Building Velvet 1.1.04 for Windows

Hannes Pouseele[1]

Introduction

This document describes the modifications and additions made to the source code of **Velvet** (version **1.1.04**) to be able to compile and run the applications **velveth** and **velvetg** on a Windows operating system. Velvet was developed by Daniel Zerbino and Ewan Birney at the European Bioinformatics Institute EMBL-EBI, and was released under the GNU General Public License (version 3, June 29, 2007). The complete set of files used to compile **velveth** and **velvetg** under **Windows,** and the **Windows** binaries can be downloaded from http://www.applied-maths.com/opensource/velvet.

Additional files

The following files have been added:

customdefines.h	provides the compilation settings
custompagesize.h and **custompagesize.c**	contains a function to determine the pagesize
customtime.h and **customtime.c**	contains some functions for the manipulation of time
customerf.h and **customerf.c**	contains the error function and the complementary error function

Modifications

The global macro OPENMP has been defined to activate the openmp implementation. Additionally, in VS2010, the compiler flag /openmp has been set.

The following modifications are applied consecutively, so the line numbers in the file are accordingly.

File	**globals.h**	Line number	**24**
The compilation settings can be found in the file **customdefines.h**. This file is included in **globals.h** on line **24**.			

File	**globals.h**	Line number	**80**

The file **stdint.h** is not contained in the **Visual C** distribution. The header file from the GNU C Library can be downloaded from http://msinttypes.googlecode.com/svn/trunk/stdint.h. The statement
    #include <stdint.h>
has been changed to
    #include "stdint.h"			

File	**kmer.h**	Line number	**24**
The statement			

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[1] Applied Maths NV, Keistraat 120, B-9830 Sint-Martens-Latem, Belgium, Phone: (+32) 9 2222 100 Fax: (+32) 9 2222 102, Website: http://www.applied-maths.com, E-mail: info@applied-maths.com

```
        #include <stdint.h>
has been changed to
        #include "stdint.h"
```

File	allocarray.h	Line number	24

The file **unistd.h** is not contained in the **Visual C** distribution. The header file from GCC can be used. The statement
```
        #include < unistd.h>
```
has been changed to
```
        #include " unistd.h"
```
In the **unistd.h** on line **39**, the statement
```
        #include_next <unistd.h>
```
was omitted.
Also the file **ssp.h** is missing in the **Visual C** distribution. The header file from GCC can be used. The statement
```
        #include <ssp.h>
```
 in **unistd.h** on line **38** has been changed to
```
        #include "ssp.h"
```

File	allocarray.c	Line number	26

The statement
```
        sysconf (_SC_PAGESIZE)
```
 has been replaced with
```
        get_pagesize()
```
 and the statement
```
        #include  "custompagesize.h"
```
was added.

File	concatenedgraph.c	Line number	138

The declaration
```
        Category cat;
```
has been moved to the beginning of the block.

File	correctedgraph.c	Line number	2026

The declaration
```
        Category cat;
```
has been moved to the beginning of the block.

File	graph.c	Line number	1397, 1470, 1659, 2097

The declaration
```
        Category cat;
```
has been moved to the beginning of the block.

File	graph.c	Line number	2098

The declaration
```
        Coordinate originalCoverage;
```
has been moved to the beginning of the block.

File	graphReConstruction.c	Line number	1138, 1208, 1210, 1214

The declarations
     int threads;
     ReferenceMapping * referenceMappings;
     NodeMask * nodeMasks;
     KmerOccurenceTable *kmerTable;
have been moved to the beginning of their respective blocks.

File	graphReConstruction.h	Line number	26

The statement
     #include <sys/time.h>
has been commented out.

File	locallyCorrectedGraph.c	Line number	532

The declaration
     IDnum index;
has been moved to the beginning of the block.

File	preGraphReconstruction.c	Line number	807

The declaration
     int threads;
has been moved to the beginning of the block.

File	readCoherentGraph.h	Line number	406

The declaration
     Category cat;
has been moved to the beginning of the block.

File	readset.c	Line number	34

The statement
     #include "../third-party/zlib-1.2.3/Win32/include/zlib.h"
has been adjusted to refer to the right location, which could be
     #include "../zlib/zlib.h"

File	readset.c	Line number	1154

The declaration
     FILE *file = ...
has been moved to the beginning of the block.

File	readset.c	Line number	1199

The declaration
     const char *qname_pairing = ...
has been moved to the beginning of the block.

File	scaffold.c	Line number	26, 42

The include statements
    #include "customtime.h"
    #include "customerf.h"
have been added.

File	scaffold.c	Line number	485, 486, 744, 1591

The declarations
    unsigned int idx;
    unsigned int mask;
    boolean * interestingReads;
    int threads;
have been moved to the beginning of their respective blocks.

File	shortReadPairs.c	Line number	910

The declaration
    Category cat;
has been moved to the beginning of the block.

File	splaytable.c	Line number	26

The include statement
    #include "customtime.h"
has been added.

File	splaytable.c	Line number	190

The declaration
    int I;
has been moved to the beginning of the block.

File	utility.c	Line number	26

The statement
    #include <sys/time.h>
has been replaced with
    #include "customtime.h"

File	run.c	Line number	25

The file **uce-dirent.h** is not contained in the **Visual C** distribution. A replacement header file can be downloaded from http://brlcad.org/xref/source/src/libbu/uce-dirent.h.
    #include < uce-dirent.h>
has been changed to
    #include " uce-dirent.h"
The include statement
    #include "direct.h"
has been added.

File	**run.c**	Line number	**139**

The statement
        mkdir(directory, 0777);
has been replaced by
        _mkdir(directory);

File	**run.c**	Line number	**161**

The function call
        parseDataAndReadFiles(seqFilename, argc - 2, &(argv[2]), &double_strand);
is missing an argument, and has been replaced by
        parseDataAndReadFiles(seqFilename, argc - 2, &(argv[2]), &double_strand, &no_hash);
The variable no_hash has been declared on line 90, and initialized to true.

File	**utility.c**	Line number	**44**

The exit status of the program in case no more memory is available, has been modified to -42.