

# Learning to play with the LDC/ILD software

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Fermilab



Google™

My island is populated by  
a lot of DØ cannibals...

# Getting started with ILCSIM(2)

Got account from Lynn very quickly, can log on....

Found first oddity....

[ilcsim2] setup lcio

[ilcsim2] setup mokka

[ilcsim2] setup marlin

[ilcsim2] setup cmake

← AVAILABLE

[ilcsim] setup lcio

**INFORMATIONAL: Product 'lcio' (with qualifiers ''), has no current chain (or may not exist)**

[ilcsim] setup mokka (also sets up lcio....)

[ilcsim] setup marlin

[ilcsim] setup cmake

**INFORMATIONAL: Product 'marlin' (with qualifiers ''), has no current chain (or may not exist)**

# Getting started with ILCSIM(2)

Lynn can fix this very easily... But this may happen again, learn what to do

```
[ilcsim] ups list -a lcio
```

```
[ilcsim] ups list -a marlin
```

gives you a list of versions and qualifiers which are available

which ones are right ?

On ilcsim you may need QCC3\_4\_3 as qualifier (check for Flavor=Linux+2.4-2.3.2), and probably you need the most recent release

```
[ilcsim] setup lcio v01-08-03
```

```
[ilcsim] setup marlin -q GCC3_4_3 v00-09-09
```

# Difference between ILCSIM & ILCSIM2

ILCSIM is 32 bit (Scientific Linux 3), ILCSIM2 is 64 bit (Scientific Linux 4)

What are the Grid nodes running ? Do we need to worry about that (i.e. If you run in batch on the Grid you need to compile your code only on ILCSIM2 ?)

.... For the moment I'm not there yet

But I did register for the Grid

Has anybody tried registering for the Grid from outside Fermilab ? I tried from home and I have the impression that there are some protections which prevent you from doing that (does they allow Joe.User@Some.University.EDU to register ?)

# Registering with the Grid

<http://cepa.fnal.gov>

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# Registering with the Grid

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http://ilc.fnal.gov/detector/rd/physics/technical/resources/ilcsim.shtml

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## ILC at FNAL Detector Software

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### ilcsim and ilcsim2

The ilcsim "cluster" is available for ILC simulation work.  
See [getting started](#) for information on getting an account.

- [ilcsim.fnal.gov](#)  
32bit machine running SLF3
- [ilcsim2.fnal.gov](#)  
64bit machine running SLF4

Scratch and project space:

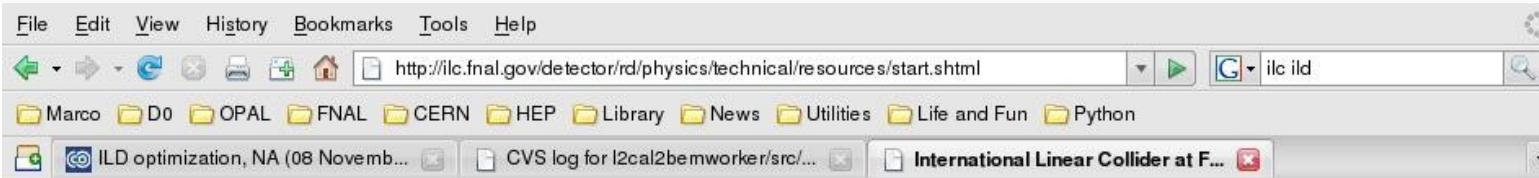
- Scratch space is available at /scratch. This is true scratch space that is cleaned up after 720 hours (30 days). This number will be lowered if there is a problem providing enough scratch space for all users.
- Each machine also has non-shared local scratch at /local.
- Project space is available at /prj. To gain access to this directory, you must send a well-reasoned request for space to the [maintainer](#). You will need to specify how much disk space you need, for how long, and why.

Bluearc disk:

- Several BlueArc network mounted disks are available for ILC simulation studies.
- /ilc is dedicated disk intended for long term storage of both accelerator and detector datasets. /ilc is divided into the following partitions:
  - /ilc/accelerator (for linear collider simulation)
  - /ilc/ilc4c (for the 4th Concept detector)
  - /ilc/ild (for the ILD detector)
  - /ilc/sid (for the SiD detector)
- /grid/app/ilc is designed for short term storage of applications (especially shared libraries) needed by grid jobs.

Done

# Registering with the Grid



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### Getting Started

You will need a visitor ID and a Kerberos principal in order to use the Fermilab resources.

- [How to Get Started](#) has instructions for obtaining or renewing your Visitor ID.
- See "Requesting Computing Privileges" on the CD [forms page](#).
- Once you have a Fermilab UID/GID, send mail to the [ilcsim maintainer](#) requesting access to ilcsim and ilcsim2.
  - Please also tell us who you are and what your connection to ILC is.
  - Tell us who you are working with.
  - We will verify your information (once again).
- You will also need to [register with the ILC VO](#) in order to use the grid.

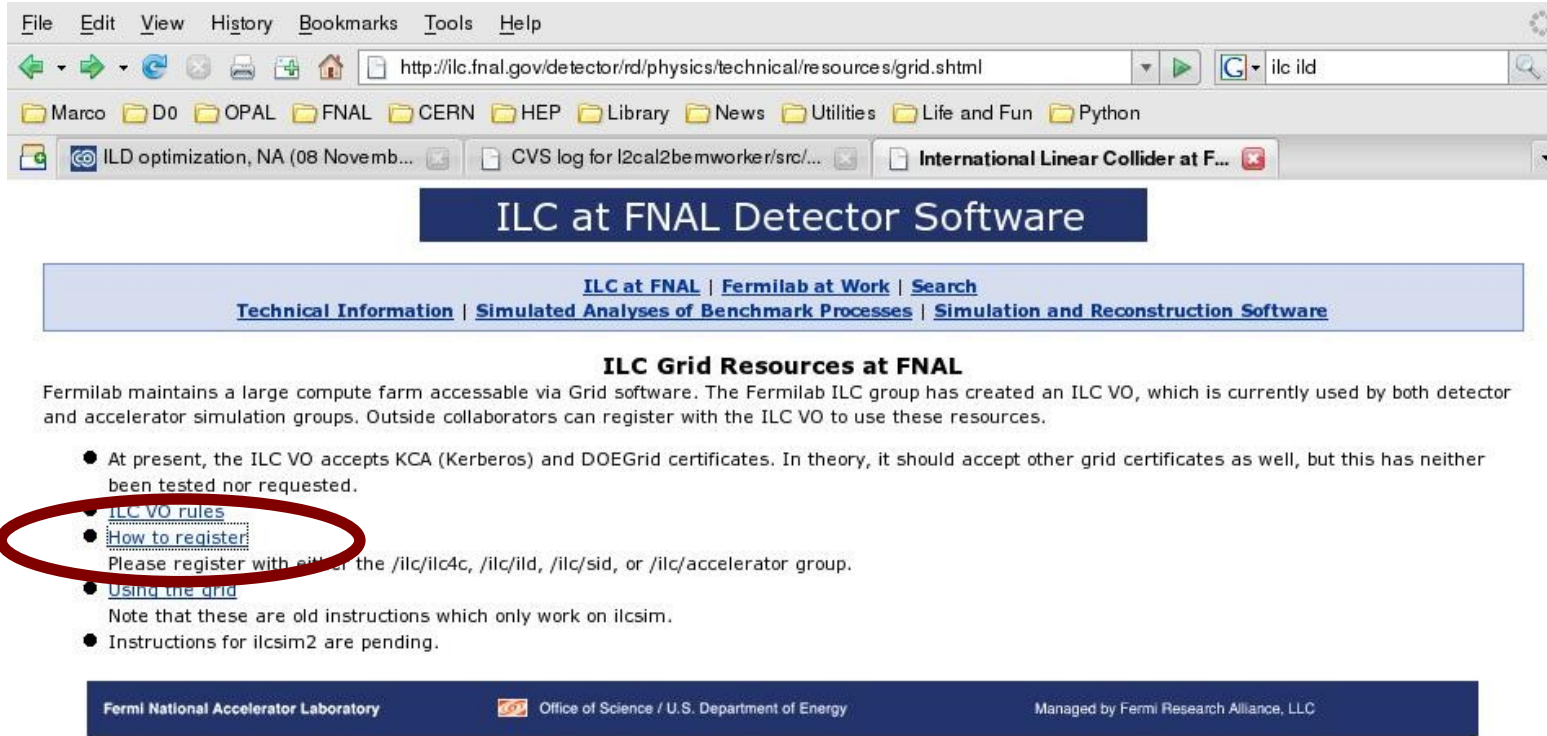
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Done

# Registering with the Grid



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http://ilc.fnal.gov/detector/rd/physics/technical/resources/grid.shtml

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### ILC Grid Resources at FNAL

Fermilab maintains a large compute farm accessible via Grid software. The Fermilab ILC group has created an ILC VO, which is currently used by both detector and accelerator simulation groups. Outside collaborators can register with the ILC VO to use these resources.


- At present, the ILC VO accepts KCA (Kerberos) and DOEGrid certificates. In theory, it should accept other grid certificates as well, but this has neither been tested nor requested.
- [ILC VO rules](#)
- [How to register](#)

Please register with either the /ilc/ilc4c, /ilc/ild, /ilc/sid, or /ilc/accelerator group.

- [Using the grid](#)

Note that these are old instructions which only work on ilcsim.

- Instructions for ilcsim2 are pending.

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<http://cd-amr.fnal.gov/ilc/ilcsim/ilcvo-registration.shtml>



# Registering with the Grid

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AMR http://cd-amr.fnal.gov/ilc/ilcsim/ilcvo-registration.shtml ilc ild

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Computing Division

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## ILC V0 Registration

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In order to use the grid, you must register your Grid credentials with the ILC V0.  
You must decide whether to use a DOEgrid certificate or your KCA (Kerberos) certificate.

- First, get either a [KCA certificate](#) or a [DOEgrid certificate](#) and [import it into your browser](#).
- Then, go to <https://voms.fnal.gov:8443/vomrs/ilc/vomrs>
- Click on [Registration \(Phase I\)](#) and fill out the form.  
Make sure to select "full" in [grid job submission rights](#)  
(Note: If you have a registered certificate in your browser, you will not see the [Registration \(Phase I\)](#) option.)
- Follow the link in the e-mail you get for [Registration phase II](#).
- Read the rules. They are simple.
- Notice that you are part of the /ilc group.
- Submit this form.
- When you get the next e-mail, you can [submit a grid job](#).
- Although each step says you should expect a response within 24 hours, typical response time is

Done

# Registering with the Grid

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https://voms.fnal.gov:8443/vomrs/ilc/vomrs.jsessionid=8753D483F392E

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Using the trigger rate tool p... http://www-d0...e\_L1L2L3.txt D0 Offline Query Interface VOMRS - ilc

## ilc VO Registration

- ilc Registration Home
- Registration (Phase I)**
- Groups and Group Roles
- Institutions & Sites
- Required Personal Info
- Certificate Authorities

### Registration (Phase I)

Welcome to the ilc VO user registration phase I page.

All fields on this page are required. After submitting this form, a confirmation email will be sent within 24 hours with further instructions. If you fail to follow the instructions within 10 days, your registration will be discarded and you will have to re-register.

If you don't receive the confirmation email, please check your email address in VOMRS and change it if necessary. If it was correct, contact [the VO administrator](#).

Email address :

Select representative :

Grid job submission rights :

#### Personal Information

First name:

Last name:

Phone:

You are logged in as /DC=gov/DC=fnal/O=Fermilab/OU=People/CN=Marco Verzocchi/UID=mverzocc  
/DC=gov/DC=fnal/O=Fermilab/OU=Certificate Authorities/CN=Kerberized CA

Done voms.fnal.gov:8443

# Registering with the Grid

**Registration (Phase II)**

Welcome to the ilc VO user registration phase II page!

You are now a candidate to the ilc VO. To proceed, you are required to read the Grid and VO AUPs of [the OSG Grid](#) and fill out the additional fields, if any. At this time you can also select groups and group roles you would like to be assigned. Submission of this phase II registration form implies your agreement to abide by these rules, and for legal purposes is regarded as your signature to this agreement. In addition to the visitor functions, as a candidate to the ilc VO, you may:

- ◆ Change your groups and group roles selection
- ◆ Browse your own personal information
- ◆ Browse your certificate information

Upon submission of this form you become an applicant to the ilc VO. The representative you selected in phase I will be required to verify both the correctness of the information you have provided and your ilc VO affiliation prior to approving you for membership. You will receive an email notification indicating approval or denial of membership.

Groups and Group Roles:

Group	Group Description	Group role	Group Role Description	Status	Sel
/ilc				Approved	<input checked="" type="checkbox"/>
/ilc/accelerator					<input type="checkbox"/>
/ilc/detector					<input checked="" type="checkbox"/>
/ilc/ilc4c	4th concept simulation				<input type="checkbox"/>
/ilc/ild	ILC ILD detector				<input checked="" type="checkbox"/>
/ilc/sid	ILC SID detector				<input type="checkbox"/>

Please read [the Grid and VO AUPs](#) before you sign it!

I have read and agree to the Grid and VO AUPs.  
Click to register

You are logged in as /DC=gov/DC=fnal/O=Fermilab/OU=People/CN=Marco Verzocchi/UID=mverzoc  
/DC=gov/DC=fnal/O=Fermilab/OU=Certificate Authorities/CN=Kerberos CA

Done fermigrid2.fnal.gov:8443

# Registering with the Grid

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https://fermigrd2.fnal.gov:8443/vomrs/ilc/vomrs.jsessionid=5037E1E7C general carlessness

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Using the tri... http://...2L3.txt D0 Offline Q... VOMRS - ilc VOMRS - ilc (Untitled) ILD optimizat...

## ilc VO Registration

[\[-\] ilc Registration Home](#)  
[\[-\] Member Info](#)

- Registration (Phase II)
- Certificates
- Change Email Address
- Groups and Group Roles
- Institutions & Sites
- Required Personal Info
- Certificate Authorities

### Registration (Phase II)

**You have successfully submitted phase II of ilc VO registration!**

You will receive an email notice from the VOMRS ilc Service indicating that you've been approved (or denied) as a VO member. This could take up to a few days; it depends on how soon your representative completes this task. You now have applicant status in the ilc VO, and as such can access more screens. Click on the ilc VO Registration Home link in the left hand menu to update the menu.

**Applicant** to ilc VO may:

- ◆ Change your groups and group roles selection
- ◆ Browse groups
- ◆ Browse institutions and sites
- ◆ Browse required personal information
- ◆ Browse CAs recognized by ilc VO
- ◆ Browse your own personal information
- ◆ Re-sign usage rules
- ◆ Browse your own authorization status
- ◆ Browse required personal information
- ◆ Browse CAs recognized by ilc VO
- ◆ Unsubscribe and resubscribe to personal event notification

You are logged in as /DC=gov/DC=fnal/O=Fermilab/OU=People/CN=Marco Verzocchi/UID=mverzoc  
/DC=gov/DC=fnal/O=Fermilab/OU=Certificate Authorities/CN=Kerberized CA

**I had no problem at all, and Lynn was very fast in registering me once she got the request via the web forms**

# Getting some random data

Mark Thompson has some data available on his web page (for his students, but the example programs don't work.....)

**Copied to /ilc/ild/mverzocc/reconstruction**

uds200\_00\_bighcal.slcio  
uds91\_00\_LDC00.slcio  
zh500\_01\_pandora.slcio  
zh500\_02\_pandora.slcio

Mark's code in /home/mverzocc/markt (modified only steering file zh.xml and copied also GEAR files)

I honestly don't know what's in these files (and it's not too relevant)

Could not use Mark's code as a starting point ....  
Could not dedicate too much time to this (D0's work .... )

# Trying to get going

Copied example from Marlin

```
[ilcsim2] setup lcio,mokka,marlin,cmake
```

```
[ilcsim2] mkdir mymarlin
```

```
[ilcsim2] cd mymarlin
```

```
[ilcsim2] cp -r $MARLIN/examples/mymarlin/* .
```

Now how do I compile this ?

```
[ilcsim2] cmake .
```

Should build the appropriate makefile, then I would have to do only

```
[ilcsim2] make
```

and I should be ready to run....

# Banging my head on the wall ....

```
[ilcsim2] cmake .
```

```
-- Looking for doxygen...
```

```
-- Looking for doxygen... - found /usr/bin/doxygen
```

```
-- Looking for dot tool...
```

```
-- Looking for dot tool... - NOT found
```

```
CMake Error:
```

```
Sorry, could not find MacroCheckDeps.cmake...
```

```
Please set CMAKE_MODULE_PATH correctly with: cmake
```

```
-DCMAKE_MODULE_PATH=<path_to_cmake_modules>
```

```
-- Configuring done
```

(no Makefile built....)

**Google:** MacroCheckDeps.cmake

turns out 3 entries

2 tutorials + slides from Jim Hunt (Cornell) who's been banging his head before me....

# I did it this morning.....

From the slides it appears that  
**cmake -DCMAKE\_MODULE\_PATH=  
/afs/desy.de/group/it/ilcsoft/CMakeModules/v\*\*.\*\***  
is the right thing to do.....

**Do we have it on ilcsim(2) ?**

**After some poking around.... yes....**

**But we may need to define environmental variables  
properly and maybe tweak a few things, in the end this  
works:**

```
[ilcsim2] cmake -DCMAKE_MODULE_PATH=  
$MARLIN_DIR/CMakeModules/v01-04 -Dmarlin_HOME=  
$MARLIN -DLCIO_HOME=$LCIO
```

**creates my build files....**



**I have only 40 minutes.... damn....**

**Clearly the example is not meant to work for dumb users...**

**[ilcsim2] gmake all**

**results in tons of errors....**

**Ok, maybe it's not the fault of the example... Need the dependencies file to pick up "streamlog" properly.....  
Cannot understand whether it's a problem with cmake or whether it's a problem with the installation of Marlin**

**Suspect that it's a problem with the option list passed to cmake....**

## **Back to Mark's code.....**

**Finally found the files which I needed to compile Mark's code unmodified....**

**Actually it turns out that I was dumb.... had I done**  
**[ilcsim2] setup marlin**  
**[ilcsim2] gmake all**

**Mark's code would have compiled....**

**And now that Mark's code compiles, it does crash on the 1<sup>st</sup> event.... but at least I should be in familiar territory....**

**And now that Mark's code compiles, I am astonished that the mymarlin example doesn't (the way files are included should tell it how to find streamlog)**

**Somehow the MARLIN environmental variable is not passed properly to gmake....**

## **Where I am now....**

**Finally found the files which I needed to compile Mark's code unmodified....**

**Actually it turns out that I was dumb.... had I done**  
**[ilcsim2] setup marlin**  
**[ilcsim2] gmake all**

**Mark's code would have compiled....**

**And now that Mark's code compiles, it does crash on the 1<sup>st</sup> event.... but at least I should be in familiar territory....**

**And now that Mark's code compiles, I am astonished that the mymarlin example doesn't (the way files are included should tell it how to find streamlog)**

**Somehow the MARLIN environmental variable is not passed properly to gmake.... (starting from scratch doesn't help)**

# Conclusions.....

**Too early to claim success (too little time dedicated to this)**  
**I may have been too ambitious trying to use cmake**

**Got one code running (and crashing immediately)**

**There may still be issues with cmake environment (and it's a new beast to tame....)**

**Will try to make more progress early next week (but then away from Dec 12 to Dec 19, cannot be there for next meeting, but if I make progress I will prepare some slides and more instructions)**

**Next steps (once code compiles)**

- **provide detailed examples for other users**
- **learn to run simulation and reconstruction**
- **learn to use Grid for running jobs**
- **learn to pull files from DESY**