THE HITCHHIKER'S GUIDE TO THE NECSTLab

The Hitchhiker's Guide to the NECSTLab.

http://guide.necst.it

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1 Preface

The purpose of this guide is to collect and consolidate the relevant information on how the NECSTLab works.

This guide is by no means complete and should not substitute common sense and human-to-human communication. In other words, if something is not covered in this guide, simply talk to someone. Most likely, you will find an answer among your NECSTLab colleagues. If not, ask one of the *Tutors*, or the *RADRL*.

1.1 Intended Audience

You should read this guide before starting a project at the NECSTLab. Most likely, you are a student, a visiting scholar, a professor, or just a curious guy.

1.2 How to Access the Lab

1. Read and understand: the present book an the *NECSTLab Safety Instructions*
2. Take the online course about Security Class (Corso online Sicurezza), pass the online test, and print the Security Class Certificate.
3. Download the *NECSTLab Access Document*
4. Fill the required information in the *NECSTLab Access Document* with your respective PI

- How to compute the expiration date
  - The PI will assign an expiration date to the access according to the kind of work that you have to do in the NECSTLab. If not sure, leave this field empty, the *RADRL* will complete it.
  - We have 4 expiration dates that can be used:
    * 30 April
    * 31 July
    * 31 October
    * 31 December

5. Have the document signed by your PI
6. Deliver the form to the IT Section secretaries (First floor of DEIB's Building 20). Either:

- wait for the secretaries to notify you when the document is ready, or

- ask the secretaries after 2-3 work days about the status of your document.

7. Retrieve the signed document from the secretaries
8. Send a scanned copy of your Security Class Certificate and your signed document to *RADRL*.
9. Deliver (Mon-Fri, from 9am to 12pm) the signed document to Mrs. Dora Ivanof (Ground floor of DEIB's Building 20, phone number: 3630).

- *Important:* bring your ID card of Politecnico di Milano with you
- *Important:* bring the Security Class Certificate with you

1.3 How to use this Guide

1.3.1 Before Accessing the Lab

We suggest that you read the following sections, in this order:

1. *Basic Rules: Dos and Don'ts*
2. *How to Access the Lab*
3. *Roles Within the NECSTLab*

1.3.2 At your First Day in the Lab

Once you gained access to the lab, if your stay spans over more than a week, you should:

1. Ask your tutor (see *Tutors*) to be subscribed to the lab mailing list.
2. Obtain access to the network and computing facilities (see *How to Obtain Access to the Computing Resources and Services*).

Regardless of how long you are going to stay in the lab, we suggest that you read the following sections, in this order:

1. *People and Roles: Who's Who*
2. *Facilities and Services: What's in the Lab*
3. *Activities: Having Fun Leads to Great Research*

2 Basic Rules: Dos and Don’ts

The NECSTLab can be a great place where to work, study, make friends while doing the previous things but more than all the others, it represents a great opportunity to live a terrific research experience.

This comes at a cost. You always have to:

- respect the place,
- respect the people.

If you do not like something, or you think that something is not fair, please do not keep it for you, or do not try to change it by yourself, but say it out loud.

2.1 The Golden Rule

If you are not sure if you’d be allowed to do something, 9 out of 10 cases you are not. Therefore, before doing it, please, contact the *RADRL*.

2.2 Improve the Lab

We want the NECSTLab to be a great place and we need help to improve it. Therefore, if you have an idea, contact *RADRL*.

2.3 What you can do

- Use the NECSTLab network to get connected to internet.
- Study in the lab with other folks:
  - all your colleagues have to be allowed to access the NECSTLab,
  - Access to the NECSTLab will not be granted just for studying reason. While working in the lab for your class projects, thesis works, you can also spent some times studying without having to move to other places.
- Use the lab's facilities (see *Facilities and Services: What's in the Lab*) such as connectivity, computing horse power, software licenses, printers, etc.) to complete your work (the one you got the access to the NECSTLab for).
- Remember always *The Golden Rule*!

2.4 What you Cannot do

- Allow external folks to enter the NECSTLab without having previously informed the *RADRL*.
- Use the NECSTLab network without the proper authorization
  - Whatever you'd be able to do to overcome this rule...you cannot do it! Being able does not allow you to do it!
  - You cannot spoof the MAC address of your devices
  - You cannot assign to your PC a static IP
- You should not have any problem in getting allowed to access the network, therefore read how to do it in the How to enable your laptop into the NECSTLab network section.
- Unplug NECSTLab machines (PCs or boards) from the network (aka Do not use the ethernet cables that are already used by other machines!!!)
- Take home any facilities (e.g., books, docs, PCs, boards, see *Facilities and Services: What's in the Lab*).
  - The boards involved in the Boards @ Home Program are an exception. For more information visit the facilities web page.
  - If you do really need something, please contact your tutor (see *Tutors*)

- Stay in the lab out of the authorized time (Mon - Fri, from 8am to 7pm).
  - If you do really need to work in the NECSTLab during non authorized period, please contact your tutor (see *Tutors*) to find out a solution(for the list of NECSTLab Tutors, please visit this page)
- Remember always *The Golden Rule*

2.5 What you can be Expelled for

- Using the internet access for illegal actions, e.g. download copyrighted materials (movie, software, etc).
- Being part or help in stealing materials from the NECSTLab
- Having improper behaviors while in the NECSTLab

3 People and Roles: Who's Who

A typical academic laboratory is populated by a variety of people. Within the lab everyone has a role. Also, within Politecnico di Milano, everyone has a role. We hereby describe both the types of role.

- *Roles Within the NECSTLab*
- *Academic Roles*

3.1 Roles Within the NECSTLab

3.1.1 RADRL

In every research area at DEIB, one of the professors is also assigned a special role called RADRL, short for "Responsabile delle AttivitÃă Didattiche e di Ricerca nei Laboratori".

The NECSTLab RADRL is Prof. Marco D. Santambrogio

3.1.2 Principal Investigators (PIs)

PIs are responsible of one or more research projects. This type of role include only *Faculty Members*.

- Giampaolo Agosta
- Cesare Alippi
- Anna Maria Antola
- Cristiana Bolchini
- Carlo Brandolese
- Luca Breveglieri
- Francesco Bruschi
- Paolo Cremonesi
- Fabrizio Ferrandi
- William Fornaciari
- Lorenzo Mezzalira
- Gianluca Palermo
- Gerardo Pelosi
- Manuel Roveri
- Fabio Salice
- Maria Giovanna Sami
- Marco D. Santambrogio
- Donatella Sciuto
- Giuseppe Serazzi

- Cristina Silvano
- Vittorio Zaccaria
- Stefano Zanero

3.1.3 Tutors

Tutors participate to several organization activities within the NECSTLab and you can contact them for day-to-day issues *before* contacting the *RADRL*.

- Francesco Bruschi
- Marco Lattuada
- Antonio Miele
- Gianluca Palermo
- Christian Pilato
- Vincenzo Rana

3.2 Academic Roles

Overall, in the NECSTlab, there are usually 15 to 30 *Students*, a dozen of *Research Assistants* and 22 *Faculty Members*.

3.2.1 Students

There are two kinds of students: undergraduate students, or "undergrads", and graduate students (Master Students

or PhD Students).

Undergraduate Students

Undergraduate students in the NECSTLab usually work on course projects or on their bachelor thesis. You can recognize them because the are the youngest creatures. They usually spend 6 to 8 months in the lab.

Master Students

Master students in the NECSTLab work on their master thesis and at least one side project. Sometimes, master students collaborate with one or more undergrads within their thesis. You can recognize them because they believe they can rule the world. They usually spend 8 to 14 months in the lab.

PhD Students

PhD students in the NECSTLab work on a 3 to 4-years research project and in plenty of side projects. PhD students collaborate with other PhD students and, normally, with one or more master students. You can recognize them because they spend most of their time in the lab. They are involved in teaching activities from time to time.

- Riccardo Cattaneo
- Gianluca Durelli
- Alessandro Nacci

- Filippo Sironi

3.2.2 Research Assistants

Research assistants comprise post-doctorate researchers and temporary researchers.

Post-doctorate Researchers

Post-doctorate researchers hold a PhD degree, and are in the NECSTLab to continue working on their research. You can recognize them because they think they have they authority to whip every student in the lab with an ever-increasing amount of work.

- Marco Lattuada
- Federico Maggi
- Antonio Miele
- Christian Pilato
- Vincenzo Rana

Temporary Researchers

Temporary researchers have been hired by a professor to work on one or more research project. You can recognize them because they work hard, and party harder. They could be involved in teaching activities.

- Alessandro Frossi

3.2.3 Faculty Members

Members of the Faculty of Politecnico di Milano are what you usually would refer to as "professors".

Assistant Professors

Assistant professors are the youngest, and they work in the NECSTLab closely with students. They are responsible of directing several research projects and some of the lab's activities. You can recognize them because they work on research project proposals, (several) papers, and (several) teaching courses.

- Giampaolo Agosta
- Carlo Brandolese
- Francesco Bruschi
- Gianluca Palermo
- Gerardo Pelosi
- Manuel Roveri
- Marco D. Santambrogio
- Vittorio Zaccaria
- Stefano Zanero

Associate Professors

Associate professors work with the NECSTLab's assistant professors and they are responsible for directing several re-

search projects and teaching activities. You can recognize them from their long funding and publication records.

- Anna Maria Antola
- Cristiana Bolchini
- Luca Breveglieri
- Paolo Cremonesi
- Fabrizio Ferrandi
- William Fornaciari
- Lorenzo Mezzalira
- Fabio Salice
- Cristina Silvano

Full Professors

Full professors work with the NECSTLab's assistant and associate professors and they are responsible for several research projects and teaching activities. You can recognize them because, when you skim through their CV, you hurt your mouse wheel for excessive page scrolling.

- Cesare Alippi
- Maria Giovanna Sami
- Donatella Sciuto
- Giuseppe Serazzi

4 Facilities and Services: What's in the Lab

The NECSTLab offers several facilities such as computing equipment, resources and services such as web hosting for small projects, management platforms, and code repositories.

Access to the facilities that do require network connectivity is regulated by the *Basic Rules: Dos and Don'ts* and is granted once you obtain access to the lab (see *How to Access the Lab*).

4.1 How to Obtain Access to the Computing Resources and Services

Access to computing resources and services is regulated through individual accounts. To obtain an account, follow this procedure:

1. Obtain access to the lab (see *How to Access the Lab*)
2. Send an email to Federico Maggi with the *RADRL* in Cc: fede@maggi.cc

Without an account, you are still allowed to connect to the local network via wired medium (see *Local Network*) and reach unauthenticated services and resources. However, most of the services and resources require authentication.

> **Warning:** Please, do change your password!

4.1.1 SSL Security Warnings

Whenever you access a resource via SSL (e.g., `https://...`), your client (e.g., browser, SVN client, Git client) will display a security warning that says that the SSL certificate is not trusted. This happens because such certificate is (self) signed by the lab's certification authority (CA), which itself is not trusted.

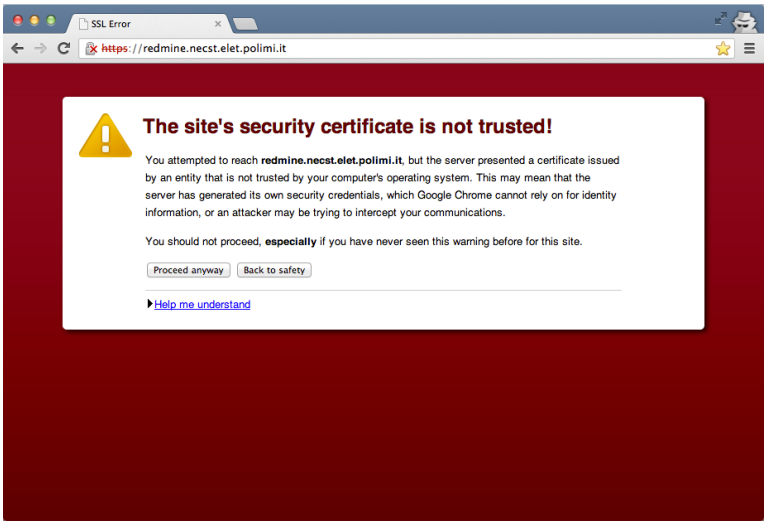

Figure 4.1: SSL warning example.

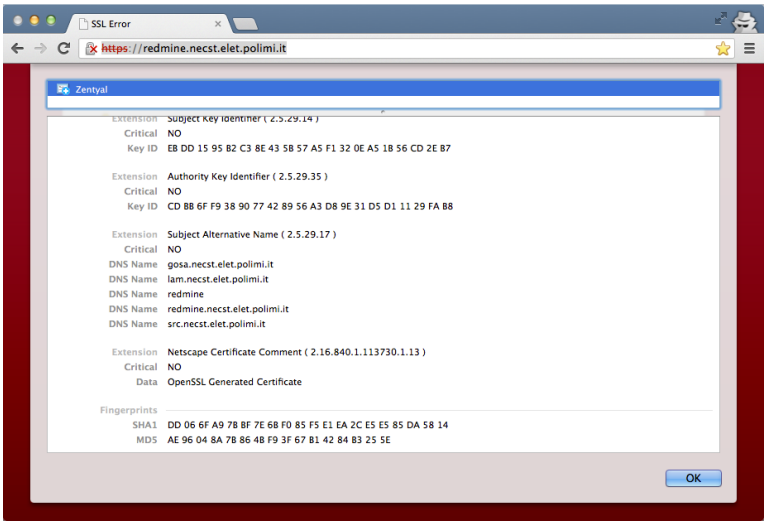

Figure 4.2: SSL certificate details.

This is perfectly normal. If you are connecting from within the lab local network you can safely confirm the security exception.

However, accepting the security exception from outside the lab network may present some security issues. There are two solutions to this:

- from within the lab network, connect to the service that is raising such security exception and accept that certificate permanently.
- (safer) from within the lab network, download the CA certificate from the following URL and add it to the list of trusted CAs on your computer (a.k.a., key-chain).

  https://home.necst.elet.polimi.it/cacert.pem

  which has the following fingerprints

```
SHA1 BD 92 4F 1A B0 75 92 0C 76 0C CC B7 E4 65 AF B8 1C 66 C3 2E
 MD5 1C 45 E5 38 CA 0D BA D7 03 77 39 C9 1B 6D 5D 48
```

alternatively, you can copy and paste the following PEM version of the certificate:

```
-----BEGIN CERTIFICATE-----
MIICvDCCAiWgAwIBAgIJAOxEbwAjWP1CMA0GCSqGSIb3DQEBBQUAMEkxGTAXBgNV
BAoTEE5FQ1NUIExhYm9yYXRvcnkxLDAqBgNVBAMTI0NlcnRpZmljYXRpb24gQXV0
aG9yaXR5IENlcnRpZmljYXRlMB4XDTEyMDMwODE0NDUwNVoXDTIyMDMwNjE0NDUw
NVowSTEZMBcGA1UEChMQTkVDU1QgTGFib3JhdG9yeTEsMCoGA1UEAxMjQ2VydGlm
aWNhdGlvbiBBdXRob3JpdHkgQ2VydGlmaWNhdGUwgZ8wDQYJKoZIhvcNAQEBBQAD
gY0AMIGJAoGBALzFwbzJaqvTMrkyG23pGAxFe8ydRilg51T6Jzbk78N6O4/Rc5Do
VLlRfu9gFcSc8KVYPiGRzfdAgQaOjl8V+zi2rQcdhxzRXtNF7bPLk/LLox6LDmbK
OUoa+HvTE56AsMloW8Yfwz61nX7m+ySRRmNFjyoKcMzbAs4m5qVYLUE3AgMBAAGj
gaswgagwHQYDVR0OBBYEFM27b/k4kHdCiVaj2J4x1dERKfq4MHkGA1UdIwRyMHCA
FM27b/k4kHdCiVaj2J4x1dERKfq4oU2kSzBJMRkwFwYDVQQKExBORUNTVCBMYWJv
cmF0b3J5MSwwKgYDVQQDEyNDZXJ0aWZpY2F0aW9uIEF1dGhvcml0eSBDZXJ0aWZp
Y2F0ZYIJAOxEbwAjWP1CMAwGA1UdEwQFMAMBAf8wDQYJKoZIhvcNAQEFBQADgYEA
rBSg7jZB8jg6cg1JDGnHBKNGrLS/ARgMFBTZfKIWI6Yp2gwYs856kdVKrlYSmU32
lFMgHnQV6CbK9UKZtxhqmkfrwp70Frg5lSGmvvSBpuJOs2ZEUUHjJrEo3fHqDEvp
v9q0dPcBNIX56v3XkqEnt8idicjjfLml3hBJQx0AKMs=
-----END CERTIFICATE-----
```

4.1.2 How to Change your Account Password

Once you obtained access to the computing resources (as described in *How to Obtain Access to the Computing Resources and Services*), just connect to the lab wired network and point your browser to the user corner:

https://home:8888

You can also use the wireless network, but this requires an extra step (described in *Wireless Access*).

4.1.3 Extras

Need more resources or extra services?

Ask your tutor (see *Tutors*) or the *RADRL* and be ready to provide thorough motivation for your request. For instance, *"can I use machine X disk space for my project?"* is usually not enough. Here, explaining *why* you need *that* machine disk space and *which* is your project is usually better, and sufficient.

4.2 Computing Resources

4.2.1 Local Network

Every device connected to the wired network is projected to the local, private network receives an address within the `192.168.42.0/24` pool. Once connected, you can reach unauthenticated services and resources. However, most of the services and resources require authentication.

Note: Why we chose 42 in `192.168.42.0`?

Because 42 is the Answer to the Ultimate Question of Life, the Universe, and Everything.

4.2.2 Wireless Access

We provide wireless access to the local network via WPA/WPA2 Enterprise (the ESSID is `NECSTLab`). Access

requires authentication, which is handled via IEEE 802.1X Standard and EAP-MSCHAPv2 protocols.

In short, you need an account (see *How to Obtain Access to the Computing Resources and Services*).

The setup instructions vary depending on the operating system:

- Windows XP (guide is forthcoming)
- Windows Vista/7 (guide is forthcoming)
- Windows 8 (guide is forthcoming)
- Debian/Ubuntu Linux (guide is forthcoming)
- Mac OS X (guide is forthcoming)

Once connected, your device is automatically granted *Internet Connectivity*.

4.2.3 Internet Connectivity

We provide fast Internet connectivity from within the lab network. Wireless-connected devices are automatically granted connectivity: no extra steps are required.

Wire-connected devices must follow this procedure:

1. Follow this procedure: *How to Obtain Access to the Computing Resources and Services*.
2. Plug your laptop to any of the available cables.
3. Open your browser and connect to your favorite website via the HTTP (not HTTPS!) scheme. This will

pop up an authentication modal dialog: enter your credentials and your MAC address will be allowed

The network infrastructure of Politecnico di Milano is managed by ASICT and the bandwidth is provided the GARR Consortium, the Italian Research & Education Network. Therefore, when using the Internet, in addition to the *Basic Rules: Dos and Don'ts*, every user should follow the General Rules.

The DHCP server automatically assigns to your device the default DNS server (see *DNS*) and gateway, which is `192.168.42.254`.

4.2.4 DNS

We have an internal DNS server, `192.168.42.254`, which provides two functions:

- internal queries for `.necst.elet.polimi.it` domain names:
  1. `192.168.42.254` is queried. In case of a cache hit, that is returned immediately, else
  2. `192.168.42.1` is queried and the response is returned.
- caching of responses for queries to external domain names. A request to resolve follows this lifecycle:
  1. `192.168.42.254` is queried. In case of a cache hit, that is returned immediately, else
  2. `131.175.12.1` is queried and the response is returned.

3. `8.8.8.8` is queried and the response is returned.

Registring DNS Names

Should you need to register your `<myname>.necst.elet.polimi.it`, just send an email to Federico Maggi at fede@maggi.cc

4.2.5 Linux Shell

Your account includes a Linux shell, which is reachable via SSH at the following address:

```
username@home.necst.elet.polimi.it
```

or simply

```
user@home
```

4.2.6 Disk Quota

Your account includes 5GB of storage space, which is reachable via SSH/SFTP as well as via CIFS/Samba share.

4.2.7 Remote Access via VPN

You can access the lab's internal resources remotely via our OpenVPN-based VPN. To obtain VPN access:

1. Obtain an account (see *How to Obtain Access to the Computing Resources and Services*)

2. Send an email to the *RADRL*: marco.santambrogio@polimi.it

4.2.8 Printing

There are two laser printers, one black-and-white printer and one color printer:

- Dell 2330dne (black and white): drivers and instructions
- Samsung CLP-315 (color): drivers and instructions

Access to the printers is granted via Samba within the `micro` workgroup. You will need to authenticate first.

> **Warning:** In order not to waste paper and toner, prints are forced on both sides of each sheet. However, please limit the use of paper and toner (e.g., do not print your thesis).

4.3 Services

4.3.1 Mailing Lists and Communication

There are several mailing lists. Depending on your work area, you should request access (or you already have access) to some of or all the following:

- necst ml
- necst-strut ml
- necst-security-stud ml

In addition to these mailing lists, join our NECSTLab Facebook Group.

4.3.2 Project Management Platform

We rely on the Redmine to manage our projects. It provides:

- wikies
- source code repositories
- bug tracking
- gantt
- calendar
- news
- forums

If you are involved in a project and need to use any of the above tools, follow this procedure:

1. Obtain an account (see *How to Obtain Access to the Computing Resources and Services*)
2. Log in at

   https://redmine.necst.elet.polimi.it
3. Send an email to Federico Maggi with the *RADRL* in Cc mentioning the name of the project you need access to: fede@maggi.cc

4.3.3 Code Repositories: Git/SVN

You can host your code in two places:

- our *Project Management Platform* integrates a source code repository service:
  1. ask Federico Maggi for a new repository
  2. you will receive a path that looks like the following

     ```
     https://<username>@src.necst.elet.polimi.it/git/<project>/<repo-name
     https://<username>@src.necst.elet.polimi.it/svn/<project>/<repo-name
     ```

  3. check out these guides if you are not sure how to use Git or SVN
     - Git Immersion
     - Git Reference
     - Version Control with Subversion (long enough to discourage you from using SVN)
     - Why Git is Better than X
- the NECSTLab GitHub account, https://github.com/necst for which you need a personal GitHub account (free).

Warning: Both the SVN and the internal Git repositories are accessed via HTTPS. Thus, bare in mind the *SSL Security Warnings*.
The SVN client will show you the following warning

```
$ svn co https://user@src.necst.elet.polimi.it/svn/prj/repo
Error validating server certificate for 'https://src.necst.elet.polimi.it:443':
 - The certificate is not issued by a trusted authority. Use the
   fingerprint to validate the certificate manually!
Certificate information:
 - Hostname: src.necst.elet.polimi.it
 - Valid: from Mon, 23 Apr 2012 16:55:12 GMT
          until Sun, 06 Mar 2022 14:45:05 GMT
 - Issuer: NECST Laboratory
 - Fingerprint: dd:06:6f:a9:7b:bf:7e:6b:f0:85:f5:e1:ea:2c:e5:e5:85:da:58:14
(R)eject, accept (t)emporarily or accept (p)ermanently?
```

which you can safely accept (p) from within the lab local network.
The Git client is particularly secure and prevents you from using a remote server at all if it has an non trusted certificate. It will show a message like the following:

```
$ git clone https://user@src.necst.elet.polimi.it/git/prj/repo.git
  Cloning into 'repo'...
  error: SSL certificate problem, verify that the CA cert is OK. Details:
  error:14090086:SSL routines:SSL3_GET_SERVER_CERTIFICATE:certificate
  verify failed while accessing https://user@src.necst.elet.polimi.it/git/
  prj/repo.git/info/refs?service=git-upload-pack
  fatal: HTTP request failed
```

For Git, the best solution is to add the CA certificate to your computer's keychain (see *SSL Security Warnings*). There is also a workaround, which is although not secure:

```
$ GIT_SSL_NOVERIFY=true git clone \
    https://user@src.necst.elet.polimi.it/git/prj/repo.git
```

or just export the `GIT_SSL_NOVERIFY` variable to `true` in your shell startup file (e.g., `~/.bashrc`, `~/.zshrc`).

4.3.4 Web Application Containers and HTTP Reverse Proxy

We can provide isolated containers to host your web applications written in Python, Ruby, PHP, Java, and so on. This is considered an non-ordinary service, although the lab is happy to provide it to you in case you need it for your thesis or your projects.

In addition, if you want your web application to be reachable from the outside network, we can provide port-forwarding and HTTP reverse proxy services.

Just follow this procedure if you want to know more: *Extras*.

4.3.5 Centralized Logging and Exception Storage

Logging can be painful. It consumes space on your machine and, if not properly indexed, it takes ages to go through your logs to find the relevant details to debug your application. Also, logging is often not enough: what if an exception occurs? Do you have all the traceback information right in your logging messages? Unlikely.

Fortunately, we have set up two services:

- logstash, a tool for managing events and logs. You can use it to collect logs, parse them, and store them for later use (like, for searching).
  - How to reach it: http://logs.necst.elet.polimi.it

    - How to send logs to it: just configure your syslog to send logs to `logs.necst.elet.polimi.it` via TCP port 55514

- Sentry, a tool for managing exceptions and storing the tracebacks for debugging
    - How to reach it: http://sentry.necst.elet.polimi.it
    - How to send events to it

You need separate accounts for these tools. Ask Federico Maggi about this.

4.4 The NECSTCloud

We are thrilled to announce that we are currently working on building a powerful private cloud for the NECSTLab, powered by KVM and OpenNebula.

5 Activities: Having Fun Leads to Great Research

As the title says, we strongly believe that doing research without having fun leads to stress and unhappiness. Therefore, we take some time off and enjoy spending great moments together.

Ah, in case you didn't notice it already, we like to prefix everything with "NECST".

5.1 NECST Summer Workshop

The goal of the NECST Summer Workshop is a great opportunity for the members of the NECSTLab to present their work, get feedback, foster constructive discussion, and get to know each other in a tranquil and mind-refreshing place.

Every member of the lab spends months working on a project, but there is usually no time left to present them (except, of course, at conferences). Well, the goal of the NECST Summer Workshop is to fill this gap:

- no time-pressure while presenting,
- create a distraction-free environment where everyone is focused,
- challenge yourself and learn how to present well,
- receive early feedback on your work,
- discuss ideas and plans for the subsequent year.

The NECSTLab is a multidisciplinary research environment, where several research areas and topics blend together:

- security
- performance evaluation
- computer architectures
- multi-core systems
- reconfigurable systems
- operating systems
- CAD systems
- evolutionary systems
- cryptography applications

Consequently, also the NECST Summer Workshop is a multidisciplinary event.

You do not need to be an expert on anything to participate at the NECST Summer Workshop, but you must be able to listen to other people work, be determined to get involved and reason about many topics.

5.1.1 Venue and Travel

Where Hotel Villa Gina, Goglio (Baceno): http://www.parcodeverovillagina.it/

When Between the last week of July and the first week of August.

Cost 20 to 40 Euros

More information is provided in advance through the mailing lists (see *Mailing Lists and Communication*).

5.2 NECSTPizza

Every Friday, at 12:30, we have lunch together! It's a great opportunity to chat with your colleagues and get to know each other.

If you want to participate, make sure that you are subscribed to our mailing lists (see *Mailing Lists and Communication*).

5.3 NECSTBreakfast

Do you want to meet all the NECSTLab members? Do you like to share your ideas and to be updated on the research done by the other NECSTLab folks?

The NECSTBreakfast is your event!

NECSTBreakfast is a time to socialize with other NECSTLab folks, find out what other people are working on, learn

something new, and build new collaborations.

Enjoy free tea, coffee, cookies, and other goodies. Join us in the lab to have your breakfast with us while sharing your research ideas, successes and open issues!

We strive to follow the tradition and organize one NECSTBreakfast at the beginning of every month. However, that's not always possible. Therefore, the best way to know when the next NECSTBreakfast is going to take place is to get subscribed to our mailing lists (see *Mailing Lists and Communication*).

5.4 NECSTMas

We enjoy spending Holiday time together. Every year, we organize a dinner followed by a gift-swapping game; traditionally, the so-called "Yankee Swap".

5.4.1 When

The first Friday before December 23rd, unless differently announced through the mailing lists (see *Mailing Lists and Communication*).

5.4.2 Location

The location is usually a brewery/beer parlor in downtown Milan.

5.4.3 Yankee Swap Rules

1. Participants bring one wrapped gift (you are not allowed to spend more than 5 euro for a gift) and places the gift in a pile/central location.
2. Participants draw numbers to determine the order in which they go.
3. The person who drew #1 goes first and must open a gift from the pile.
4. The person who drew #2 goes next and has the choice of taking the gift opened by #1 or opening another gift. If #1's gift is taken player #1 must open another gift from the pile.
5. The person who drew #3 goes next and can either take #1's gift or #2's gift or open a gift. If player #3 takes an opened gift from player #1 or #2 then that player who is now giftless has the option of taking the other gift that was opened or opening a wrapped gift (they cannot take player #3's gift – see rule 8).
6. Play continues as such with players either taking/swapping a gift or opening one.
7. When a gift is opened the round is over (you can't decide you don't like what you opened and decide to swap for something else).
8. Any single gift can only be swapped once per round.
9. Once the round for the highest number player has completed player #1 can swap gifts with any other player (there is no futher swapping after that).

10. After taking your turn you must keep your gift out where other players can see it.
11. When it's your turn if you touch a wrapped gift you have to open it.
12. If a participant takes too much time deciding which gift top swap/open the remaining participants can start counting aloud from ten down to zero. If zero is reached the participant must take the wrapped gift closest to you.
13. A gift can be passed/taken just 2 times

6 Brief History of the NECSTLab

TODO

7 Alumni

We go very proud of the following list of former NECSTLab students.

7.1 PhD Degree

- Giovanni Beltrame: M.Sc., Ph.D.
- Cristiana Bolchini: M.Sc. , Ph.D.
- Fabio CancarÃĺ: B.S. 2005, M.Sc. 2007, Ph.D. 2011
- Fabrizio Ferrandi: M.Sc. , Ph.D.
- Luca Fossati: B.S. 2004, M.Sc. 2006, Ph.D. 2010
- Antonio Miele: M.Sc. 2006, Ph.D. 2010
- Matteo Monchiero: M.Sc. 2003, Ph.D. 2007
- Gianluca Palermo: M.Sc. 2002, Ph.D. 2006
- Christian Pilato: B.S. 2005, M.Sc. 2007, Ph.D. 2011
- Vincenzo Piuri: M.Sc. , Ph.D.

- Vincenzo Rana: B.S. 2004, M.Sc. 2006, Ph.D. 2010
- Francesco Redaelli: B.S. 2005, M.Sc. 2007, Ph.D 2011
- Marco D. Santambrogio: M.Sc. 2004, Ph.D. 2008
- Antonino Tumeo: M.Sc. 2005, Ph.D. 2009
- Vittorio Zaccaria: M.Sc. , Ph.D.

7.2 Master Degree

- Carlo Amicucci: M.Sc. 2006
- Fabio Arlati: B.S. 2007, M.Sc. 2009
- Davide Candiloro: B.S. 2005, M.Sc. 2008
- Marco Castagna: B.S. 2006, MS.c 2009
- Vito Giovanni Castellana: MS.c 2010
- Simone Corbetta: B.S. 2006, M.Sc. 2008
- Andrea Cuoccio: B.S. 2007, M.Sc. 2010
- Ivan Beretta: B.S. 2006, M.Sc. 2008
- Livio Dalloro: M.Sc.
- Alberto Donato: M.Sc. 2005
- Edoardo Esposito: M.Sc.
- Giovanna Ferrara: M.Sc.
- Matteo Giani: M.Sc. 2006
- Paolo R. Grassi: B.S. 2007, M.Sc. 2009

- Elisa Malvicini: B.S. 2007, M.Sc. 2010
- Marco Maggioni: B.S. 2006, M.Sc. 2010
- Dario Mattasoglio: B.S. 2007, M.Sc. 2010
- Alessandro Meroni: B.S. 2006, M.Sc. 2009
- Alessio Montone: B.S. 2006, M.Sc. 2008
- Massimo Morandi: B.S. 2006, M.Sc. 2008
- Mattia Munari: B.S. 2004, M.Sc
- Matteo Murgida: B.S. 2006, M.Sc. 2009
- Marco Novati: B.S. 2006, M.Sc. 2008
- Roberto Palazzo: B.S. 2004, M.Sc. 2006
- Alessandro Panella: B.S. 2006, M.Sc. 2008
- Massimo Redalli: M.Sc. 2006
- Chiara Sandionigi: B.S. 2005, M.Sc. 2008
- Michele Santoro: B.S. 2005, M.Sc. 2008
- Donatella Sciuto: M.Sc.
- Filippo Sironi: B.S. 2008, M.Sc. 2010
- Mara Tanelli: M.Sc. 2003
- Marco Triverio: M.Sc. 2010
- Katia Turati: M.Sc. 2005

7.3 Bachelor Degree

- Alessandro Ardemagni: B.S. 2005

- Davide Bartolini: B.S. 2009
- Marco Berardi: B.S. 2010
- Luca Biffi: B.S. 2009
- Alessandra Bonetto: B.S. 2009
- Stefano Bosisi: B.S. 2006
- Ylenia Brischetto: B.S. 2009
- Marco Burrafato: B.S. 2009
- Andrea Campana: B.S. 2005
- Antonio Canclini: B.S. 2005
- Francesco Caponio: B.S. 2007
- Matteo Carminati: B.S. 2009
- Andrea Cazzaniga: B.S. 2009
- Luca Cerri: B.S. 2009
- Andrea Cuoccio: B.S. 2007
- Dario De Ori: B.S. 2006
- Carlo Di Federico: B.S. 2008
- Andrea Di Gesare: B.S. 2009
- Carmine Galeone: B.S. 2005
- Massimo Falcessi: B.S. 2006
- Alessandro Febretti: B.S. 2005
- Giulia Formenti: B.S. 2006
- Chiara Fornoni: B.S. 2006

- Marco Fracassi: B.S. 2006
- Vincenzo Frascino: B.S. 2005
- Alessandro Frossi: B.S. 2005
- Stefano Gallazzi: B.S. 2006
- Gerardo Gallucci: B.S. 2005
- Giorgio Galvassi: B.S. 2005
- Giacomo Giacchetti: B.S. 2005
- Roberto Gonnella: B.S. 2008
- Pamela Gotti: B.S. 2006
- Marco Losito: B.S. 2004
- Stefano Magnoni: B.S. 2008
- Francesca Malcotti: B.S. 2004
- Michele Mancini: B.S. 2005
- Daniele Marchetti: B.S. 2006
- Alessandro Marin: B.S. 2007
- Alessandro Mele: B.S. 2004
- Diego Mereghetti: B.S. 2007
- Leonardo MinÃš: B.S. 2005
- Francesco Motta: B.S. 2006
- Davide Murrai: B.S. 2004
- Paola Mussida: B.S. 2004
- Roberto Napoli: B.S. 2005

- Davide Nazzari: B.S. 2006
- Arber Ngjela: B.S. 2008
- Diego Nichetti: B.S. 2004
- Stefano Orlandi: B.S. 2004
- Andrea V. Paglialonga: B.S. 2006
- Francesco Paglialonga: B.S. 2009
- Davide Pavoni: B.S. 2004
- Antonio Piazzi: B.S. 2009
- Davide Quarta: B.S. 2006
- Massimo Ratti: B.S. 2004
- Alessandro E. C. Redondi: B.S. 2006
- Matteo Renesto: B.S. 2008
- Valentina Riva: B.S. 2004
- Fabio Rizzato: B.S. 2004
- Luca Rocchini: B.S. 2007
- Matteo Rossi: B.S. 2006
- Davide Rossignoli: B.S. 2006
- Giovanni Saba: B.S. 2007
- Davide Sacchi: B.S. 2005
- Maurizio Sala: B.S. 2005
- Matteo Sangalli: B.S. 2005
- Alessandro Stranieri: B.S. 2005

- Marcello Scipioni: B.S. 2006
- Paolo Somaglia: B.S. 2006
- Nicola Tagliani: B.S. 2005
- Riccardo Tornese: B.S. 2006
- Roberto Urso: B.S. 2006
- Alain Vailati: B.S. 2004
- Valentina Valzelli: B.S. 2006
- Emanuele Vecchio: B.S. 2007
- Stefano Viazzi: B.S. 2005
- Francesca Vignola: B.S. 2004

A Documents

A.1 NECSTLab Safety Instructions

See next pages.

Politecnico di Milano
Dipartimento di Elettronica e Informazione -DEI
Laboratorio di Microarchitetture - MicroLAB

PROCEDURE GENERALI IN CASO DI EMERGENZA

- Chiunque rileva una situazione di allarme o di emergenza, deve segnalarlo immediatamente al personale preposto nel seguente ordine:
  Responsabile alla Didattica e alla Ricerca del Laboratorio (RADRL) Marco D. Santambrogio tel. 4012
  Addetto alla sicurezza tel. 3652 Antonio Tomassone
  Portineria Politecnico tel. 2006 che provvederà al rilancio dei soccorsi esterni.
- In caso si senta suonare un allarme si deve immediatamente interrompere qualsiasi cosa si stia facendo, si devono lasciare libere le linee telefoniche, ci si deve preparare all'evacuazione del laboratorio seguendo le istruzioni del personale preposto o le indicazioni riportate dalla cartellonistica di emergenza.
- In caso l'allarme smetta nel giro di un minuto si deve rimanere comunque pronti per evacuare l'edificio;
- Nel caso l'allarme non cessi nel giro di 1 minuto o ricominci entro cinque minuti dal primo suono si dovrà evacuare l'edificio seguendo le indicazioni del personale preposto o le indicazioni riportare dalla cartellonistica di emergenza recandosi nel punto di raccolta di tutto il personale e rimanendo a disposizione del personale del dipartimento;
- Non ci si dovrà allarmare nel caso venga meno l'alimentazione elettrica: è previsto che in caso di emergenza il Preposto e gli Addetti possano togliere l'alimentazione elettrica. Pertanto **è vietato utilizzare tutti quegli apparati che funzionano elettricamente ed indirizzarsi verso quelle uscite dotate di apertura elettrica, se non è presente anche il dispositivo manuale di sblocco**.
- Se qualcuno si dovesse trovare in luoghi (per esempio servizi igienici, o locali sotto il livello del suolo, come è il caso del MicroLAB), e venisse a mancare l'energia elettrica, deve tempestivamente uscire e dirigersi verso le vie di fuga, perché potrebbe essere alla presenza di una situazione di emergenza per la quale non ha udito il segnale di allarme o di evacuazione.
- **All'ordine di evacuazione generale:** *Si ha l'ordine di evacuazione generale (emergenza di livello 2) se il suono dell'allarme non viene tacitato entro un minuto o se dopo essere stato tacitato riprende nel giro di cinque minuti. L'ordine di evacuazione generale può essere anche dato vocalmente dai preposti (addetti).* Tutto il personale si avvierà ordinatamente verso le vie di fuga predisposte verso il luogo classificato sicuro, chiudendo **non a chiave** le porte di accesso, seguendo le indicazioni degli addetti alla sicurezza. L'ultima persona ad uscire dovrà assicurarsi non lasciare altre persone nel locale evacuato.
- L'evacuazione deve avvenire, in ogni caso, senza correre e senza usare ascensori. Se qualche persona dovesse essere presa dal panico, dovrà essere calmata e rassicurata, presa per mano e condotta verso le uscite.
- In caso di presenza di fumi, l'evacuazione dovrà avvenire camminando abbassati e respirando attraverso un fazzoletto, possibilmente bagnato.

Politecnico di Milano
Dipartimento di Elettronica e Informazione -DEI
Laboratorio di Microarchitetture - MicroLAB

Norme di sicurezza

- E' consentito l'accesso solo a studenti, dottorandi, borsisti, e dipendenti del Politecnico di Milano che siano stati preventivamente autorizzati all'ingresso nei locali del Laboratorio di Microarchitetture - MicroLAB mediante apposito modulo del DEI, e che siano stati istruiti sui rischi e sulle norme di sicurezza mediante appositi corsi organizzati dal Politecnico di Milano
- Non è consentito introdurre attrezzatura di qualunque genere nei locali del laboratorio, se non preventivamente autorizzati.
- La gestione degli apparati collegati alla rete elettrica è consentita solo al personale autorizzato a svolgere tale attività.
- E' necessario porre la massima attenzione per evitare rischi derivanti dalla rete elettrica (prestare attenzione in particolare ai cavi di alimentazione delle macchine e alle prolunghe).
- Il personale che ha accesso al laboratorio svolge di norma attività che prevede l'uso di videoterminale.
- E' necessario porre la massima attenzione per evitare i rischi derivanti da lavoro a videoterminale.
- Di norma non è consentita nel laboratorio alcuna attività diversa da quella di uso del videoterminale. Ogni nuova attività sperimentale che possa comportare rischi aggiuntivi rispetto all'uso dei videoterminali deve essere preventivamente autorizzata dal preposto alla sicurezza. In particolare l'uso delle schede prototipali, ad esempio quelle basate su FPGA, richiede espressa autorizzazione e la presa visione delle Informazioni generali sui rischi elettrici.

NOTA: le autorizzazioni all'ingresso sono fornite dal DEI mediante modulo firmato dal docente di riferimento e dal responsabile alla didattica e alla ricerca – RADRL (Prof. Santambrogio). Le autorizzazioni all'uso dei video terminali, alle schede prototipali base su FPGA e a nuove attività sperimentali sono concesse dal preposto alla sicurezza (Prof. Santambrogio).

Milano, 20 Agosto 2010

Prof. Marco D. Santambrogio

Politecnico di Milano
Dipartimento di Elettronica e Informazione -DEI
Laboratorio di Microarchitetture - Micro Lab

Informazioni generali sui rischi da lavoro a videoterminale

Contrariamente a quanto si pensi il principale rischio derivante dall'uso del videoterminale non è l'emissione di radiazioni ma il rischio per la vista e l'apparato muscolo scheletrico. I problemi all'apparato visivo sono in genere causati da riflessi sullo schermo, da sfarfallio dell'immagine e da contrasti inadeguati.
I problemi dell'apparato muscolo-scheletrico sono legati ad una cattiva postura, all'utilizzo di componenti della postazione di lavoro inadatti (seduta, piano di lavoro), ad una inidonea organizzazione della postazione (posizionamento monitor, tastiera, leggii) o a cattive abitudini di lavoro (posture abituali incongrue). E' utile ricordare che l'attuale tecnologia produce monitor con bassa emissività, a schermo piatto orientabili, antiriflesso e antisfarfallio, con contrasto e luminosità regolabili e che quindi il problema è da ricondursi soprattutto ai componenti della postazione di lavoro (sedute e piani di lavoro), all'organizzazione della postazione, ai modi e tempi di utilizzo.

Per evitare l'affaticamento visivo è utile porre in atto i seguenti accorgimenti:
- posizionare correttamente il monitor rispetto alle fonti luminose, in modo da evitare riflessi;
- servirsi di eventuali schermature fisse o mobili per il controllo delle fonti luminose naturali (tende, veneziane, ecc.);
- regolare luminosità e contrasto dello schermo in modo da rendere nitida l'immagine ed evitare eccessivi contrasti tra sfondo del monitor e sfondo del locale;
- in caso di stanchezza visiva eseguire degli esercizi di rilassamento degli occhi (es. seguire con lo sguardo il perimetro del soffitto, distogliere l'attenzione da oggetti vicini e guardare verso oggetti lontani, socchiudere le palpebre per alcuni minuti escludendo gli occhi dalle fonti di luce).

Per evitare disturbi all'apparato muscolo-scheletrico è utile porre in atto i seguenti accorgimenti:
- usare sedute ergonomiche e mantenere posture corrette;
- posizionare la tastiera in modo da poggiare la parte terminale dell'avambraccio sul piano di lavoro, o sui braccioli della seduta, durante la digitazione; - in caso di affaticamento cambiare posizione o eseguire esercizi di rilassamento.

In ogni caso, per chi opera in modo continuativo al videoterminale è prescritto di effettuare pause di quindici minuti ogni due ore di lavoro, dedicandosi ad altra attività, evitando soprattutto di rimanere seduti.

Informazioni generali sui rischi elettrici

Il rischio di avere effetti nocivi o letali dal contatto con parti in tensione dipende dalla corrente in transito ed è legato ad una quantità di fattori (quali parti del corpo fanno contatto, umidità e sudorazione, area di contatto, sensibilità individuale, ...) difficilmente quantificabili. E' possibile però dare alcune regole generali:

- mai esporsi a tensioni superiori ai 12V senza protezioni isolanti (guanti);

- mai toccare apparecchi elettrici con le mani bagnate o umide (incluso il caso di mani sudate!);

- le tensioni alternate (sinusoidali, pulsate, ...) sono più pericolose di quelle continue;

- le sorgenti in grado di erogare alte correnti (ad es. batterie, rete elettrica a 230V, ...) sono particolarmente pericolose;

- alcuni dispositivi elettrici (condensatori, batterie, ...) sono pericolosi anche in assenza di qualsiasi

alimentazione esterna;

- mai toccare a mani nude una persona che sta subendo una scossa elettrica: per allontanarla dalla sorgente della scossa usare oggetti in materiale isolante (plastica, legno, cartone, ...).

Il dispositivo può presentare contatti elettrici scoperti. Toccare tali contatti può essere molto pericoloso. Qualora questa situazione venga rilevata, essa va immediatamente segnalata al Responsabile per la Sicurezza del laboratorio (si veda il paragrafo "Procedure generali in caso di emergenza").

A.2 NECSTLab Access Document

See next page.

POLITECNICO DI MILANO
Dipartimento di Elettronica e Informazione

MODULO DI REGISTRAZIONE ACCESSI STUDENTI/TESISTI

Al Direttore
del Dipartimento di Elettronica e Informazione
S e d e

Il sottoscritto, Prof. …… ……..
cognome nome

chiede che lo Studente/Tesista …… …….. ……..
cognome nome #matr.

sia abilitato all'accesso al Dipartimento , presso la sede di

☐ Edificio 20 – Via Ponzio 34/5
☐ Edificio 24 – Via Golgi 40 – Sez. Elettronica
☐ Edificio 22 – Via Golgi 42
☐ Edificio 30 – Via Colombo, 81 – POLICOM
☐ Edificio 33 – Viale Rimembranze di Lambrate, 14

e al Laboratorio …… ……

nel periodo dal _ _/ _ _/ _ _ al _ _/ _ _/ _ _

A tale scopo si richiede inoltre:

☐ l'abilitazione del badge rilasciato dal Politecnico di Milano – Matr. n. _____
☐ il rilascio del trasponder
☐ la fornitura delle chiave ……

Data _ _/ _ _/ _ _

Il Docente Responsabile Il Responsabile RADRL

…….. ……..

DICHIARAZIONI IN TEMA DI SICUREZZA

Il sottoscritto …… ……..
cognome nome

nato a ……..… il …….

recapito tel. …… e-mail ……...

ai fini degli adempimenti previsti dal D.Lgs. 81/2008, dichiara

☐ di aver frequentato il corso on-line sulla Sicurezza e di aver superato il test finale
☐ di aver preso visione ed accettato le procedure specifiche sulla sicurezza del laboratorio ove svolgerà la propria attività fornitegli dal Responsabile RADRL
☐ che il badge/trasponder a lui riconsegnato con le attivazioni richieste è strettamente personale e non cedibile a terzi

Firma ……..

Il sottoscritto esprime il proprio consenso affinché i dati forniti possano essere trattati secondo quanto previsto dal Decreto Legislativo 30 giugno 2003, n.196 – Codice in materia di protezione dei dato personali, per gli adempimenti connessi alla presente procedura.

Firma ……..

Spazio riservato all'Ufficio Registrazione Accessi

Chiave gruppo n. …… Badge/Trasponder n. ……

Data consegna ……

THE END