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HPC Introduction

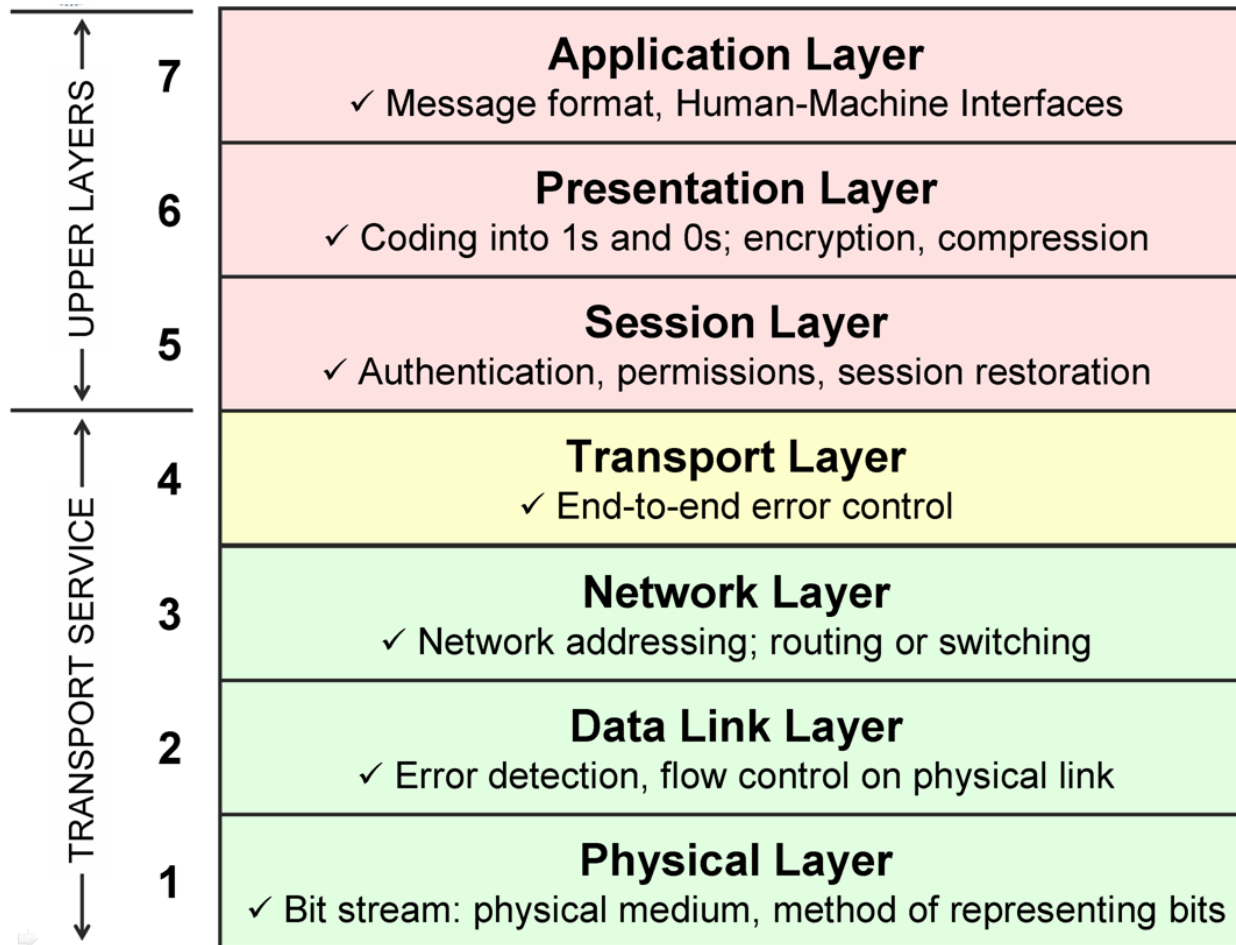
- 1) High-performance computing (HPC)** uses supercomputers and/or computer clusters to solve advanced computation problems.
- 2) A computer cluster** is a group of linked computers, working together closely thus in many respects forming a single computer. Clusters are usually deployed to improve performance and availability over that of a single computer.



HPC to Researcher

- Allows scientists and engineers to solve complex science, engineering and business problems using applications that require high bandwidth, low latency networking, and very high compute capabilities
- It will build the capacity and skills base to help optimize usage and application of HPC for the benefit of enterprise across further afield.
- They can know these systems and that shouldn't be running something on their laptop for days or weeks when they could run it on these powerful machines and get it done a lot faster

OSI Layer





Cont OSI Layer

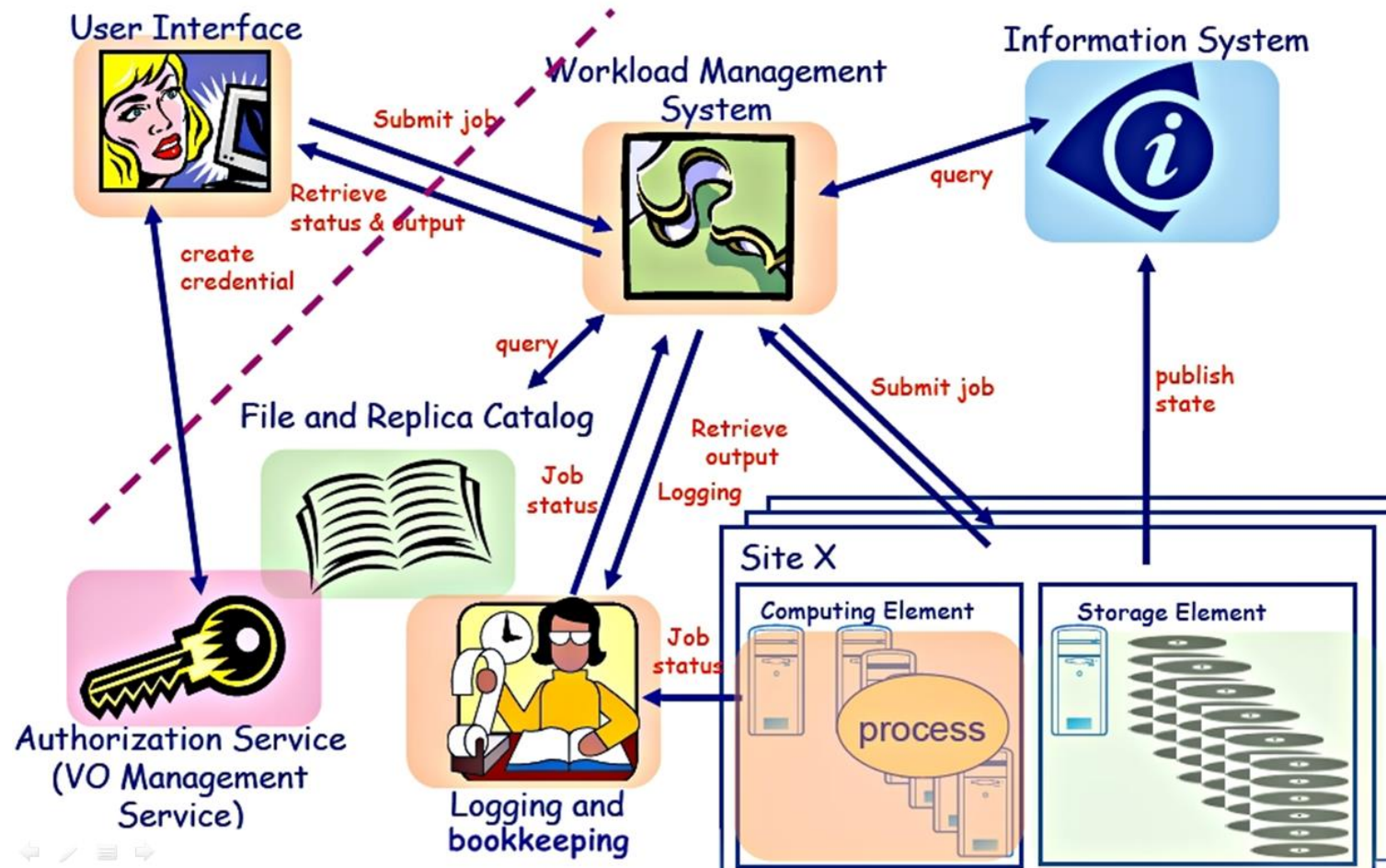
- What the ISO/OSI model is doing for **Network Layers** is needed on top of this for **Grid Computing**, service oriented architectures, and enterprise wide solutions as well. The next section is going to introduce these domains
- **Grid Computing** enables the virtualization of distributed computing and data resources such as processing, network bandwidth, and storage capacity, to create a single system image which grants users and applications seamless access to available IT capabilities

EMI Introduction

- The Grid relies on advanced software, called middleware, which interfaces between resources and the applications



How does it work?





How does the information system is used?

Resource Recovery

What resources are available to the Grid?

- Computing resources
- Storage resources
- Site and Services

What is their current status?

If you are a middleware developer

Workload Management System:

Matching job requirements and Grid resources

Monitoring Services:

Retrieving information about Grid Resources status and availability

If you are a user

Retrieve information about resources

- where you can run your job?
- where you can copy your files?

If you are site manager or service

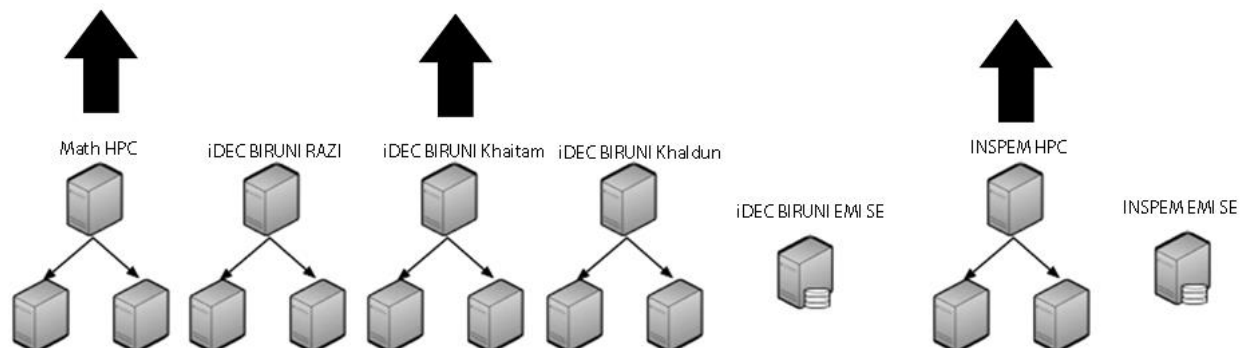
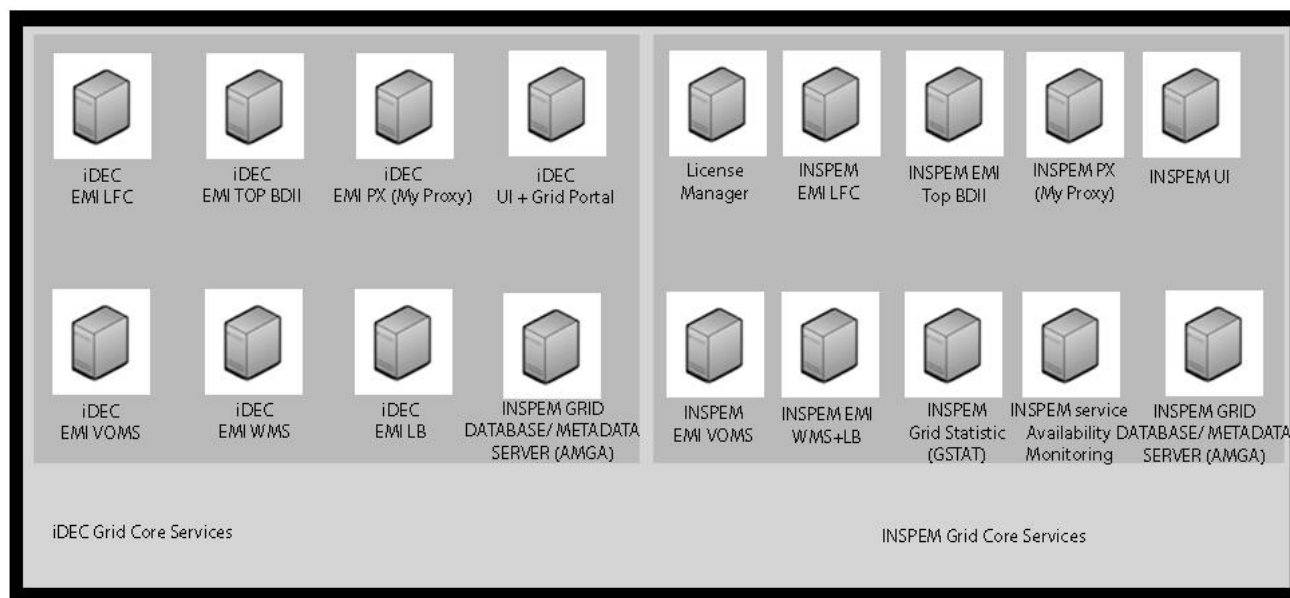
You “publish” the information about the services you provide.



Computing Element

- The Computing Element (CE) is the service representing a computing resource. Its main functionality is job management (job submission, job control, etc.).
- For job submission, the CE can work in push model (where the job is pushed to a CE for its execution) or pull model (where the CE is asking the Workload Management Service for jobs).
- Besides job management capabilities, a CE must also provide information describing itself.

Network Diagram





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Applying User INSPERM HPC

**SECTION OF HIGH PERFORMANCE COMPUTING SERVICES,
INSTITUTE FOR MATHEMATICAL RESEARCH (INSPERM)
UNIVERSITI PUTRA MALAYSIA (UPM)**



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- Meet with administrator INSPEM HPC.
- Prepare the following :
 - Full Name
 - Official form of Identification (Passport (non-Malaysian), NRIC (Malaysian))
- Contact Person:
 - Noor Izzati Buharan Nordin
 - 0389466971
 - filaziza@gmail.com



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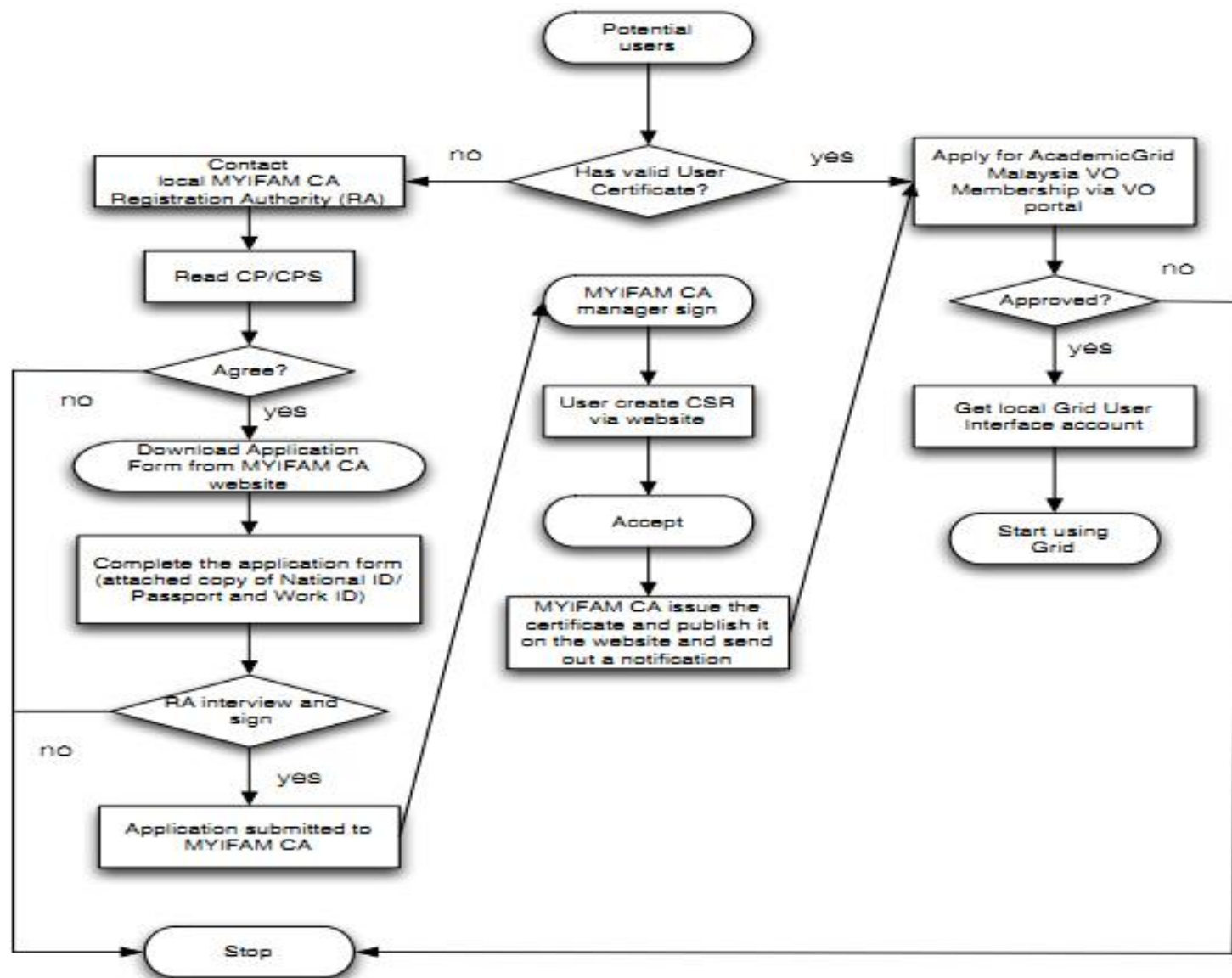
Applying User Certificate and Academic Grid VO Registration

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INSTITUTE FOR MATHEMATICAL RESEARCH (INSPERM)
UNIVERSITI PUTRA MALAYSIA (UPM)**



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- A “valid” user certificate is needed in order to get access to the Grid
- Valid here means that the certificate was issued by any accredited Certification Authority (CA) by the International Grid Trusted Federation. For the Academic Grid Malaysia community, the certificate can be requested from Malaysia Identity Federation and Access Management (MyIFAM) CA (<http://myifam.upm.my>)
- MyIFAM CA is currently operated by the Infocomm Development Centre (iDEC) UPM. Once the user certificate is obtained, the user can do online registration with the Academic Grid Malaysia VO





Applying User Certificate

- Read the MYIFAM CA CP/CPS (<http://myifam.upm.my/pub/MYIFAM-CPCPS-v2.2.pdf>)
- Download and fill in the User Certificate Application Form (http://myifam.upm.my/pub/myifam_user_cert_application_form.pdf)
- Setup an interview with a local Registration Authority (RA). You need to meet with a MYIFAM CA RA to verify your identity.
- Prepare the following documents for the your interview with the RA
 - User Certificate application Form
 - Work/Matric Card ID
 - Official form of Identification (Passport (non-Malaysian), NRIC (Malaysian))
- Complete and submit your application form. Fill out the application with your RA and fax it to +603-89423789 or email to syazwina@putra.upm.edu.my



Applying User Certificate

- Create a Certificate Signing Request (CSR) online (<https://myifam.upm.my/securearea/generate.php>). Please submit request on the computer that the public/private key wants to be stored.
- MYIFAM CA will send a confirmation to applicant's email address. Please click the url to confirm the application.
- Once the certificate is issued, it will be published on the website and an email will be sent to notify the applicant.
- The applicant can simply import/download their certificate via the the portal (<https://myifam.upm.my/securearea/retrieve.php>). Please use the same browser to import the user certificate.

By requesting a certificate, the applicant indicate that they accept the Certificate Policy and Certificate Practice Statement and that they agree to the Subscriber Obligations specified in that document.



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MYIFAM CA

MALAYSIA IDENTITY FEDERATION AND
MANAGEMENT

HOME

CERTIFICATE

PUBLICATION

CONTACT

Request Certificate

1. If you are applying for a user certificate please [Click here](#).
2. If you are applying for a host certificate please [Click here](#).

General Information

[News](#)

[FAQ](#)

Publication

[CP/CPS](#)

[CA Certificate](#)

[CA CRL](#)

[Signing Policy](#)

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<http://myfiam.upm.my/ra.php>

Prepare the following documents for the your interview with the RA

* User Certificate application Form

* Work/Matric Card ID

* Official form of Identification (Passport (non-Malaysian), NRIC (Malaysian))

Step 1.2 Complete and submit your application form. Fill out the application with your RA and fax it to +60-3-89483514 or email to syazwina@putra.upm.edu.my

Online Request

Step 2. Request for certificate online. Before going through Step2, make sure that you have finished Step1 and a CA staff has confirmed with you **Create a Certificate Signing Request(CSR)** online. Please submit request on the computer that you want to store your public/private key.

Step 3. Confirm the request. MYIFAM CA will send a confirmation to your email address. Please click the url to confirm your application.

Step 4. Download and Import Certificate. Once your certificate is issued, we'll publish it on the website and send out a email to inform you. You can simply import/download your certificate via the [Import Your User Certificate](#). Please use the same browser to import your user certificate.

Certificate

[Request Certificate](#)

[Issued Certificates](#)

[Retreive User Certificate](#)

[Revoke Certificate](#)

[Statistics](#)

Registration Authority (RA)

[Guideline](#)

[RA Registration](#)

[Contact RA](#)

[Record Form](#)

Related Links

[APGrid PMA](#)

[IGTF](#)



Online Certificate Request

Here is an on-line web interface for certificate request. Please read the following information before you submit request.

Your public/private key is generate in your web browser when you submit your request.

It is important that you should run web browser and submit request on the location (the computer) that you want to store your private key.

For User Certificate, we recommend you choice 2048 bits for key length.

After you submit request, private key will be saved in browser's spool, it requires you give a passphrase to protect private key. We recommend you give 12 characters passphrase and protect it against others.

Email address should be official contact mail from your organization or school. Please NOT use Hotmail, Gmail or Yahoo account etc...

Organization	AL
Organizational Units	Users
First Name	<input type="text"/>
Last Name	<input type="text"/>
Email (Official)	<input type="text"/>
Length of key: (At least 1024 bits)	High Grade
<input type="button" value="Submit Query"/>	

General Information

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HOME CERTIFICATE PUBLICATION

Retreive User Certificate

Input the serial number

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The screenshot shows a web browser window displaying the MYIFAM CA website. The browser's address bar shows "sia Identity Federation and Access ...". The website has a red navigation bar with links: HOME, CERTIFICATE, PUBLICATION, and CONTACT. The main content area is titled "MYIFAM CA" and "NTITY FEDERATION AND". A sidebar on the right contains sections: "General Information" with links for News and FAQ; "Publication" with links for CP/CPS, CA Certificate, CA CRL, and Signing Policy; and "Certificate" with links for Request Certificate, Issued Certificates, Retrieve User Certificate, Revoke Certificate, and Statistics. A Firefox browser window is overlaid on the left side of the website, showing the "Options" menu with sub-items: Options, Menu Bar, Navigation Toolbar (checked), Bookmarks Toolbar, Add-on Bar (Ctrl+/), Tabs on Top (checked), and Toolbar Layout...

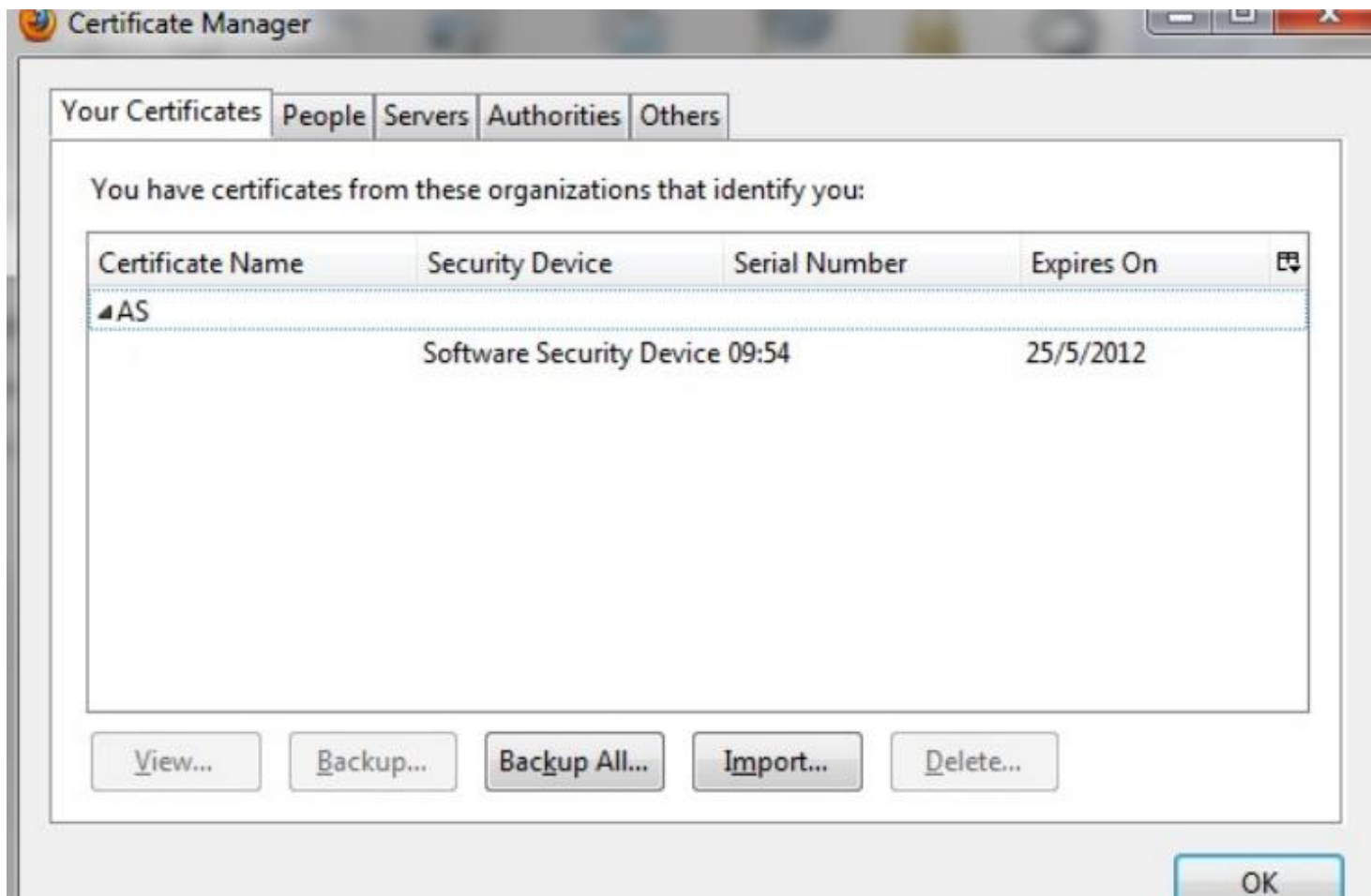
The Malaysia Identity Federation and Access Management Certification Authority (MYIFAM CA) provides X.509 certificates to support the secure environment in grid computing. We issue User Certificates, Host Certificates and Service certificates to people and sites participating in grid and cloud computing. The MYIFAM CA is operated by Infocomm Development Centre at Universiti Putra Malaysia since 2012.

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Choose a Certificate Backup Password

The certificate backup password you set here protects the backup file that you are about to create. You must set this password to proceed with the backup.

Certificate backup password:

Certificate backup password (again):

Important: If you forget your certificate backup password, you will not be able to restore this backup later. Please record it in a safe location.

Password quality meter

OK Cancel

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Getting Academic Grid Malaysia VO Access

- Open the Academic Grid Malaysia VO website (<https://voms.biruni.upm.my:8443/voms/academicgrid>)
- The users need to have their user certificate ready and installed on their internet browser before they can register.
- By default the VO membership valid for one year, but the user can always extend it.
- Always use official email address



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voms admin for VO: academicgrid

Current user: CN=Grid Tutorial 94186

[Home](#) [Browse VO](#) [Configuration Info](#)

[Other VOs on this server](#)

Welcome to the registration page for the **academicgrid** VO.

To access the VO resources, you must agree to the VO's Acceptable Usage Policy (AUP) rules.
Please fill out all fields in the form below and click on the submit button at the bottom of the page.

After you submit this request, you will receive an email with instructions on how to proceed.

Your request will not be forwarded to the VO managers until you confirm that you have a valid email address by following those instructions.

IMPORTANT:

By submitting this information you agree that it may be distributed to and stored by VO and site administrators. You also agree that action may be taken to confirm the information you provide is correct, that it may be used for the purpose of controlling access to VO resources and that it may be used to contact you in relation to this activity.

Your certificate subject (DN):

/DC=MY/DC=UPM/DC=MYIFAM/C=MY/O=UPM/OU=Users/CN=Grid Tutorial 94186

The CA that issued your certificate:

/DC=MY/DC=UPM/DC=MYIFAM/C=MY/O=MYIFAM/CN=Malaysian Identity Federation and Access Management

Your name:

Your surname:

Your institution:

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voms admin

for VO: academicgrid

Current user: CN=Grid Tutorial 94186

[Home](#) [Browse VO](#) [Configuration Info](#)

[Other VOs on this server](#)

Confirmation required.

An email has been sent to you with instructions on how to proceed with the registration for the academicgrid VO.

Please follow the instructions before the following date:

02/12/2014 04:52:17 AM UTC

or your request will be discarded by voms-admin.

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voms admin

for VO: academicgrid

Current user: CN=Grid Tutorial 94186

[Home](#) [Browse VO](#) [Configuration Info](#)

[Other VOs on this server](#)

VO membership request confirmed.

You have successfully confirmed your VO membership request. The VO administrator has been informed of your request and will handle it as soon as possible.

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