generate a link based of the template parameter, you can't use a normal link and will need to use escaped docbook instead. Example:

```
[template boost_ticket[key] '''<ulink url="https://svn.boost.org/trac/boost/ticket/
et/'''[key]'''>#'''[key]'''</ulink>''']

[boost_ticket 2035]
```

will expand to:

[#2035](#)



Caution

Since quickbook doesn't understand the context where the parameter is being used, it will interpret it as quickbook markup, so when writing a template like this, you'll need to escape any meaningful punctuation.

Nullary Templates

Nullary templates look and act like simple macros. Example:

```
[template alpha[]&apos;&apos;&apos;&#945;&apos;&apos;&apos;]
[template beta[]&apos;&apos;&apos;&#946;&apos;&apos;&apos;]
```

Expanding:

```
Some squiggles...[*[alpha][beta]]
```

We have:

Some squiggles...αβ

The difference with macros are

- The explicit [template expansion syntax](#). This is an advantage because, now, we don't have to use obscure naming conventions like double underscores (e.g. `__alpha__`) to avoid unwanted macro replacement.
- The template is expanded at the point where it is invoked. A macro is expanded immediately at its point of declaration. This is subtle and can cause a slight difference in behavior especially if you refer to other macros and templates in the body.

The empty brackets after the template identifier (`alpha[]`) indicates no arguments. If the template body does not look like a template argument list, we can elide the empty brackets. Example:

```
[template aristotle_quote Aristotle: [*['Education is the best provision
for the journey to old age.]]]
```

Expanding:

```
Here's a quote from [aristotle_quote].
```

We have:

Here's a quote from Aristotle: **Education is the best provision for the journey to old age..**

The disadvantage is that you can't avoid the space between the template identifier, `aristotle_quote`, and the template body "Aristotle...". This space will be part of the template body. If that space is unwanted, use empty brackets or use the space escape: `"\ "`. Example:

```
[template tag\ _tag]
```

Then expanding:

```
`struct` x[tag];
```

We have:

```
struct x_tag;
```

You have a couple of ways to do it. I personally prefer the explicit empty brackets, though.

Simple Arguments

As mentioned, arguments are separated by the double dot `". . "`. Alternatively, if the double dot isn't used and more than one argument is expected, QuickBook uses whitespace to separate the arguments, following this logic:

- Break the last argument into two, at the first space found (`' ', '\n', \t'` or `'\r'`).
- Repeat until there are enough arguments or if there are no more spaces found (in which case, an error is reported).

For example:

```
[template simple[a b c d] [a][b][c][d]]
[simple w x y z]
```

will produce:

```
wxyz
```

"w x y z" is initially treated as a single argument because we didn't supply any `". . "` separators. However, since `simple` expects 4 arguments, "w x y z" is broken down iteratively (applying the logic above) until we have "w", "x", "y" and "z".

QuickBook only tries to get the arguments it needs. For example:

```
[simple w x y z trail]
```

will produce:

wxyz trail

The arguments being: "w", "x", "y" and "z trail".



Caution

The behavior described here is for QuickBook 1.5. In older versions you could use both the double dot and whitespace as separators in the same template call. If your document is marked up as an older version, it will use the old behavior, which is described in the [QuickBook 1.4 documentation](#).

Punctuation Templates

With templates, one of our objectives is to allow us to rewrite QuickBook in QuickBook (as a qbk library). For that to happen, we need to accommodate single character punctuation templates which are fairly common in QuickBook. You might have noticed that single character punctuations are allowed as [template identifiers](#). Example:

```
[template ![bar] <hey>[bar]</hey>]
```

Now, expanding this:

```
[!baz]
```

We will have:

```
<hey>baz</hey>
```

Blurbs

```
[blurb :-) [*An eye catching advertisement or note...]
```

```
  Spirit is an object-oriented recursive-descent parser generator framework  
  implemented using template meta-programming techniques. Expression templates  
  allow us to approximate the syntax of Extended Backus-Normal Form (EBNF)  
  completely in C++.
```

```
]
```

will generate this:



An eye catching advertisement or note...

[Spirit](#) is an object-oriented recursive-descent parser generator framework implemented using template meta-programming techniques. Expression templates allow us to approximate the syntax of Extended Backus-Normal Form (EBNF) completely in C++.



Note

Prefer [admonitions](#) wherever appropriate.

Tables

```
[table:id A Simple Table
  [[Heading 1] [Heading 2] [Heading 3]]
  [[R0-C0]      [R0-C1]      [R0-C2]]
  [[R1-C0]      [R1-C1]      [R1-C2]]
  [[R2-C0]      [R2-C1]      [R2-C2]]
]
```

will generate:

Table 4. A Simple Table

Heading 1	Heading 2	Heading 3
R0-C0	R0-C1	R0-C2
R1-C0	R1-C1	R1-C2
R2-C0	R2-C1	R2-C2

The table title is optional. The first row of the table is automatically treated as the table header; that is, it is wrapped in `<thead>...</thead>` XML tags. Note that unlike the original QuickDoc, the columns are nested in `[cells...]`.

Giving tables an id is a new feature for quickbook 1.5 onwards. As with sections, the id is optional. If the table has a title but no id, an id will be generated from the title. The table above can be linked to using:

```
[link quickbook.syntax.block.tables.id link to table]
```

which will generate:

[link to table](#)

The syntax is free-format and allows big cells to be formatted nicely. Example:

```
[table Table with fat cells
  [[Heading 1] [Heading 2]]
  [
    [Row 0, Col 0: a small cell]
    [
      Row 0, Col 1: a big fat cell with paragraphs

      Boost provides free peer-reviewed portable C++ source libraries.

      We emphasize libraries that work well with the C++ Standard Library.
      Boost libraries are intended to be widely useful, and usable across
      a broad spectrum of applications. The Boost license encourages both
      commercial and non-commercial use.
    ]
  ]
  [
    [Row 1, Col 0: a small cell]
    [Row 1, Col 1: a small cell]
  ]
]
```

and thus:

Table 5. Table with fat cells

Heading 1	Heading 2
Row 0, Col 0: a small cell	Row 0, Col 1: a big fat cell with paragraphs Boost provides free peer-reviewed portable C++ source libraries. We emphasize libraries that work well with the C++ Standard Library. Boost libraries are intended to be widely useful, and usable across a broad spectrum of applications. The Boost license encourages both commercial and non-commercial use.
Row 1, Col 0: a small cell	Row 1, Col 1: a small cell

Here's how to have preformatted blocks of code in a table cell:

```
[table Table with code
  [[Comment] [Code]]
  [
    [My first program]
    [``
      #include <iostream>

      int main()
      {
        std::cout << "Hello, World!" << std::endl;
        return 0;
      }
    ``]
  ]
]
```

Table 6. Table with code

Comment	Code
My first program	<pre>#include <iostream> int main() { std::cout << "Hello, World!" << std::endl; return 0; }</pre>

Variable Lists

```
[variablelist A Variable List
  [[term 1] [The definition of term 1]]
  [[term 2] [The definition of term 2]]
  [[term 3] [
The definition of term 3.

Definitions may contain paragraphs.
]]
]
```

will generate:

A Variable List

term 1 The definition of term 1

term 2 The definition of term 2

term 3 The definition of term 3.

 Definitions may contain paragraphs.

The rules for variable lists are the same as for tables, except that only 2 "columns" are allowed. The first column contains the terms, and the second column contains the definitions. Those familiar with HTML will recognize this as a "definition list".

Include

You can include one QuickBook file from another. The syntax is simply:

```
[include someother.qbk]
```

The included file will be processed as if it had been cut and pasted into the current document, with the following exceptions:

- The `__FILENAME__` predefined macro will reflect the name of the file currently being processed.
- Any macros defined in the included file are scoped to that file.

The `[include]` directive lets you specify a document id to use for the included file. When this id is not explicitly specified, the id defaults to the filename ("someother", in the example above). You can specify the id like this:

```
[include:someid someother.qbk]
```

All auto-generated anchors will use the document id as a unique prefix. So for instance, if there is a top section in `someother.qbk` named "Intro", the named anchor for that section will be "someid.intro", and you can link to it with `[link someid.intro The Intro]`.

Import

When documenting code, you'd surely need to present code from actual source files. While it is possible to copy some code and paste them in your QuickBook file, doing so is error prone and the extracted code in the documentation tends to get out of sync with the actual code as the code evolves. The problem, as always, is that once documentation is written, the tendency is for the docs to languish in the archives without maintenance.

QuickBook's import facility provides a nice solution.

Example

You can effortlessly import code snippets from source code into your QuickBook. The following illustrates how this is done:

```
[import ../test/stub.cpp]
[foo]
[bar]
```

The first line:

```
[import ../test/stub.cpp]
```

collects specially marked-up code snippets from [stub.cpp](#) and places them in your QuickBook file as virtual templates. Each of the specially marked-up code snippets has a name (e.g. `foo` and `bar` in the example above). This shall be the template identifier for that particular code snippet. The second and third line above does the actual template expansion:

```
[foo]
[bar]
```

And the result is:

This is the **foo** function.

This description can have paragraphs...

- lists
- etc.

And any quickbook block markup.

```
std::string foo()
{
    // return 'em, foo man!
    return "foo";
}
```

This is the **bar** function

```
std::string bar()
{
    // return 'em, bar man!
    return "bar";
}
```

Some trailing text here

Code Snippet Markup

Note how the code snippets in [stub.cpp](#) get marked up. We use distinguishable comments following the form:

```
//[id
some code here
//]
```

The first comment line above initiates a named code-snippet. This prefix will not be visible in quickbook. The entire code-snippet in between `//[id` and `//]` will be inserted as a template in quickbook with name `id`. The comment `//]` ends a code-snippet This too will not be visible in quickbook.

Special Comments

Special comments of the form:

```
//` some [*quickbook] markup here
```

and:

```
/*` some [*quickbook] markup here */
```

will be parsed by QuickBook. This can contain quickbook *blocks* (e.g. sections, paragraphs, tables, etc). In the first case, the initial slash-slash, tick and white-space shall be ignored. In the second, the initial slash-star-tick and the final star-slash shall be ignored.

Special comments of the form:

```
/*<- this C++ comment will be ignored ->*/
```

or

```
/*<-* "this c++ code will be ignored" /*->*/
```

or

```
//<-
private:
    int some_member;
//->
```

can be used to inhibit code from passing through to quickbook. All text between the delimiters will simply be ignored.

Comments of this form:

```
//=int main() {}
```

or

```
/*=foo()*/
```

will be displayed as code that isn't in comments. This allows you to include some code in the snippet but not actually use it when compiling your example.

- ❶ Constructor
- ❷ Destructor
- ❸ Get the `n` member variable
- ❹ Set the `n` member variable

See the actual code here: <boost:/tools/quickbook/test/stub.cpp>

Language Versions

Stable Versions

Since quickbook 1.3 the `quickbook` attribute in the document block selects which version of the language to use. Not all changes to quickbook are implemented using a version switch, it's mainly just the changes that change the way a document is interpreted or would break existing documentation.

Quickbook 1.3 and later

- Introduced quickbook language versioning.
- In the documentation info, allow phrase markup in license and purpose attributes.
- Fully qualified section and headers. Subsection names are concatenated to the ID to avoid clashing. Example:
`doc_name.sect_name.sub_sect_name.sub_sub_sect_name`.

Quickbook 1.5 and later

- Ignore template argument separators inside square brackets.
- Don't separate the final template argument if the `..` separator was used. i.e. never mix `..` and whitespace separators.
- Statically scope templates and their arguments rather than dynamically scope them.
- Give table ids, and let you set them.
- Allow spaces between the `:` character and ids in elements which can have ids.

Quickbook 1.6

Everything described in here may change depending on the feedback received.

Includes with docinfo

In quickbook 1.5 if you include a file which starts with a docinfo block, it's ignored and the file is expanded in place. In quickbook 1.6 it's treated as a document nested in the current position. So if it has an 'article' docinfo block, boostbook 'article' tags are used.

It also mostly generates the same markup as if the file was converted separately - so for example, the same ids are generated, the document is processed using the language version specified in the docinfo block. If no language is specified it uses the default (1.1) not the version of the document that included it. This might seem surprising, but is required so that quickbook will convert it the same way as if it was converted separately.

So for the most part, includes with a docinfo are like an `xinclude`, apart from a couple of differences. Templates and macros defined in the parent document are used in the included document, and the id generator rewrites ids that clash between multiple documents.

If an included document doesn't have a docinfo block, it's just included as before.

Scoping templates and macros

A long standing quickbook bug is that macros are scoped by file, but templates aren't. So you can define templates in a separate file and include them, but not macros. This has been fixed so that templates defined in one file won't 'leak' into another.

But this means there's no way to define templates in a separate file - a useful feature. To do this the `import` element has been adapted to also support quickbook files. If a quickbook file is imported, the templates and macros defined in it are added to the current scope, but nothing else contained in that file is used. This could be used to create template and macro library files. This matches the existing semantics of importing code snippets.

When importing templates, they're bound to the language version of the file they were defined in. This means that if you import them into a file with a different version it won't change the way they're interpreted. Although, as we'll see [later](#), the generated boostbook is slightly different.

Including C++ and python files

As `import` now supports quickbook files, `include` also supports source files. It includes any quickbook contained in comments outside of code snippets. Code snippets in the file are available to be expanded within the file but are scoped to the file. In exactly the same manner as when templates and macros are scoped in an included quickbook file.

Id Generation

Id generation in quickbook 1.5 is a bit buggy, but that can't be fixed without a version switch as it will break existing documents. For example in quickbook 1.5 when you include a quickbook file, it stops using the explicit id from the documentation info and generates a new id from the document title to use instead.

The id generator in quickbook 1.6 has been improved in some other ways to. When generating ids from section titles, table titles etc. it always uses the quickbook source rather than the generated boostbook to generate the id. It then cleans up the id slightly, trimming leading and trailing underscores and replacing multiple underscores with a single underscore. Then if the newly generated part of the id is longer than 32 characters it truncates it.

While the new id generator generally creates better ids, it's more likely to generate duplicates so quickbook needs to handle duplicates better. When there are multiple identical ids, quickbook chooses one to use based on a priority list - anchors are preferred, then explicit document and section ids, then other explicit ids, followed by the generated ids. Then any other explicit ids in the document have numbers added to avoid duplicates - first the explicit ids in the order they appear and then the generated ids. A generated id which accidentally clashes with an explicit id should never change the explicit id.

Older language versions still generate the same ids they always have, with the exception of duplicate ids which are handled using the new mechanism - this is not a breaking change since duplicate ids can't be linked to.

Compatibility Mode

As mentioned before, changing the id generator will break links in documents written using an old language version. So to ease the transition a 'compatibility mode' is used, this just requires an extra attribute in the docinfo, for example if you're converting a 1.5 document to 1.6:

```
[article Document
 [quickbook 1.6]
 [compatibility-mode 1.5]
 ]
```

This means the document will be parsed as 1.6, using all the new features, but ids (and possibly other markup) will generated as they were for a 1.5 document.

Compatibility mode is also implicitly used when generating templates written in a different language version to the current document. So the template is parsed in the version it was written for, but generates boostbook that's compatible with the current document.

Version info outside of document info block

Can now use `quickbook` and `compatibility-mode` tags at the beginning of the file. Either before or without a document info block. This is useful for files just containing templates, which don't really need a document info block.

If you don't specify `compatibility-mode`, the behaviour depends on whether or not you have a docinfo block. If you do it uses the file's quickbook version, if you don't it inherits the parent's compatibility mode even if you specify a quickbook version. This is the right thing to do - mixing compatibility modes within documents is problematic. It might actually be a mistake to allow them to specified outside docinfo blocks.

This change is also backdated to older versions. So when including from an older version, the included file's version can be set (older versions ignore document info in included files).

Explicit Heading Ids

Headings can now be given explicit ids:

```
[heading:id A heading with an explicit id]
```

Punctuation changes

In 1.6, quickbook is more consistent about how it parses punctuation. Escapes are now supported in links, anchors, table titles, image attributes etc. The flip side of this is that quickbook is now stricter about unescaped brackets. They can still be used, but need to match up, otherwise there's an error.

Since quickbook now matches up square brackets it will fix some mis-parses. For example `[*[bold]]` used to parse as **[bold]** - note that the closing square bracket isn't bold, now it parses as **[bold]**. In this case it's just a subtle visual difference, but it could cause odd problems, for example when nested in a table cell.

Table Titles

Table titles are now parsed as phrases, so some markup is allowed:

```
[table [*[bold title]]
```

Which is an empty table with a bold title. The title is no longer ended by a newline, but by either a closing square bracket, or two opening square brackets - which you get at the start of the table cells, so this now works:

```
[table Simple[[heading 1][heading 2]][[cell 1][cell 2]]]
```

XML base

A problem when using `xi:include` tags in escaped boostbook is that you typically don't know which directory the boostbook file will be in, so it's impossible to use relative links. This can be fixed by adding an `xml:base` attribute to the document tag. To do this use the new `xmlbase` attribute in your document's `docinfo` block. For example to make escaped `xi:includes` be relative to the directory of the file:

```
[library Library documentation
[quickbook 1.6]
[xmlbase .]
]
```

Any paths in `xinclude` elements will be rewritten accordingly. Note that most documents won't need this, and probably shouldn't use it. Only use it if you're totally sure that you will need it.

New Elements

New elements in 1.6 (to be documented later):

- `block`
- `ordered_list`
- `itemized_list`
- `role`

Pargraphs in lists

I'm still refining this, but paragraphs and block elements can now be used in lists:

```
* Para 1
  Para 2
  * Nested Para 1
    Nested Para 2
      Code block
  Para 3
```

generates:

- Para 1
 - Para 2
 - Nested Para 1
 - Nested Para 2

```
Code block
```

Para 3

The docbook markup that this generates is pretty bad, but seems to create okay html.

Quickbook 1.7

Source mode for single entities

1.7 introduces a new `!` element type for setting the source mode of a single entity without changing the source mode otherwise. This can be used for code blocks and other elements. For example:

```
[!c++]
    void foo() {};

[!python]```def foo():```
```

It can also be used to set the source mode for elements:

```
[!teletype][table
  [[code][meaning]]
  [[`+`][addition]]
]
```

When used a section, it's only set for the section element, not the whole section.

Currently it does support other syntactic entities such as paragraphs and lists. I'm not sure if it would be a good idea.

Callouts in code block

Currently callouts can only be used in code snippets. 1.7 add support in normal code blocks. The same syntax is used as in code snippets, the callout descriptions appear immediately after the code block.

Escaped docbook in docinfo blocks

Quickbook docinfo attributes will probably never be as rich as docbook attributes so to allow more flexible markup, not supported by quickbook escaped docbook can be included in the docinfo block:

```
[article Some article
[quickbook 1.7]
'''<author>
  <firstname>John</firstname>
  <surname>Doe</surname>
  <email>john.doe@example.com</email>
</author>'''
]
```

The escaped docbook is always placed at the end of the docinfo block, so it shouldn't be assumed that it will interleave the markup. A mixture of quickbook and docbook attributes for the same information will not work well.

Templates in link values

There's very preliminary support for calling templates in link values. A lot more work needs to be done, including:

- Considering other places where templates could be called (e.g. images are quite tricky, as templates could get confused with attributes, should templates be callable from something like an element's id?).
- Trimming spaces from the body of the template (which can cause surprising results).
- Checking that the contents of the template are appropriate for the context. Possibly even using a different grammar.

Installation and configuration

This section provides some guidelines on how to install and configure BoostBook and Quickbook under several operating systems. Before installing you'll need a local copy of boost, and to install the version of bjam which comes with it (or a later version).

Mac OS X

The simplest way to install on OS X is to use macports. If you don't want to use macports and are using Snow Leopard or later, there are instructions [later](#). Earlier versions of OS X need to use something like macports to install `xsltproc` because the version they come with is very old, and doesn't have good enough XSL support for boostbook's stylesheets.

Mac OS X, using macports

First install the `libxslt`, `docbook-xsl` and `docbook-xml-4.2` packages:

```
sudo port install libxslt docbook-xsl docbook-xml-4.2
```

Next, we need to configure Boost Build to compile BoostBook files. Add the following to your `user-config.jam` file, which should be in your home directory. If you don't have one, create a file containing this text. For more information on setting up `user-config.jam`, see the [Boost Build documentation](#).

```
using xsltproc
  : /opt/local/bin/xsltproc
  ;

using boostbook
  : /opt/local/share/xsl/docbook-xsl/
  : /opt/local/share/xml/docbook/4.2
  ;
```

The above steps are enough to get a functional BoostBook setup. Quickbook will be automatically built when needed. If you want to avoid these rebuilds:

1. Go to Quickbook's source directory (`BOOST_ROOT/tools/quickbook`).
2. Build the utility by issuing `bjam`.
3. Copy the resulting `quickbook` binary (located at `BOOST_ROOT/dist/bin`) to a safe place. The traditional location is `/usr/local/bin`.
4. Add the following to your `user-config.jam` file, using the full path of the `quickbook` executable:

```
using quickbook
  : /usr/local/bin/quickbook
  ;
```

If you need to build documentation that uses Doxygen, you will need to install it as well:

```
sudo port install doxygen
```

And then add to your `user-config.jam`:

```
using doxygen ;
```

Alternatively, you can install from the official doxygen `dmg`. This is described at [the end of the next section](#).

Mac OS X, Snow Leopard (or later)

Section contributed by Julio M. Merino Vidal

The text below assumes you want to install all the necessary utilities in a system-wide location, allowing any user in the machine to have access to them. Therefore, all files will be put in the `/usr/local` hierarchy. If you do not want this, you can choose any other prefix such as `~/Applications` for a single-user installation.

Snow Leopard comes with `xsltproc` and all related libraries preinstalled, so you do not need to take any extra steps to set them up. It is probable that future versions will include them too, but these instructions may not apply to older versions.

To get started:

1. Download [Docbook XML 4.2](#) and unpack it inside `/usr/local/share/xml/docbook/4.2`.
2. Download the latest [Docbook XSL](#) version and unpack it. Be careful that you download the correct file, sometimes the 'looking for the latest version' link often links to another file. The name should be of the form `docbook-xsl-1.m.n.tar.bz2`, with no suffix such as `-ns.tar.bz2` or `-doc.tar.bz2`. Put the results in `/usr/local/share/xsl/docbook`, thus effectively removing the version number from the directory name (for simplicity).
3. Add the following to your `user-config.jam` file, which should live in your home directory (`~/Users/<your_username>`). You must already have it somewhere or otherwise you could not be building Boost (i.e. missing tools configuration).

```
using xsltproc ;

using boostbook
  : "/usr/local/share/xsl/docbook"
  : "/usr/local/share/xml/docbook/4.2"
  ;
```

The above steps are enough to get a functional BoostBook setup. Quickbook will be automatically built when needed. If you want to avoid these rebuilds and install a system-wide Quickbook instead:

1. Go to Quickbook's source directory (`BOOST_ROOT/tools/quickbook`).
2. Build the utility by issuing `bjam`.
3. Copy the resulting `quickbook` binary (located at `BOOST_ROOT/dist/bin`) to a safe place. Following our previous example, you can install it into: `/usr/local/bin`.
4. Add the following to your `user-config.jam` file:

```
using quickbook
  : "/usr/local/bin/quickbook" ;
;
```

Additionally, if you need to build documentation that uses [Doxygen](#), you will need to install it too:

1. Go to the [downloads section](#) and get the disk image (dmg file) for Mac OS X.
2. Open the disk image and drag the Doxygen application to your `Applications` folder to install it.
3. Add the following to your `user-config.jam` file:

```
using doxygen
  : /Applications/Doxygen.app/Contents/Resources/doxygen
  ;
```

Windows 2000, XP, 2003, Vista, 7

Section contributed by Julio M. Merino Vidal

The following instructions apply to any Windows system based on Windows 2000, including Windows XP, Windows 2003 Server, Windows Vista, and Windows 7. The paths shown below are taken from a Windows Vista machine; you will need to adjust them to match your system in case you are running an older version.

1. First of all you need to have a copy of `xsltproc` for Windows. There are many ways to get this tool, but to keep things simple, use the [binary packages](#) made by Igor Zlatkovic. At the very least, you need to download the following packages: `iconv`, `zlib`, `libxml2` and `libxslt`.
2. Unpack all these packages in the same directory so that you get unique `bin`, `include` and `lib` directories within the hierarchy. These instructions use `C:\Users\example\Documents\boost\xml` as the root for all files.
3. From the command line, go to the `bin` directory and launch `xsltproc.exe` to ensure it works. You should get usage information on screen.
4. Download [Docbook XML 4.2](#) and unpack it in the same directory used above. That is: `C:\Users\example\Documents\boost\xml\docbook-xml`.
5. Download the latest [Docbook XSL](#) version and unpack it, again in the same directory used before. Be careful that you download the correct file, sometimes the 'looking for the latest version' link often links to another file. The name should be of the form `docbook-xsl-1.mn.n.tar.bz2`, with no suffix such as `-ns.tar.bz2` or `-doc.tar.bz2`. To make things easier, rename the directory created during the extraction to `docbook-xsl` (bypassing the version name): `C:\Users\example\Documents\boost\xml\docbook-xsl`.
6. Add the following to your `user-config.jam` file, which should live in your home directory (`%HOMEDRIVE%%HOMEPATH%`). You must already have it somewhere or otherwise you could not be building Boost (i.e. missing tools configuration).

```
using xsltproc
  : "C:/Users/example/Documents/boost/xml/bin/xsltproc.exe"
  ;

using boostbook
  : "C:/Users/example/Documents/boost/xml/docbook-xsl"
  : "C:/Users/example/Documents/boost/xml/docbook-xml"
  ;
```

The above steps are enough to get a functional BoostBook setup. Quickbook will be automatically built when needed. If you want to avoid these rebuilds:

1. Go to Quickbook's source directory (`BOOST_ROOT\tools\quickbook`).
2. Build the utility by issuing `bjam`.
3. Copy the resulting `quickbook.exe` binary (located at `BOOST_ROOT\dist\bin`) to a safe place. Following our previous example, you can install it into: `C:\Users\example\Documents\boost\xml\bin`.
4. Add the following to your `user-config.jam` file:

```
using quickbook
  : "C:/Users/example/Documents/boost/xml/bin/quickbook.exe"
  ;
```

Debian, Ubuntu

The following instructions apply to Debian and its derivatives. They are based on a Ubuntu Edgy install but should work on other Debian based systems. They assume you've already installed an appropriate version of `bjam` for your copy of boost.

First install the `xsltproc`, `docbook-xsl` and `docbook-xml` packages. For example, using `apt-get`:

```
sudo apt-get install xsltproc docbook-xsl docbook-xml
```

If you're planning on building boost's documentation, you'll also need to install the `doxygen` package as well.

Next, we need to configure Boost Build to compile BoostBook files. Add the following to your `user-config.jam` file, which should be in your home directory. If you don't have one, create a file containing this text. For more information on setting up `user-config.jam`, see the [Boost Build documentation](#).

```
using xsltproc ;

using boostbook
  : /usr/share/xml/docbook/stylesheet/nwalsh
  : /usr/share/xml/docbook/schema/dtd/4.2
  ;

# Remove this line if you're not using doxygen
using doxygen ;
```

The above steps are enough to get a functional BoostBook setup. Quickbook will be automatically built when needed. If you want to avoid these rebuilds:

1. Go to Quickbook's source directory (`BOOST_ROOT/tools/quickbook`).
2. Build the utility by issuing `bjam`.
3. Copy the resulting `quickbook` binary (located at `BOOST_ROOT/dist/bin`) to a safe place. The traditional location is `/usr/local/bin`.
4. Add the following to your `user-config.jam` file, using the full path of the `quickbook` executable:

```
using quickbook
  : /usr/local/bin/quickbook
  ;
```

Editor Support

Editing quickbook files is usually done with text editors both simple and powerful. The following sections list the settings for some editors which can help make editing quickbook files a bit easier.



Note

You may submit your settings, tips, and suggestions to the authors, or through the [docs Boost Docs mailing list](#).

Scintilla Text Editor

Section contributed by Dean Michael Berris

The Scintilla Text Editor (SciTE) is a free source code editor for Win32 and X. It uses the SCIntilla source code editing component.



Tip

SciTE can be downloaded from <http://www.scintilla.org/SciTE.html>

You can use the following settings to highlight quickbook tags when editing quickbook files.

```
qbk=* .qbk
lexer.*.qbk=props
use.tabs.$(qbk)=0
tab.size.$(qbk)=4
indent.size.$(qbk)=4
style.props.32=$(font.base)
comment.stream.start.props=[ /
comment.stream.end.props=]
comment.box.start.props=[ /
comment.box.middle.props=
comment.box.end.props=]
```



Note

Thanks to Rene Rivera for the above SciTE settings.

KDE Support

boost::hs::quickbook

boost::hs::quickbook is a syntax highlighting designed to work with Katepart. It can be used in KWrite, Kate, Konqueror and KDevelop, and supports all the constructs of Quickbook 1.4 including tables, list, templates and macros.

.qbk loaded in a text editor

```
[[table Code examples
[[ Name ]] Code ]] Description
[[for loop ]] ` for(int k=0; k<10; k++) v+=k; ` ]]Sums some numbers.
[[while loop ]] ` { int k; while( k < 10 ) { v+=k; k++; } } ` ]]Same effect.
[[infinite loop ]] ` while( true ) { v+=1; } ` ]]Not a good example.
]
```

.qbk loaded with boost::hs support

```
[[table Code examples
[[ Name ]] Code ]] Description
[[for loop ]] ` for(int k=0; k<10; k++) v+=k; ` ]]Sums some numbers.
[[while loop ]] ` { int k; while( k < 10 ) { v+=k; k++; } } ` ]]Same effect.
[[infinite loop ]] ` while( true ) { v+=1; } ` ]]Not a good example.
]
```

html generated from this .qbk file

Table 7. Code examples

Name	Code	Description
for loop	for(int k=0; k<10; k++) v+=k;	Sums some numbers.
while loop	{ int k; while(k < 10) { v+=k; k++ } }	Same effect.
infinite loop	while(true) { v+=1; }	Not a good example.

Code Folding

boost::hs goes far beyond simple coloring. One useful thing you can get the editor to do is to mark regions. They appear in a small grey line and each region can be folded or unfolded independently.

Auto Comment / Uncomment

Another important feature is the possibility to auto-comment or uncomment some piece of code (*Tools - Comment*). Commented regions can be uncommented simple calling the *uncomment* command while being in it.

Styles reference

Name	Style	Description
plain text	normal black	Plain text at each level.
formatted text	formatted black	Bold, italic, underline and mixes. Teletype, replaceable, strikethrough.
structure	light blue	All quickbook structures characters ([,], [block-type, simple formatting boundaries, lists keywords (*, #)
macros	red	Names in macro definitions, macros insertion if it is used the <code>__xxx__</code> proposed syntax.
templates	red	Names in template definitions
anchors	red	All the keywords that are used to link quickbooks together.
comments	italic light gray	Inside the commentaries.
tables	HTML like	Reveal the structure, bold title, highlighted HTML like columns titles.
variable lists	HTML like	Reveal the structure, bold title, bold HTML like items names.
c++ code	cpp Kate syntax	Code blocks and inline code.
paths	green	Image, files and web paths
IDE specific	dark blue	IDE commands

About boost::hs



boost::hs::quickbook is a component of boost::hs, a syntax highlighting for C++, doxygen, Boost.Build jamfiles and QuickBook. boost::hs has his own page [here](#).



Note

boost::hs::cpp support QuickBook code import comments style!

Installing boost::hs

There exist an ongoing effort to push boost::hs upstream to the KatePart project. In a few months KDE may have native Quickbook support! For the moment you must download and install it.

You can download boost::hs from [here](#).



Note

A copy of boost::hs::quickbook and boost::hs::cpp is available in `boost/tools/quickbook/extra/katepart`.

In order to install it you must copy the content in the folder **katepart/syntax/** to the appropriate katepart syntax folder in your machine. In general this folder will be in `/usr/share/apps/katepart/syntax`. A bash script named `install.sh` is included that copy the files to this folder.

Frequently Asked Questions

Can I use QuickBook for non-Boost documentation?

QuickBook can be used for non-Boost documentation with a little extra work.

Faq contributed by Michael Marcin

When building HTML documentation with BoostBook a Boost C++ Libraries header is added to the files. When using QuickBook to document projects outside of Boost this is not desirable. This behavior can be overridden at the BoostBook level by specifying some XSLT options. When using Boost Build version 2 (BBv2) this can be achieved by adding parameters to the BoostBook target declaration.

For example:

```
using quickbook ;

xml my_doc : my_doc.qbk ;

boostbook standalone
:
  my_doc
:
  <xsl:param>boost.image.src=images/my_project_logo.png
  <xsl:param>boost.image.alt="\My Project\"
  <xsl:param>boost.image.w=100
  <xsl:param>boost.image.h=50
  <xsl:param>nav.layout=none
;
```

Is there an easy way to convert BoostBook docs to QuickBook?

There's a stylesheet that allows Boostbook generated HTML to be viewed as quickbook source, see <http://svn.boost.org/trac/boost/wiki/QuickbookSourceStylesheetProject>, so it's then just a cut and paste job to convert the BoostBook to QuickBook (which IMO is a whole lot easier to edit and maintain).

--John Maddock

Quick Reference

Table 8. Syntax Compendium

To do this...	Use this...	See this...
comment	[/ some comment]	Comments
<i>italics</i>	[<i>italics</i>] or /italics/	Font Styles and Simple formatting
bold	[*bold] or *bold*	Font Styles and Simple formatting
<u>underline</u>	[<u>underline</u>] or _underline_	Font Styles and Simple formatting
teletype	[^teletype] or =teletype=	Font Styles and Simple formatting
strikethrough	[-strikethrough]	Font Styles and Simple formatting
<i>replaceable</i>	[~replaceable]	Replaceable
source mode	[c++] or [python]	Source Mode
inline code	<code>int main();</code>	Inline code
code block	<code>int main();</code>	Code
code escape	<code>from c++ to QuickBook</code>	Escaping Back To QuickBook
line break	[br] or \n	line-break DEPRECATED
anchor	[#anchor]	Anchors
link	[@http://www.boost.org Boost]	Links
anchor link	[link section.anchor Link text]	Anchor links
refentry link	[link xml.refentry Link text]	refentry links
function link	[funcref fully::qualified::function_name Link text]	function, class, member, enum, macro, concept or header links
class link	[classref fully::qualified::class_name Link text]	function, class, member, enum, macro, concept or header links
member link	[memberref fully::qualified::member_name Link text]	function, class, member, enum, macro, concept or header links
enum link	[enumref fully::qualified::enum_name Link text]	function, class, member, enum, macro, concept or header links
macro link	[macroref MACRO_NAME Link text]	function, class, member, enum, macro, concept or header links
concept link	[conceptref ConceptName Link text]	function, class, member, enum, macro, concept or header links
header link	[headerref path/to/header.hpp Link text]	function, class, member, enum, macro, concept or header links

To do this...	Use this...	See this...
global link	<code>[globalref fully::qualified::global Link text]</code>	function, class, member, enum, macro, concept or header links
escape	<code>'''escaped text (no processing/formatting)'''</code>	Escape
single char escape	<code>\c</code>	Single char escape
images	<code>[\$image.jpg]</code>	Images
begin section	<code>[section The Section Title]</code>	Section
end section	<code>[endsect]</code>	Section
paragraph	No markup. Paragraphs start left-flushed and are terminated by two or more newlines.	Paragraphs
ordered list	<pre># one # two # three</pre>	Ordered lists
unordered list	<pre>* one * two * three</pre>	Unordered lists
code	No markup. Preformatted code starts with a space or a tab.	Code
preformatted	<code>[pre preformatted]</code>	Preformatted
block quote	<code>[:sometext...]</code>	Blockquote
heading 1	<code>[h1 Heading 1]</code>	Heading
heading 2	<code>[h2 Heading 2]</code>	Heading
heading 3	<code>[h3 Heading 3]</code>	Heading
heading 4	<code>[h4 Heading 4]</code>	Heading
heading 5	<code>[h5 Heading 5]</code>	Heading
heading 6	<code>[h6 Heading 6]</code>	Heading
macro	<code>[def macro_identifier some text]</code>	Macros
template	<code>[template[a b] [a] body [b]]</code>	Templates
blurb	<code>[blurb advertisement or note...]</code>	Blurbs

To do this...	Use this...	See this...
admonition	[warning Warning text...]	Admonitions
table	<pre>[table Title [[a][b][c]] [[a][b][c]]]</pre>	Tables
variablelist	<pre>[variablelist Title [[a][b]] [[a][b]]]</pre>	Variable Lists
include	[include someother.qbk]	Include
conditional generation	[? symbol phrase]	Conditional Generation