C++11 / Boost Library Workshop

Using the C++11 Standard Library
Augmented by Boost

Durchführung:
Dipl.-Ing. Martin Weitzel
Technische Beratung für EDV
http://tbfe.de

Im Auftrag von:
MicroConsult
Training & Consulting GmbH
http://www.microconsult.com

Agenda

Topics* Monday to Friday (last day course ends after lunch-break)

- Monday 1: Some Fundamentals
- Monday 2: Universal Basic Helpers

- Tuesday 1: Basic and Advanced String Processing
- Tuesday 2: A Mix of Useful Things

- Wednesday 1: Smart Pointers
- Wednesday 2: The STL and Beyond

- Thursday 1: Input and Output / Concurrency Basics
- Thursday 2: A Tour of Boost

- Friday: A Tour of Boost (cont.)

*: There is also a Small Appendix on related topics not explicitly covered during this training.

Online Version of this Presentation

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[!]   The content was produced and checked with adequate care. The author may not be held liable for any errors or inaccuracies still contained.

You are welcome to point out errors or propose general improvements.

Companion Book

Attendees of this training will receive a personal copy of the book:

The C++ Standard Library (2nd Edition)

A Tutorial and Reference

by: Nicolai M. Josuttis

ISBN-13: 978-0-321-62321-8

Many presentation slides will refer to a chapter or section of this book in the top-right corner – so feel free to use the copy you received right away as supplement to the print-out of the presentation.

> Your copy of this book grants a personal free 45 day license from SAFARI to access a searchable online version.[*]

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[*]: The annotations slide explains how you may create web-links from a private copy of the online version of this presentation to anywhere you like, including the online version of the companion book, of course. (Of course, the effort to do this makes more sense if you choose to license the online version permanently.)

Online References

C++ has become a huge topic so it will frequently be necessary to lookup details in an online reference.

As general C++ reference the following can be recommended:

- http://en.cppreference.com/w/ - totally free, seems to be run by enthusiasts and now includes even live examples

- http://www.cplusplus.com/ - obviously financed by moderate pop-ups, nevertheless well organized and up-to-date

For topics specific to boost:

- http://www.boost.org - The Official Boost Site

- http://en.highscore.de/cpp/boost/frontpage.html
  A free Online Book* by Boris Schäling in English Language and

- http://www.highscore.de/cpp/boost - same in German Language

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*: Some of the following pages will refer to a chapter or section in their top-right corner, so you may want to keep the table of content of this book open in a browser tab.

Online Compilation

A growing number of internet sites now offer free[*] online compilation services and may be tried for small examples without having a C++ compiler or even a full IDE like Eclipse installed locally.

- For an overview see appendix: **Online Compilation**

In most cases code can even be shared among developers by creating a permanent link that can be sent around via email. Others allow the use of browser local storage to save your code and retrieve it later.

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[*]: At least for some sites the motivation seems to be to offer upgrades for a fee. Details like guaranteed up-time, safety of your code (against accidental loss or being spied on) will then be based on the details of a service agreement.

Online Compilation (cont.)

Especially online compilation services that allow to chose from several compilers make it easy to find out whether some surprising behavior is just a glitch of a particular implementation.

> **[!]** In case of free services you should of course not *depend* on the site being up and available all the time and everywhere.

Similarly you should not count on your code is reliably saved in permanent store, even if the service allows to "save" your code and retrieve it later.

Finally – as data is sent over the Internet – the code compiled there is not safe against preying eyes ...*

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*: ... so do not send out fragments for which your company (or your contractor, if you are a freelancer) has signed an NDA.

Presentation

This presentation uses a free HTML5-based slide-show tool named `remark`.

Viewing

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- JavaScript must be enabled.
- Modern CSS should be supported.[*]
- Cookies are **not** used.

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[*]: Given an appropriate level of CSS knowledge you may be able to tweak the appearance.

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(i) You may want to follow links when viewing this presentation by **clicking with the CTRL-key held** down, what will open the target document in a separate browser tab.

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Prepared Printouts

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> **(i)** You may access a final electronic version including recent changes made during this training or later via download.

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DIY Printouts

Also, with Google's Chrome Browser you can create a PDF any time:

- Using *Print To File* applies a special style suitable for DIN A4 print-outs in portrait, with the lower half of each page for your notes.

- Notes contained in the presentation **will currently not be printed**.[*]

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[*]: That option may become available in a future version.

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1. Save the HTML files of the presentation locally.

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- **You may try it out right now - back to normal is also with p.**

> **(i)** Future versions of this presentation **may or may not** use the notes section for their own purposes - but in any case it should be possible to merge your private annotations with a diff-tool.

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*: With minor extensions, if you happen to know markdown already.