

无中生有：CERN 账号的申请及后续操作

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0.概要

这是一个关于注册 CERN 账户，申请 CA (Certificate Authority)证书授权，注册 CMS VO (Virtual Organization)，用 CERN 账号申请云盘 CERNBox 的简单指南。

1.注册 CERN 账户

CERN 的账户不能自己想注册就注册，需要由已经在 CERN 注册了的用户提交新用户介绍信：<https://cms.cern.ch/iCMS/jsp/scr/reg/regCMS.jsp>。对于同学们来说，把自己的邮箱告诉老师就好了。之后静静等待 CMS 的秘书给自己的邮箱发送注册邮件如图 1。

Your CMS registration form

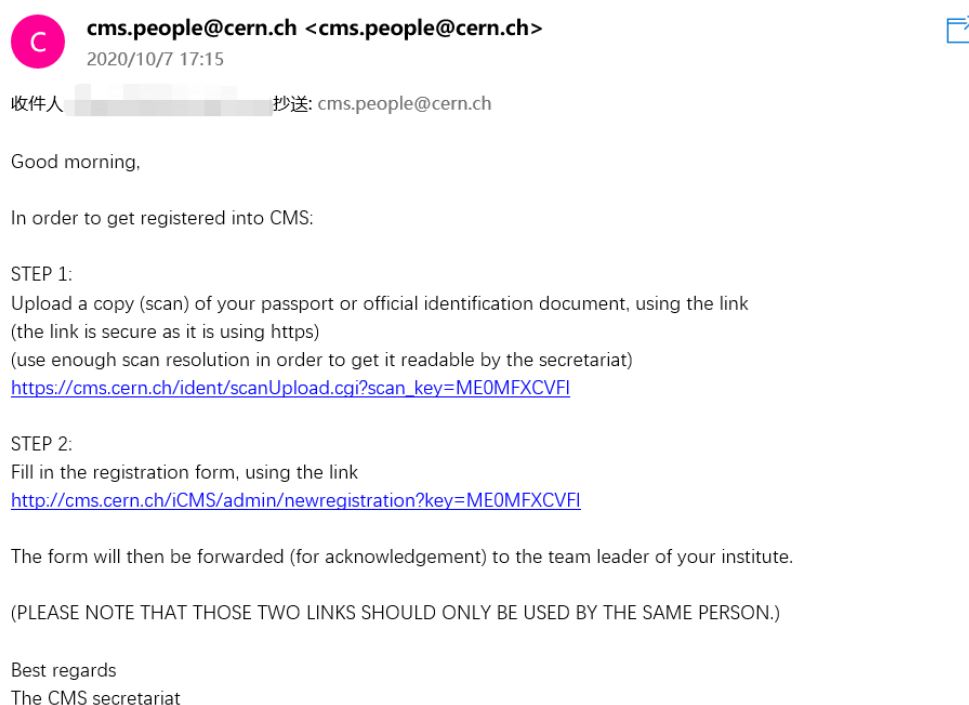


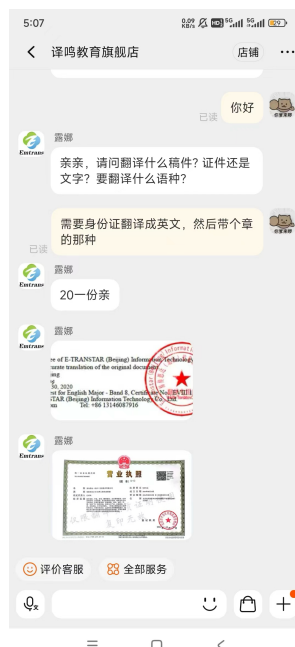
图 1 注册邮件

根据邮件的指示，首先在第一条链接里上传自己的证件。如果有护照，直接上传护照个人信息页的扫描；如果没有护照，可以做一个 word 文件，里面加上身份证的扫描，并且自己翻译成英文，如图 2。（如今自行翻译的身份证无法通过审核，当前做法请参考图 2 下方的备注）



图 2

搜索任意可以翻译盖章的淘宝店，告诉客服你需要身份证翻译并加盖翻译章，如下图所示：



最终你会收获一份带章的身份证翻译文件(大概需要花 20rmb), 你需要上传这个文件, 而不是上传你自行扫描翻译的文件。

接着进入第二条链接，填写注册表如图 3-图 6.一共有五步。

Step 1 (图 3) 中被挡住的部分是说，只有在 CMS 待够了一年且在 CMS 项目里工作了六个月及以上的物理学家、工程师和博士生可以在 CMS 的出版物上署名。同学们可根据自

己的情况在 Activity 一栏选择 Doctoral Student, Non-Doctoral Student, 或其他。
Your main project at CMS 可以选择 Muon 或者 HGcal。

User: New Member CMS Registration Form

Step1: **Member** Step2: *Institute* Step3: *CERN* Step4: *Interests* Step5: *Submit*

CMS Member Information

Please note: Fields flagged by "*" are mandatory

Member

Title: Gender: *

Family name: * First name: *

Nationality: CN * Nationality2: Birth date: *

Your main project in CMS: Muon * Remark: Registration in Project 'General' is not allowed.

Activity: ☒ Administrative ☒ Doctoral Student ☐ Engineer ☐ Engineer Electronics ☐ Engineer Mechanical ☐ Engineer Software ☐ Non-Doctoral Student ☐ Physicist ☐ Technician ☐ Theoretical Physicist

Activity details:

Remark: On... (with M&O) and Doctoral Students sign CMS scientific publications after 1 year... service work in a CMS project.

Email1: * Email2:

Next Step

图 3 注册表 step1

Step 2 (图 4) 点击 CMS Institute 并从弹框中选择 BEIJING-THU

User: New Member CMS Registration Form

Step1: *Member* Step2: **Institute** Step3: *CERN* Step4: *Interests* Step5: *Submit*

Ms. Zhang Ying

CMS Member's Institute Information

Please note: Fields flagged by "*" are mandatory
If your institute is not in the list, please contact [the CMS secretariat](#)

Institute

CMS Institute: BEIJING-THU * Institute name: Institute address:

Non-CMS Institute: *

CBI: CBD:

Special address at institute:

Replace/customize the institute standard address if needed.

Office phone: +41 (22) 767 22 77 * Office fax:

Home phone:

« Previous Step Next Step »

图 4 注册表 step2

Step 3 是针对已经有 CERN 账号的人的，我们可以直接跳过。

Step 4 (图 5) 的 Interested 和 Working 想怎么选都无所谓。比如 Working 可以多选几个，把 HCAL, Muon, Physics 都选上都行。

Step 5 (图 6) 检查无误后提交。

The screenshot shows the 'User: New Member CMS Registration Form' at Step 4: Interests. The user is Ms. Chen Jialian. The form title is 'CMS Member's Interests'. A note states: 'Topical e-mails will be sent according to the following codes (domains of interest)'. There are two columns of checkboxes: 'Interested' and 'Working'. Under 'Interested', the 'Physics' checkbox is checked. Under 'Working', the 'Calorimetry', 'Electromagnetic/ECAL', 'Hadron/HCAL', 'Very Forward/VFCAL obsolete?', 'Computing', 'Trigger & Data Acquisition', 'Data Acquisition', 'Trigger', 'Muons', 'Physics', 'Software', and 'Tracking' checkboxes are all checked. Below the checkboxes, there is a text box explaining that after registration, the user will have a password-protected CMS NICE account (ZH) for personal parameters like email and phone. At the bottom, there are buttons for '« Previous Step' and 'Next Step »'.

图 5 注册表 step4

The screenshot shows the 'User: New Member CMS Registration Form' at Step 5: Submit. The user is Ms. [redacted]. The form title is 'Submit'. It contains a grid of input fields for personal and contact information. The 'Title' is 'Ms.', 'Gender' is 'F', 'Family name' is 'CN', 'First name' is '[redacted]', 'Birth date' is '[redacted], 2001', 'Nationality2' is '[redacted]', 'Email1' is '[redacted]', 'Email2' is '[redacted]', 'Project' is 'Muon', 'Institute code' is 'BEIJING-THU', 'Institute name' is '[redacted]', 'Office phone' is '+41 (22) 767 22 77', 'Home phone' is '[redacted]', 'GSM' is '[redacted]', 'fax' is '[redacted]', 'Office' is '[redacted]', 'Phone(s)' is '[redacted]', 'Department' is '[redacted]', 'Group' is '[redacted]', 'Section' is '[redacted]', 'Status' is '[redacted]', 'other exp.' is '[redacted]', '% of time' is '[redacted]', 'Home address (in CERN region)' is '[redacted]', 'Special address at institute' is '[redacted]', 'Private Phone (in CERN region)' is '[redacted]', 'mu' is 'Interested', 'ph' is 'Interested', 'sw' is 'Interested', and 'mu' is 'Interested'. Below the grid, there is a note: 'will be submitted to the Team Leader Kai Yi (China) of your Institute'. At the bottom, there are buttons for '« Previous Step' and 'Submit Registration »'.

图 6 注册表 step5: 提交前的确认

提交注册之后数日内, 会收到 CERN 发来的注册确认邮件, 如图 7. 此时你已经拥有 CERN 计算账号和 CERN 邮箱啦, 接下来你需要做的是激活它们。

“CERN 是 Internet 的发源地, 很多人认为, 拥有 CERN 邮箱是一件荣耀的事情, 会把 CERN 邮箱作为自己的主邮箱, 一辈子就用它了。”——胡震老师真是激动人心啊。

[CMSPEOPLE] CMS Registration Confirmation



cms.people@cern.ch <cms.people@cern.ch>

2020/10/8 17:11

收件人: [REDACTED] 抄送: cms.register@cern.ch

Dea. [REDACTED] (BEIJING-THU),

You are now registered in CMS as 'Doctoral Student' from your institute (BEIJING-THU) .

Family name: [REDACTED]

First name: [REDACTED]

HRpersonId: [REDACTED]

Service work: Yes

- IF you do not have a CERN computing account, a primary account and a CERN e-mail address will be created for you. To activate your account and obtain the login name and temporary password, please follow the procedure of <http://espace.cern.ch/identitymanagement/Public/NewComerFlyer.pdf>
- IF this is your first CERN account, please contact 'cms.computing@cern.ch' and give your account name OR go to <https://account.cern.ch/account/>, then 'Services' tab, then 'Linux and AFS' subscribe and choose computing group 'ZH' for CMS, instead of the 'default', so that your account can be attached to the CMS group.
- IF and only if you already have used a CERN account, please see choices (A), (B) and (C) below.

图 7 注册确认邮件

激活的步骤在第一个链接的 pdf 文档里有详细说明。第一步, 在工作时间 (工作日的 07:30 - 18:30) 去 CERN Service Desk (building 55, 2nd floor, just outside of CERN entrance B) 现场激活, 或者发送邮件给 Service-Desk@cern.ch 并在邮件中附上自己的护照身份信息页。如果邮件里不知为何附不了的话, 也可以考虑给+41 22 766 84 89 发传真。

当然了, 我们的同学们显然都是发邮件激活。

发送邮件后, 一般而言很快就能收到服务台的复信如图 8。复信内包含了你的 CERN 账号及邮箱的地址, 以及它们的初始密码, 以及一个 EDH 系统的密码。

注意这封信有可能会被放到你的垃圾邮件里, 所以请及时查看你的垃圾箱。

Welcome to CERN.



CERN Account Website <noreply@cern.ch>

2020/10/9 14:21



收件人: [redacted]

You are receiving this email because **Nerea Uribarri Bilbao** has activated your CERN account. This message has been automatically generated by a tool, please do not reply.

[Version française en fin de ce message](#)

Welcome to CERN!

Dear [redacted],

Welcome to CERN!

Your CERN computing account has been created:

- **Your credentials:**
 - Login: [redacted]
 - Temporary password: [redacted]
- **Your email address:** [redacted]
- **Your temporary EDH signature password:** [redacted]
EDH is CERN's Electronic Document Handling system that you will use once you join CERN to manage various administrative actions such as leave, travel, training, purchasing, access etc.

Required Actions

Please log in to the account configuration wizard at <http://cern.ch/wizard> to complete the configuration of your computing account, and follow the compulsory computing security course within 5 days, or your account will be deactivated.

Once this is done, you can begin your onboarding journey on <https://hr-dep.web.cern.ch/content/i-arrive>.

图 8 服务台复信

现在我们需要配置我们的账号了。**注意！务必在收到复信的五天之内完成配置！**否则，你的账号就会被反激活，你需要重复前面的相关步骤以再次激活它。

现在，进入链接 <http://cern.ch/wizard> 进行配置（图 9）。

Account Management

Manage your computing accounts and service subscriptions



图 9 Wizard 页面

显而易见，只需要一步步跟着它的指示做下去就可以了。值得注意的是第二步 Computing Rules. 这一步要求你上两门网课，并且完成其后面的测试，签署网络安全协议。这一步也是有时间限制的，必须在网页说明里的规定天数内完成。

既然这是 account management 网站，那么以后想修改密码云云也可以到这里来修改。接下来是配置我们的 CERN 账号在 CMS 中的信息，也就是选择我们所属的计算组。这一步，图 8 的邮件里说得不清不楚。实际上的网站页面已经有了一些改版，如图 10-图 13. 我们所属的计算组代号是“ZH”。

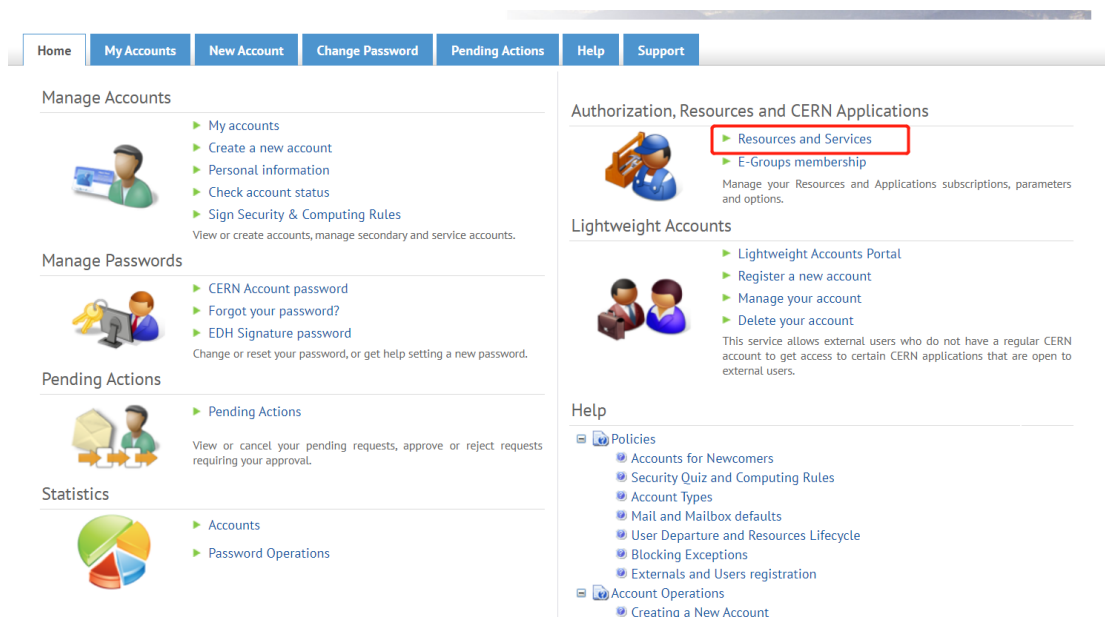


图 10 首页

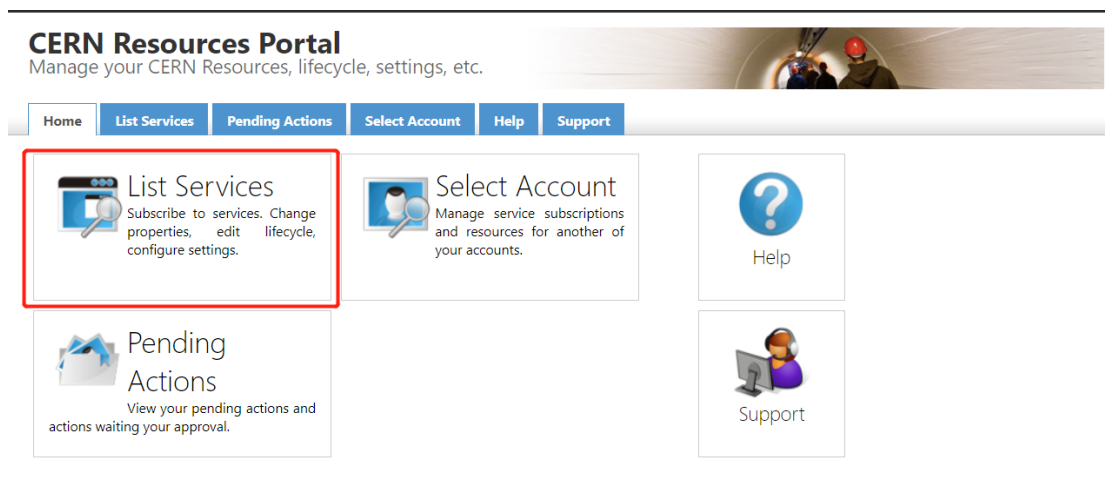


图 11 进入 Services 配置

Services	Listing all the services, with their subscription status	
Subscribed	[Search]	
Not Subscribed	Basics	
A-Z	Account Management Computing Accounts	E-Mail E-Mail Services
My Resources	Communication and Collaboration	
	Skype for Business IP enhanced telephony	Vidyo Universal videoconferencing system.
	Unified Messaging Voice mail on Exchange	CERNphone Enhanced IP telephony
	Operating Systems	
	Windows Terminal Services Remote access to Windows computers.	LXPLUS and Linux Linux and LxPlus services
	Windows Desktops Centrally managed Windows desktops and laptops.	Mac Desktops Mac Desktop Service
	Storage	
	AFS Workspaces AFS File Services	DFS Workspaces Windows based file storage on highly available servers.
		EOS/CERNBox EOS/CERNBox storage.

图 12 选择 lxplus

Home	List Services	Pending Actions	Select Account	Help	Support
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Service Information

Settings

Resources

Computing Groups

LXPLUS and Linux

Linux and LxPlus services

Linux and LXPLUS: This service (Public Login User Service) is the interactive logon service to Linux for all CERN users. The cluster LXPLUS consists of public machines provided by the IT Department for interactive work.

Links

- Linux (Linux @ CERN)
- LXPLUS (Interactive logon service to Linux)

Subscription is based on Computing Groups

To subscribe to LXPLUS, Linux and AFS service, your account must be added to a Computing Group, either a specific one if you participate to some specific Experiments or projects, or a generic one if you have basic needs.

You are already member of the following Computing Groups:

- zh: Linux group zh - CMS

Manage your AFS subscription

Click on the button below to unsubscribe from AFS.

[Unsubscribe from AFS](#)

Specific project or experiment environment

If you need a specific environment, linked to a project or experiment, you should be added to a specific Computing Group. Select the Computing Group from the list below, and send a request to the Group Administrators, explaining why you need to join the group.

Computing Group:

Comment / reason:

[Send Request](#)

图 13 选择所属计算组

初次申请的时候，账号的计算组为默认的“def-cg: Linux group by Default”。在第三栏“Specific project or experiment environment”中提交加入“ZH”组的请求，理由一栏简单写

个“CMS member”之类的就行。同时把第二栏“Manage your AFS subscription”下面的“subscribe”也勾选上。这样就完成了选择计算组的工作。

此时，为了验证是否成功（其实主要是为了得瑟一下），可以试试是否能够成功在本机终端（对 Windows 系统，常用收费版的 Xmanager 或者免费版 PuTTY+Xming 组合，但是如果平时没有图形界面需求的话，强烈推荐有颜有型的 PowerShell）里使用 ssh 协议远程连接到 CERN 服务器：ssh -Y username@lxplus.cern.ch.如果成功连接上了，恭喜！账号的申请与配置到这里就完成了！

2.申请 CA 证书授权与注册 VO

现在我们需要申请连入 CMS 网格计算系统的授权证书 Certificate Authority (CA).有了 CA 之后，就可以使用网格计算资源了。

官方指南网站：<https://twiki.cern.ch/twiki/bin/view/CMSPublic/SWGuideLcgAccess>

我们需要在本机环境安装一个个人证书。

官方指南网站：<https://twiki.cern.ch/twiki/bin/view/CMSPublic/PersonalCertificate>.但是说实话，这种文字海洋式的说明网站很烦人。

前往网站 <https://ca.cern.ch/ca/> 并登录自己的 CERN 账号（图 14），并从“My User Certificates”中获取个人证书，这是一个.p12 文件，名字可能是 myCertificate.p12。

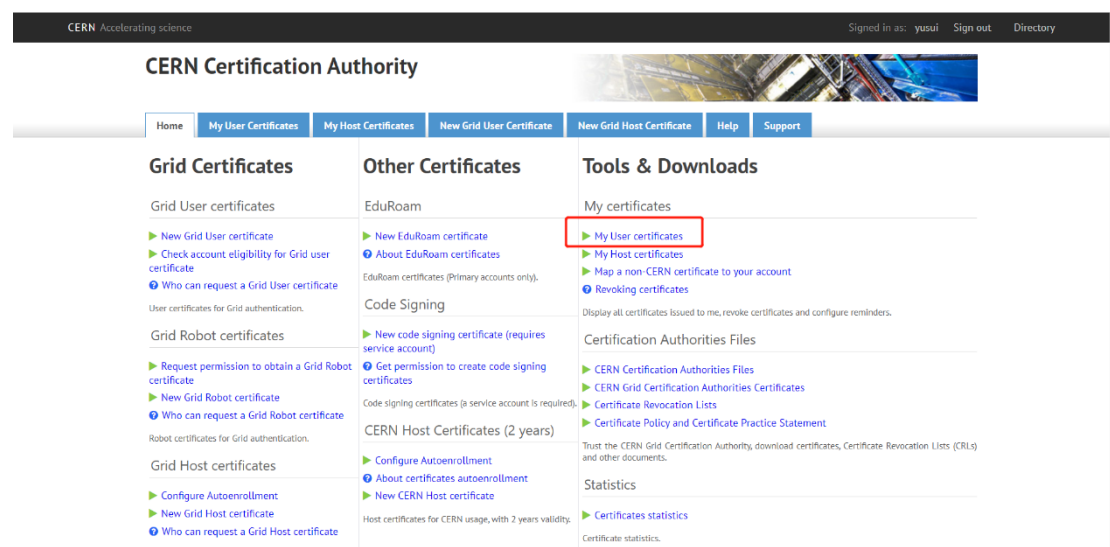


图 14 获取个人证书

进入浏览器设置的“安全-管理证书”（不同浏览器具体名称有细微差异），选择“导入”，将下载下来的 CERN 证书导入浏览器（图 15）。需要注意的是，这个证书属于个人证书，导入选择存储区域的时候别选错了。不过也可以放心地让浏览器自动选择。

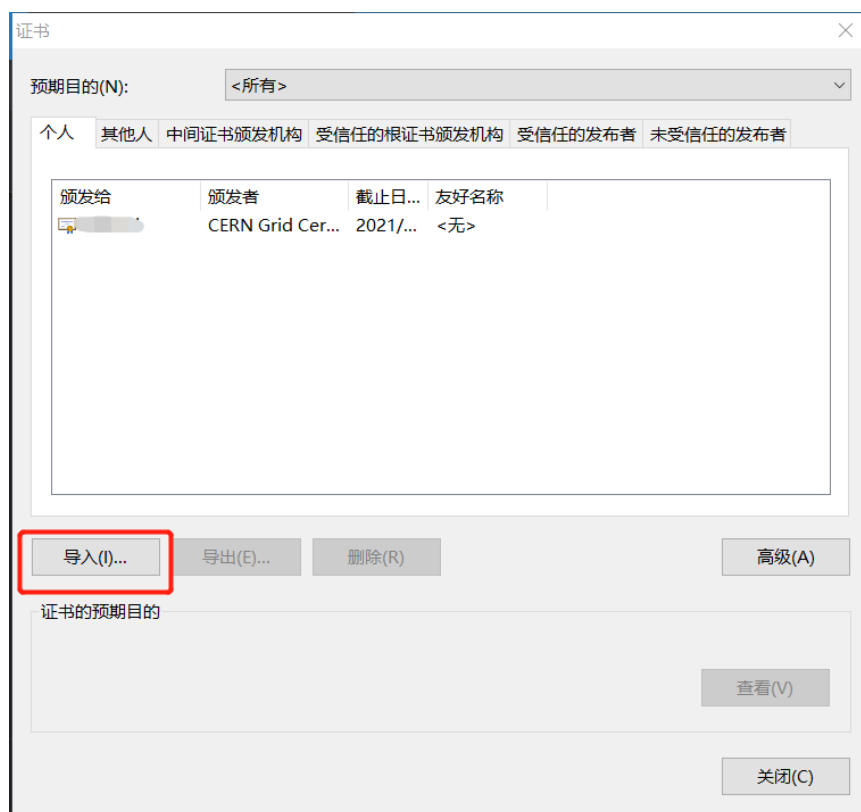


图 15 导入证书

证书导入好了之后，我们还需要在 CMS VO 处注册，才能顺利连入网格计算。进入网站：<https://voms2.cern.ch:8443/voms/cms/register> 进行注册(这一步过期了，请空降至下方红字)。在进入时，浏览器往往会有警告提示（图 16），不要管，继续访问。在继续访问之后，会弹出窗口核对你的个人证书，在弹出窗口中选择你的个人证书即可。



你的连接不是专用连接

攻击者可能试图从 **voms2.cern.ch** 窃取你的信息(例如, 密码、消息或信用卡)。

NET::ERR_CERT_AUTHORITY_INVALID

隐藏高级

返回

此服务器无法证明它是 **voms2.cern.ch**; 你的计算机的操作系统不信任它的安全证书。这可能是由配置错误或者有攻击者截获你的连接而导致的。

[继续访问 voms2.cern.ch \(不安全\)](https://voms2.cern.ch)

图 16 浏览器警告, 不要管

按网页指示提交注册申请后, 会收到确认的邮件(图 17)。注意, 这封邮件会发到你的 CERN 邮箱, 请前往 <https://mmm.cern.ch/owa/> 登录你的邮箱查看。

[VOMS Admin] Your membership request for VO cms

VOMS Admin for VO cms [project-lcg-vo-cms-admin@cern.ch]

Actions

To: [redacted]

Wednesday, October 14, 2020 4:54 PM

Dear [redacted],

you have requested to be a member of VO cms.

In order for the registration to proceed, you should confirm this request by going to the following url:

[https://voms2.cern.ch:8443/voms/cms/register/confirm-request.action?requestId=\[redacted\]](https://voms2.cern.ch:8443/voms/cms/register/confirm-request.action?requestId=[redacted])

In case you never requested to be a member of VO cms, please let us know by going to the following url:

[https://voms2.cern.ch:8443/voms/cms/register/cancel-request.action?requestId=\[redacted\]](https://voms2.cern.ch:8443/voms/cms/register/cancel-request.action?requestId=[redacted])

Your sincerely,
Voms-Admin registration service for VO cms

图 17 VO 确认邮件

()
Tsinghua University
Membership does not expire.

[Apply for membership removal](#)

Your personal information

Given name:

Family name:

Email:

@cern.ch

Certificates

Certificate

/DC=ch/DC=cern/OU=Organic Units/OU=Users,
/DC=ch/DC=cern/CN=CERN Grid Certification Authority

Added on: 10/14/2020 02:06:02 下午 CEST

图 18 注册成功后的信息

空投着陆处

现在 cren 简化了注册步骤，你在注册完 cern 账号之后就会自动完成 VO 的注册。你只需要点击签署 AUP 即可。使用你导入了证书的浏览器，打开这个网站：<https://twiki.cern.ch/twiki/bin/view/CMSPublic/SWGuideLcgAccess#AUP>，然后连续点击下方两个图中的红框即可。

AUP

As a new user you need to sign the Grid Acceptable Usage Policy (AUP), and to sign it again every year. If you have not done it or your signature expired, when you do voms-proxy-init -voms cms you will see this message : User ... needs to sign AUP for this organization in order to proceed.

• use your browser to visit cms-auth server (a.k.a. CMS IAM server) and login using CERN's SSO

• you will be automatically prompted with a page were to sign

◦ if not (e.g. you want to resign before expiration, visit https://cms-auth.web.cern.ch/iam/aup/sign A button for signing AUP is also available in your home page in IAM

(a.k.a. cms-auth) if you scroll down a bit

• Done. You can now user your CERN certificate to access CMS VO resources

CMS

Compact Muon Solenoid

Sign Acceptable Usage Policy

In order to proceed, you need to declare that you have read and that you accept the terms of this organization [Acceptable Usage Policy \(AUP\)](#).

I agree with the AUP terms

完成以上工作后，可以通过打开网格计算的数据集（Dataset）网站：<https://cmsweb.cern.ch/das/> 来验证全部步骤是否成功。如果都是正确操作的话，便可以打开该网站。不过即便全部完成了，也有可能要再等个半天一天的才行。

大功告成！……？

否！还要在我们的 CERN 服务器里上传我们的个人证书（myCertificate.p12），因为我们之后做计算时都是在服务器上做的，所以需要我们的服务器也能连入网格计算系统。在本地（注意，是本地，不是在服务器）使用 scp 命令上传 scp myCertificate.p12 username@lxplus.cern.ch:~/

现在，使用如下命令在服务器上安装个人证书。此处可以参考 CERN 官方指南的网站：<https://twiki.cern.ch/twiki/bin/view/CMSPublic/WorkBookStartingGrid#BasicGrid> .

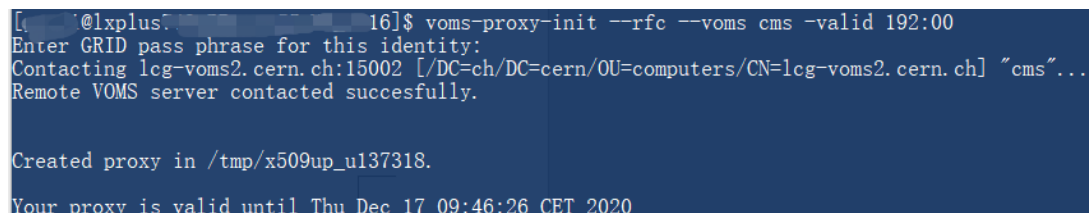
先用 ssh 的方式登陆进 CERN 服务器 ssh -Y username@lxplus.cern.ch

然后执行下面的命令：

```
cd ~
mkdir .globus
cd ~/.globus
mv ~/myCertificate.p12 .
rm -f usercert.pem
rm -f userkey.pem
openssl pkcs12 -in myCertificate.p12 -clcerts -nokeys -out usercert.pem
openssl pkcs12 -in myCertificate.p12 -nocerts -out userkey.pem
chmod 400 userkey.pem
chmod 400 usercert.pem
```

在服务器上连入网格，看看成不成：

```
voms-proxy-init --rfc --voms cms -valid 192:00
```



```
[username@lxplus ~]$ voms-proxy-init --rfc --voms cms -valid 192:00
Enter GRID pass phrase for this identity:
Contacting lcg-voms2.cern.ch:15002 [/DC=ch/DC=cern/OU=computers/CN=lcg-voms2.cern.ch] "cms"...
Remote VOMS server contacted succesfully.

Created proxy in /tmp/x509up_u137318.
Your proxy is valid until Thu Dec 17 09:46:26 CET 2020
```

图 19 服务器连入 VOMS 成功

如果成功了，那么，可以喝罐可乐庆祝一下了！

3.CERNBox 申请

CERNBox 是一个有 1T 存储空间的云盘（哇塞！），我们大家都需要它。

进入 CERNBox 的网站：<https://cernbox.cern.ch>，登入自己的 CERN 账号。

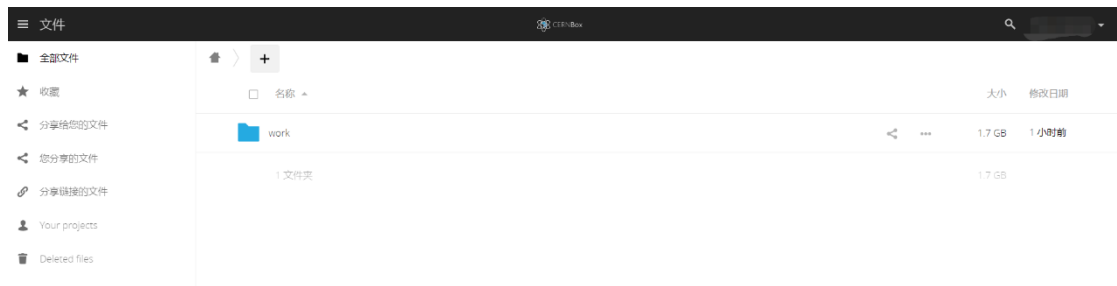


图 20 CERNBox

在我们做网格计算的工作时，不知不觉间就会产生很多文件，大大挤占了本就不宽裕的 lxplus 服务器存储空间。因此，一个可行的办法是将 lxplus 服务器下的路径和 CERNBox 连接起来，这样我们就可以直接在 lxplus 上进行 CERNBox 中的目录、文件的操作了，宛如多插了块硬盘。

首先要在 lxplus 上找到 CERNBox 的位置，通常在 /eos/home-账户首字母/ 的下面，以胡震老师为例：/eos/home-z/zhenhu

找到以后，在 home 目录创建一个 soft link

```
cd ~
```

```
ln -s /eos/home-z/zhenhu work（以胡震老师为例）
```

这样，下一次“cd ~/work”的时候，就相当于进入了自己的 CERNBox 了。

4.尾声

以上就是这篇简单指南的全部内容了。