Doxygen for C programming

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Doxygen Commands

Note: This list is not complete. For a complete list revere to http://www.stack.nl/~dimitri/doxygen/download.html#latestman This reference card is mainly targeted to C developers.

Section indicators:

- Each command ends with a blank line if not stated otherwise
- '*' as first character in a line of a comment block is ignored
- Equal commands are gathered in one paragraph
- Synonymous commands are only mentioned once

`\attention` Mark important comment
`\author` List of authors for file or function
`\brief` Brief description of file or function
`\bug` `Bug report` for a function
`\date` Enter a date to a block, no special format required
`\deprecated` Explain alternatives for deprecated interfaces
`\note` Some general notes to a block of code
`\par` Create an own paragraph
`\param <parameter name>` describe a function parameter
`\post` Description of a postcondition
`\pre` Description of a precondition
`\remarks` Enter some remarks; seems equivalent to `\note`
`\return` General description of return value
`\retval` Description of specific possible return values
`\sa` Enter references
`\since` Since when an entity is available
`\test` Specify test case
`\todo` Guess what
`\version` Version number of entity
`\warning` Enter some warnings to an entity

Visual enhancements:

`\a word` use special font for one following word
`\b word` word (bold)
`\c word` <tt>word</tt> (courier)
`\code` start code section (end with `\endcode`)
`\copydoc <link-objct>` Insert documentation of other object here
`\dot` start graph description (end with `\enddot`)
`\dotfile <filename>` enter graph specified by `<filename>` here
`\e word` word (italic)
`\image <format> <file>` insert an image to the output (e.g. `\image html me.jpg`)
`\li` member of a list; each member is ended by a blank line
`\n` new line
`\verbatim` Include following text without formatation. End with `\endverbatim`

Special characters:

The characters \,@,&,$,#,<,>,% have to be escaped by a leading \ because they have special meaning for latex, doxygen, html or whatever.

Doxygen Configuration

`Doxyfile` is well documented, but very long. Therefore only very few configuration options (particularly those where I found the default setting a bit unhappy) are documented here, look for related flags near to the explained ones! A default `Doxyfile` can be gained by calling `doxygen` without parameters.

Input Files

`INPUT` list of input files, wildcards supported, if a directory is listed all contained files matching `FILE_PATTERNS` are parsed. If `RECURSIVE` is set to `YES`, subdirectories are included as well.
`INCLUDE_PATH`

Output Format

`GENERATE_<format>` generate output in format `<format>` (`HTML`, `LATEX`, `RTF`, ...) Default: `LATEX`, `HTML`

Project related configuration options

`PROJECT_NAME`, `NUMBER` to generate title of the document
`OPTIMIZE_OUTPUT_FOR_C [NO]` optimization for other languages is possible as well.

Options related to the dot tool

`HAVE_DOT [NO]` set to YES to get call graphs etc. To get the `dot` tool look for `graphviz`!
`CALL_GRAPH [NO]` generate function call graph

Build related configuration options

`EXTRACT_ALL` set to `YES` to document all entities, also when not doxygen comments are found
`EXTRACT_STATIC` set to `YES` to document `static` functions

Options related to source browsing

`SOURCE_BROWSER` build a list of source files
`INLINE_SOURCES` include source in documentation
`ALPHABETICAL_INDEX` generate index of all compounds

Options related to the HTML output

`GENERATE_TREEVIEW` generate tree for faster navigation

Options related to the preprocessor

`PREDEFINED` define macros that are defined in the compile command line when compiling the project

```
/**
 * @mainpage
 *
 * @author Thorsten Möllers
 *
 * @brief This is the brief description
 * of the project
 *
 * This is a detailed description
 * of the project
 *
 * <h2>Project Change History</h2>
 * <table>
 *   <tr>
 *     <th>Date</th>
 *     <th>Author</th>
 *     <th>Change Description</th>
 *   </tr><tr>
 *     <td>1.1.01</td>
 *     <td>ThM</td>
 *     <td>First draft of this project</td>
 *   </tr>
 * </table>
 *
 *
 */
/**
 * @file   template.c
 *
 * @author Thorsten Möllers (ThM)
 *
 * @brief  This is the brief description
 * of the template source file
 *
 * This is an example file to show how
 * to use doxygen sourcecode documentation
 * tool. This paragraph is the detailed
 * description
 *
 * <h2>File Change History</h2>
 * <table>
 *   <tr>
 *     <th>Date</th>
 *     <th>Author</th>
 *     <th>Change Description</th>
 *   </tr><tr>
 *     <td>1.1.01</td>
 *     <td>ThM</td>
 *     <td>First draft of this file</td>
 *   </tr>
 * </table>
 *
 */

typedef enum {
  error_no_error,  ///< completed successfull
  error_no_memory, ///< error, lack of memory
  error_unknown,   ///< undefined error

  error_count
} error_e;


/**
 * @brief do something with some values
 * @author Someone Else (SoE)
 * @param count [in] size of array
 * @param src [in] array of input values
 * @param dst [out] array of output values
 */
error_e template(int count
                 , int *src
                 , int *dst) {
  int i; ///< just an index variable
  dst = (int*)malloc(count*sizeof(int));
  /** \warning don't forget to deallocate
      dst later! */
  if (!dst) {
    goto leave;
    /** \retval error_no_memory
     * there is no memory */
  }
  /** \pre \c src should be some
       accessible memory! */
  for (i=count; i>0; count--) {
    /** \deprecated implement your own
     *  function, this one stinks! */
    dst[i]=src[i]*src[i];
    /** \bug illigal address, wonder why */
  }
  /** \note This function does \b not work! */
  /** \todo should return meaningful error
  code */
  /** \post \e src will not be deallocated! */
  return error_no_error;
}
```