

## VisIt - Bug # 1210: static build issues pending for 2.6 release

<b>Status:</b>	Pending	<b>Priority:</b>	Normal
<b>Author:</b>	Cyrus Harrison	<b>Category:</b>	
<b>Created:</b>	10/03/2012	<b>Assigned to:</b>	
<b>Updated:</b>	01/16/2013	<b>Due date:</b>	
<b>Likelihood:</b>	3 - Occasional		
<b>Severity:</b>	3 - Major Irritation		
<b>Found in Version:</b>	trunk		
<b>OS:</b>	All		
<b>Support Group:</b>	Any		
<b>Subject:</b>	static build issues pending for 2.6 release		

**Description:** Info is from the llnl buildbots (OSX 16.0 & rhel 6.3):

build\_visit will successfully create static 3rd- party, if I disable the following libs:

- hdf4
- adios
- ccmio
- boxlib
- pyside

Note, the following are not tested by the buildbot b/c they require http access:

- h5part
- fastbit
- itaps

Current VisIt build problem: (I don't use mpi for my static builds, looks like DDT stuff needs to guard on MPI)

```
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:62:19: error: mpi.h: No such file or directory
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
: In function 'int ddtMpiCompat_Bcast(void*, int, int, int, int)':
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:143: error: 'MPI_Datatype' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:143: error: expected ';' before 'mpitype'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:146: error: 'mpitype' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:146: error: 'MPI_INT' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:147: error: 'MPI_CHAR' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:152: error: 'mpitype' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:152: error: 'MPI_COMM_WORLD' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:152: error: 'MPI_Bcast' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
: In function 'void ddtMpiCompat_rankAndSize(int*, int*)':
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:173: error: 'MPI_COMM_WORLD' was not declared in this scope
```

```

/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:173: error: 'MPI_Comm_rank' was not declared in this scope
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/main-linux-static/build/src/sim/V2/ddtsim/ddtsim.cpp
:174: error: 'MPI_Comm_size' was not declared in this scope
make[2]: *** [sim/V2/ddtsim/CMakeFiles/ddtsim_static.dir/ddtsim.cpp.o] Error 1
make[1]: *** [sim/V2/ddtsim/CMakeFiles/ddtsim_static.dir/all] Error 2
make: *** [all] Error 2

```

I think there is a netcdf problem lurking as well, I will post after this first issue is resolved.

## History

**10/11/2012 02:09 pm - Eric Brugger**

- Target version deleted (2.6)

**10/11/2012 02:10 pm - Eric Brugger**

- Target version set to 2.6.1

**10/11/2012 02:13 pm - Eric Brugger**

- Status changed from New to Pending

**12/10/2012 11:57 am - Cyrus Harrison**

The DDT issue was resolve, there are still a few HDF5 linking errors:

```

[ 93%] Building CXX object tools/convert/CMakeFiles/visitconvert_ser.dir/ConvertStaticSymbolLocator.C.o
Linking CXX executable ../../exe/visitconvert_ser
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/netcdf/4.1.1/bbot/lib/libnetcdf.a(nc4 hdf.o): In function
`commit_type':
nc4 hdf.c:(.text+0x5504): undefined reference to `H5Tcommit1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/hdf5/1.8.7/bbot/lib/libhdf5_hl.a(H5LT.o): In function
`H5LT_dtype_to_text':
H5LT.c:(.text+0x2819): undefined reference to `H5Tget_tag'
H5LT.c:(.text+0x2a95): undefined reference to `H5Tget_cset'
H5LT.c:(.text+0x2bb0): undefined reference to `H5Tset_cset'
H5LT.c:(.text+0x353b): undefined reference to `H5Tset_cset'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/hdf5/1.8.7/bbot/lib/libhdf5_hl.a(H5LTparse.o): In function
`H5LTyyparse':
H5LTparse.c:(.text+0x81d): undefined reference to `H5Tset_tag'
H5LTparse.c:(.text+0xdd3): undefined reference to `H5Tset_cset'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_InqMeshName':
silo_hdf5.c:(.text+0x83ab): undefined reference to `H5Topen1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_hdrwr':
silo_hdf5.c:(.text+0x867f): undefined reference to `H5Topen1'
silo_hdf5.c:(.text+0x8a10): undefined reference to `H5Tcommit1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_GetMrgtree':
silo_hdf5.c:(.text+0xf3a4): undefined reference to `H5Topen1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_GetZonelist':
silo_hdf5.c:(.text+0xfe5e): undefined reference to `H5Topen1'

```

```

/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_PutUcdsubmesh':
silo_hdf5.c:(.text+0x17d7a): undefined reference to `H5Topen1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_PutMultimeshadj':
silo_hdf5.c:(.text+0x1a79f): undefined reference to `H5Topen1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o): In function
`db_hdf5_GetMultimatspecies':
silo_hdf5.c:(.text+0x1c1a0): undefined reference to `H5Topen1'
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(silo_hdf5.o):silo_hdf5.c:(.text+0x1c65e)
: more undefined references to `H5Topen1' follow
/scratch/harrison37/buildbot/sandbox/cdh-rhel-6.3-x86_64/deps-linux-static/build/visit/silo/4.8/bbot/lib/libsiloh5.a(H5FDsilo.o): In function
`H5Pset_fapl_silo':
H5FDsilo.c:(.text+0x8ec): undefined reference to `H5Pinsert1'
H5FDsilo.c:(.text+0x932): undefined reference to `H5Pinsert1'
H5FDsilo.c:(.text+0x978): undefined reference to `H5Pinsert1'
H5FDsilo.c:(.text+0x9be): undefined reference to `H5Pinsert1'
collect2: ld returned 1 exit status
make[2]: *** [exe/visitconvert_ser] Error 1
make[1]: *** [tools/convert/CMakeFiles/visitconvert_ser.dir/all] Error 2
make: *** [all] Error 2
program finished with exit code 2
elapsedTime=1943.042921

```

### 12/19/2012 10:48 am - Cyrus Harrison

I looked into this a bit, it appears to be an issue with the order of the linking:

I was able to get visitconvert to link by hand when the relative order of the netcdf, silo and hdf5 libs looked like the following:

```
-lnetcdf_c++ -lhdf5_hl -lsiloh5 -lhdf5 -lszip
```

We need a better way to resolve external deps for the static build case. I tried a few quick fixes, but they all lead to different sets of linking errors.

The fundamental issue is that we don't have a way to recreate the dependency graph, it doesn't matter for shared libs, but it matters for many compilers for static builds. It would be nice if we could figure out the proper way to do this with CMake.

### 01/10/2013 11:39 am - Cyrus Harrison

LINK\_INTERFACE\_LIBRARIES may help, but the docs are quite confusing.

[http://www.cmake.org/cmake/help/v2.8.2/cmake.html#prop\\_tgt:LINK\\_INTERFACE\\_LIBRARIES](http://www.cmake.org/cmake/help/v2.8.2/cmake.html#prop_tgt:LINK_INTERFACE_LIBRARIES)

The problem we have is the following:

External libA links to external libZZZ

External libB links to external libZZZ

An exe links both libA and libB.

With our current system, the order that libZZZ appears on the link line (which is important for some compilers) does not respect the full dependency

graph. I think this is a side effect of our attempt to handle deps with our config-site infrastructure.

**01/16/2013 06:40 pm - Cyrus Harrison**

- Target version changed from 2.6.1 to 2.6.2