Mahoodle://Integrating Mahara with Moodle

How many times each day do you find yourself logging on to some service or other? As web applications grow in popularity, users are obliged to juggle username and password details for more websites, email programs and desktop applications, and there's no evidence that the trend is slowing.

As administrators of interlinked web applications, we welcome any opportunity to make our systems easier for people to access and use, and Single-Sign-On (or SSO) is one great way to achieve that. Simply put, a user logs on to one application, and by clicking on specially crafted links that we provide there, is transparently authenticated to a second application, even though it may be running on another machine, in another room, on another continent.

When SSO works well, it can dramatically improve the sign-up experience for new users of your application:

> No need to 'create an account'
> No need to find an unused username
> No need to think up and remember yet another password
> No new URL to remember
> No need to log in to yet another application
> No need to upload the same profile mugshot to the new application

If you could smooth the path for new users of your application by removing all these obstacles, what impact do you think that might have on uptake?

With the release of Mahara 0.8.1 and Moodle 1.9, you can now configure your Moodle so that any user who logs in to Moodle can click on a link that will bring them to your Mahara site, and automatically log them on to their Mahara account. If they don't yet have an account on Mahara, their user data will be imported from Moodle, and used to populate their Mahara account. If they have a profile picture in Moodle, that will also be imported to their Mahara account.

The user can then begin using the Mahara account with absolutely zero configuration required.

Many Mahara users will want to keep using their Mahara account long after their formal relationship with your institution has ended, and your institution might well have an interest in keeping alive links to its alumni.

With a few clicks of the mouse, you can configure multiple points of entry for your Mahara users.

If they want to sign on directly to Mahara, they can do so with a username and password. If they've already signed on to Moodle, they can click on a link to SSO into Mahara. When their Moodle account is no longer active, they can no longer SSO, but their Mahara account remains available via direct authentication.

Conversely, if you're the administrator of an existing Mahara system you might want to configure SSO to work in the opposite direction, creating an opportunity for your users to SSO from Mahara to a Moodle server. If you choose this configuration for your users, you can elect to have user records generated for them at the Moodle server on arrival.

~

This document outlines three scenarios for administrators of Moodle and Mahara systems, to assist in configuring their applications to interoperate.

1://Basic Networking

Chapter one focuses on tasks that are common to all three scenarios.

2://SSO into Mahara

Chapter two will introduce what's likely to be the most widely deployed option, of SSO from Moodle to Mahara.

3://Advanced SSO into Mahara

In chapter three, we'll look at some other options for Mahara authentication, considering the confguration of multiple authentication plugins, how they can be combined to create an authentication stack, and how we can combine them to offer a single user multiple routes into Mahara.

4://SSO into Moodle

In the final chapter, we'll introduce SSO from Mahara to Moodle.

Mahoodle://Integrating Mahara with Moodle

1://Basic Networking

The normal install procedures for Moodle and Mahara are already well documented. We'll assume that you've already installed both Mahara and Moodle, and that the sites are ready for an administrator to start configuring users and courses. If either site is already in use, that's fine as well.

Make sure that you are logged onto Moodle as an administrator:
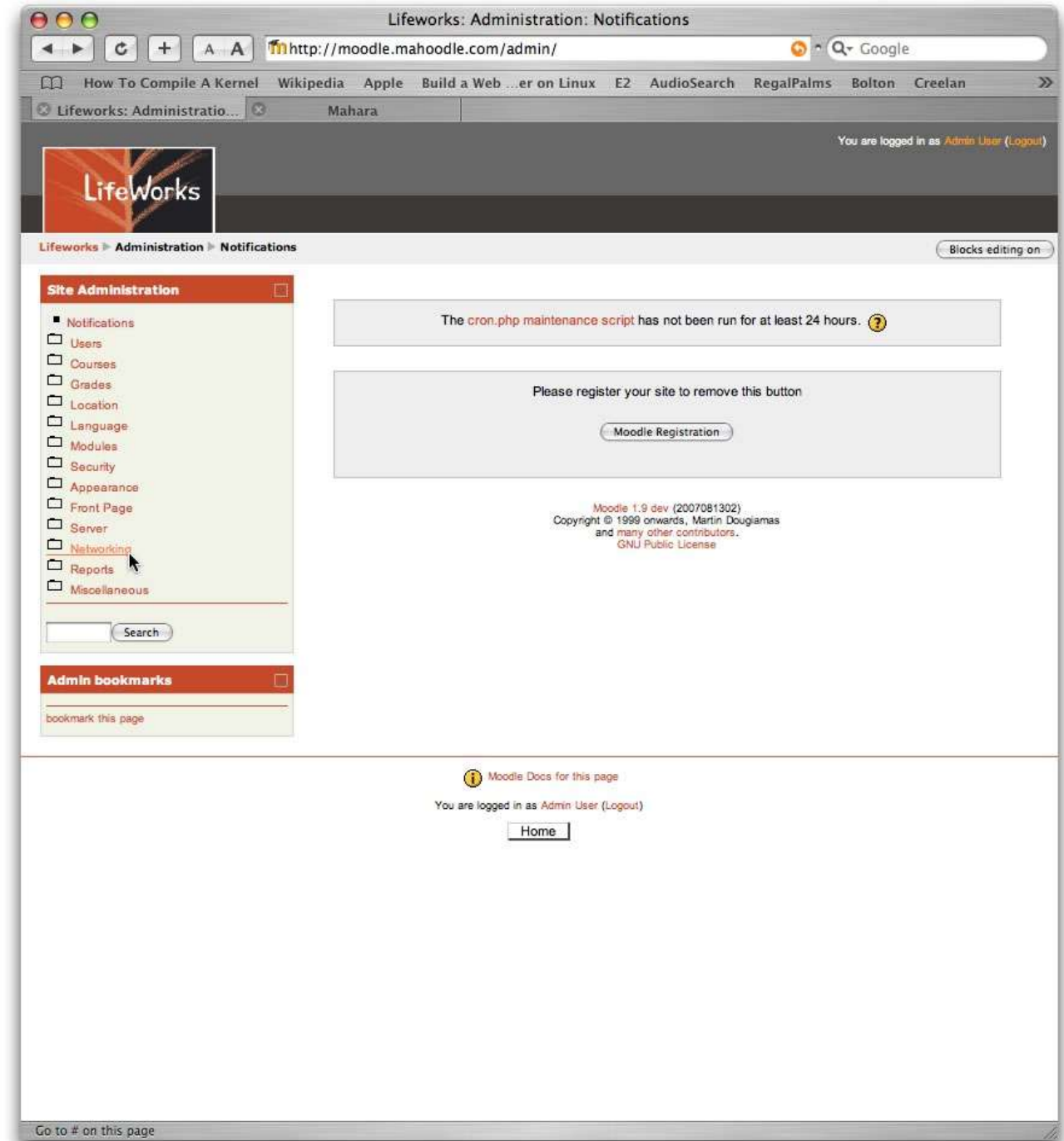
Mahoodle://Integrating Mahara with Moodle

1://Basic Networking: Moodle

From the Site Administration menu, click on Networking >> Settings, and change the Networking value to 'On'. Click 'Save Changes'.

Before we do any more configuration on Moodle, we need to enable networking on Mahara.

Lifeworks: Administration: Networking: Settings

http://moodle.mahoodle.com/admin/mnet/index.php

Google

How To Compile A Kernel   Wikipedia   Apple   Build a Web ...er on Linux   E2   AudioSearch   RegalPalms   Bolton   Creelan

Lifeworks: Administratio...   Mahara

You are logged in as Admin User (Logout)

LifeWorks

Lifeworks ▶ Administration ▶ Networking ▶ Settings

Blocks editing on

Site Administration

- Notifications
- Users
- Courses
- Grades
- Location
- Language
- Modules
- Security
- Appearance
- Front Page
- Server
- Networking
  - Settings
  - Peers
  - SSO Access Control
  - Enrolments
  - XML-RPC hosts
- Reports
- Miscellaneous

Search

Admin bookmarks

bookmark this page

About your server

Public key:

```
-----BEGIN CERTIFICATE-----
MIIC1jCCAj+gAwIBAgIBADANBgkqhkiG9w0BAQQFADCBsDELMAkGA1UEBhMCTlox
EzARBgNVBAgTCldlbGxpbmd0b24xEzARBgNVBAcTCldlbGxpbmd0b24xGzAZBgNV
BAoTEkxpZmVXb3JrcyBlLWNhbXB1czEPMA0GA1UECxMGTW9vZGxlMSMwIQYDVQQD
ExpodHRwOi8vbW9vZGxlLmlhaG9vZGxlLmNvbTEkMCIGCSqGSIb3DQEJARYVZG9u
YWxAY2F0OYWx5c3QubmV0Lm56MB4XDTA3MDgxNTA3NDMxMFoXDTA3MDkxMjA3NDMx
MFowgbAxCzAJBgNVBAYTAk5aMRMwEQYDVQQIEwpXZWxsaW5ndG9uMRMwEQYDVQQH
EwpXZWxsaW5ndG9uMRswGQYDVQQKExJMaWZlV29ya3MgZS1jYW1wdXMxDzANBgNV
BAsTBklvb2RsZTEjMCEGA1UEAxMaaHR0cDovL21vb2RsZS5tYWhvb2RsZS5jb20x
JDAiBgkqhkiG9w0BCQEWFWRvbmFsQGNhdGFseXN0Lm5ldC5uejCBnzANBgkqhkiG
9w0BAQEFAAOBjQAwgYkCgYEA14KtCUoXXBWyWu4/VA1HR6yBlfaVB7D2VUd85UNf
W+M3A6rJp2hZdvWMvtUN8SjSEQLRPYdUza7r4BgsXMYNboDeVi5hGWiIIDMps3jn
g/Q5niHOJ39/AKH4OVSko4MellzETMYy7TiOC3DTFLxEYHCyqgUBSEDzPq9gBl4x
4PkCAwEAATANBgkqhkiG9w0BAQQFAAOBgQAeHZ6ciJjs96VatVVJBm0Z/EsnYi6G
dYlbgl7KXzdVBctYJ2PKUQ6ncn5w7DWj6XH3uY7nwDaJI+NdlfLbbkc3dbaSWvKJ
0za75yxZYZFyvPubz+adIeVUfZaVx0iIzacwcfF+NoMf7czgJSgwegcypgj7rM7+
Hc7/A9ubw0y4TQ==
-----END CERTIFICATE-----
```

Valid until: Wednesday, 12 September 2007, 07:43 PM

Networking: ◉ Off
                ○ On
                Save changes

Delete This Key

Moodle automatically rotates your keys every 28 days (by default) but you have the option to *manually* expire this key at any time. This will only be useful if you believe this key has been compromised. A replacement will be immediately automatically generated.
Deleting this key will make it impossible for other Moodles to communicate with you, until you manually contact each administrator and provide them with your new key.

Delete   Delete
This
Key

Moodle Docs for this page

You are logged in as Admin User (Logout)

Home

Mahoodle://Integrating Mahara with Moodle

1://Basic Networking: Mahara

Make sure that your Mahara site is set up, and that you're logged on as an Adminstrator:

Click on Site Administration, and then on Networking:

Mahoodle://Integrating Mahara with Moodle

1://Basic Networking: Mahara

On the networking page, your WWW Root should be listed. This is the canonical address at which your Mahara site can be accessed, and you'll need to enter this address into your Moodle site later on.

Beneath the WWW Root, is the Public encryption key. This is a file of seemingly random text, beginning with the line '-----BEGIN CERTIFICATE-----'. The expiry date of the key is noted underneath. Mahara will automatically generate a new key when this one expires, and propagate the new key to your peers.

Mahoodle://Integrating Mahara with Moodle

A Word On Encryption

When we think of a key – for example the key for a padlock, we imagine that it can both lock and unlock that padlock. Although we call these lines of text your 'public key', this key is only used to 'lock' data – not to unlock it. This key is part of a pair, each of which is useless without the other. One locks the data, and the other – your private key – unlocks it.

So – it's perfectly safe to publish this key without worrying about the security of your data. In fact – we supply this key to other servers, and they use it to encrypt data that they want to send to us. They know that the data it encrypts can only be decrypted by us, as we hold the corresponding private key.

Mahoodle://Integrating Mahara with Moodle

1://Basic Networking: Mahara

Click on the Enable Networking pulldown, and choose 'Yes'. The other pulldown menu – 'Auto-register all hosts', is just fine set to 'No'. Click on 'Save changes' to continue.

Mahoodle://Integrating Mahara with Moodle

1://Basic Networking: Mahara

Mahara acknowledges the choices that you have made.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Mahara

Click on 'Admin home' to go back to the main administration menu, and on that page, in the 'Manage Users' section, click on the link to 'Institutions'.

If you are certain that your Mahara site will only ever serve one Moodle, click on Edit to update the details for the default institution. Otherwise, click on 'Add institution', to create a new record for the institution that is hosting your Moodle. We'll detail the 'Add institution' option, although editing the default institution is almost identical.
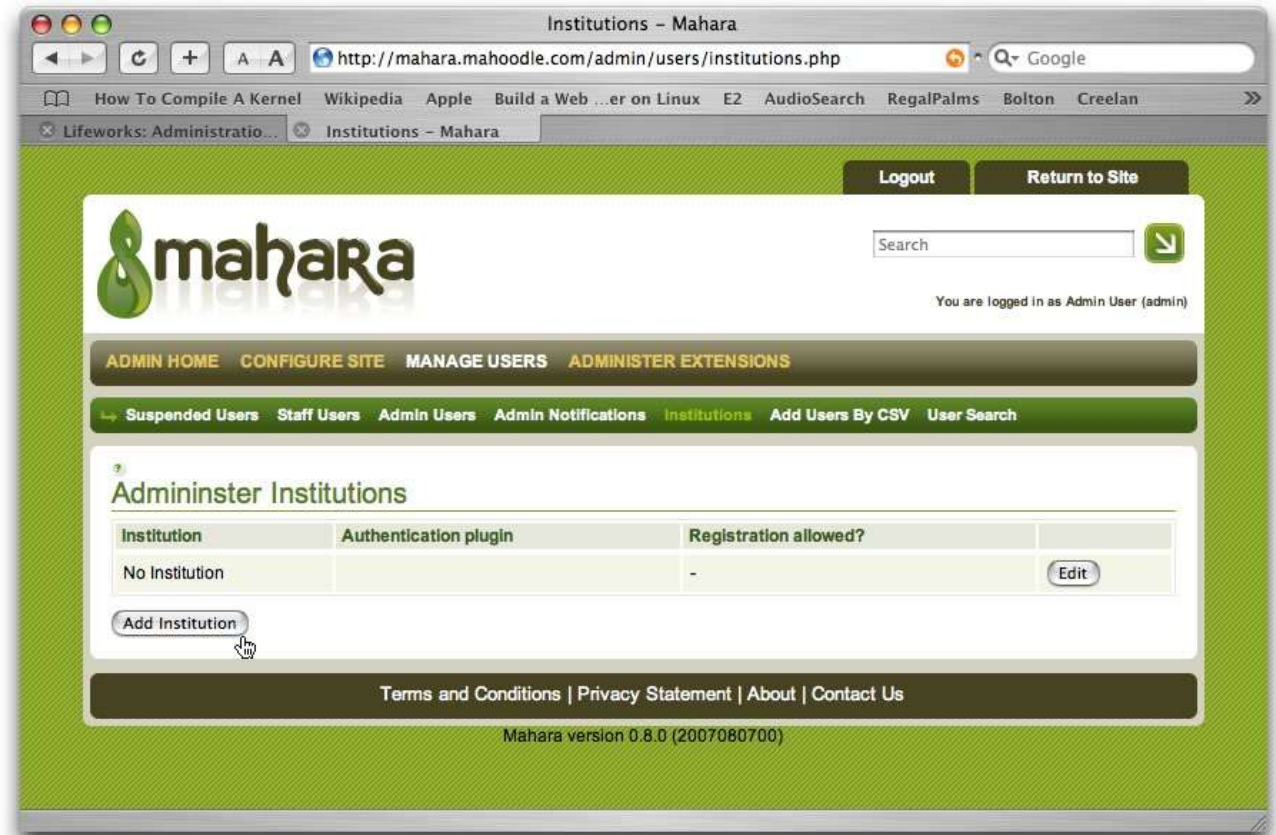
Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Mahara

The institution name can be any word made up of only letters. Spaces and numbers are not permitted in the institution name. The Institution display name can include spaces and numbers. I've opted to give my institution the name MahoodleMoodle and the display name; Mahoodle Moodle.

The authentication plugin can't be configured until the institution record has been created, so just ignore that for the moment. The default values in the other fields will be adequate to get started. Click on 'Submit' at the bottom of the page to save your settings. The page will reappear, and the authentication plugin menu will be enabled.
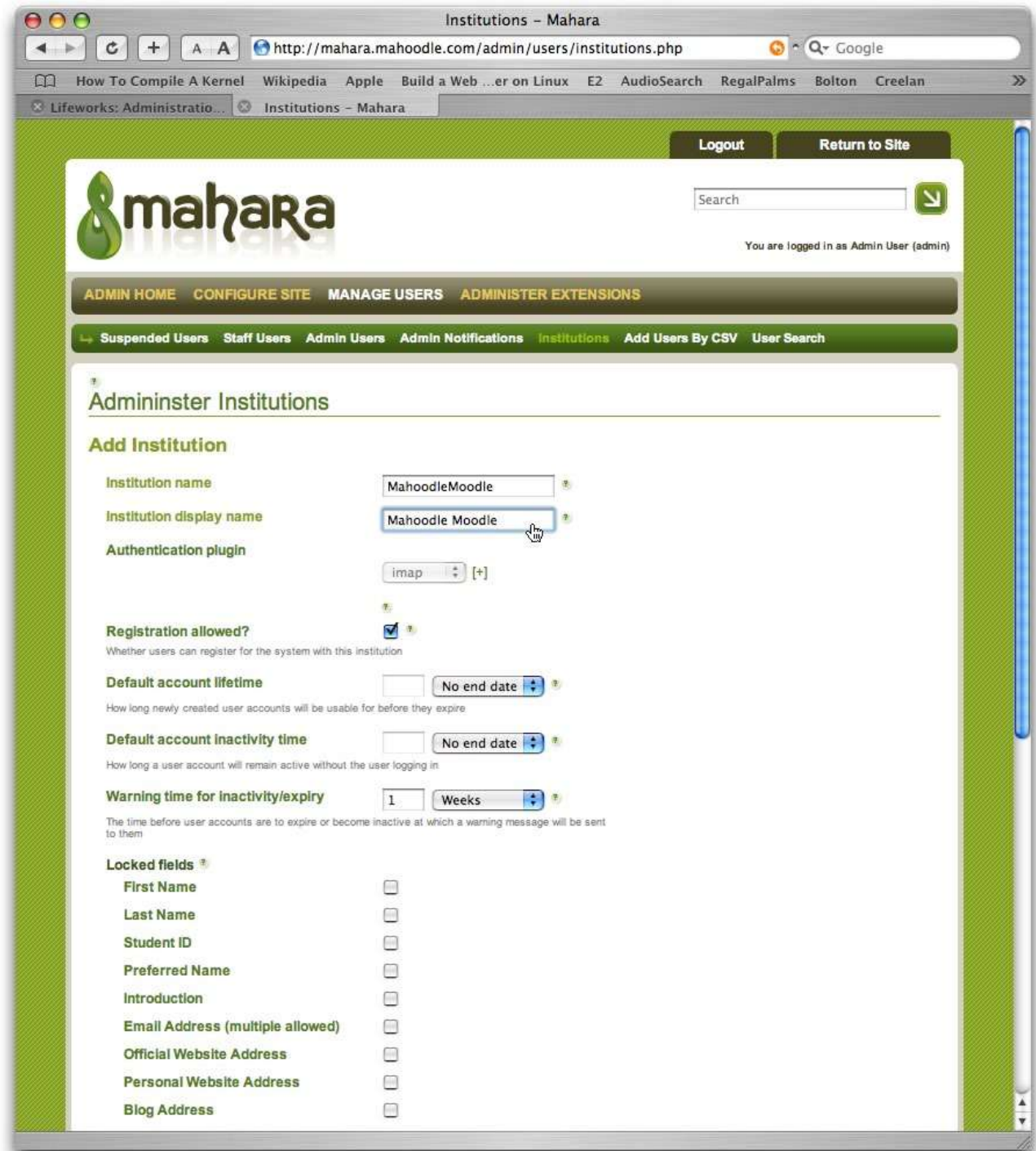
Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Mahara

Note that the Institution name field is gone. It will be hidden from both users and administrators from this point on.

Choose xmlrpc from the Authentication plugin pulldown menu, and click on the plus-sign beside that menu to add a new authentication method.

A new window will open, displaying the configuration options for XMLRPC.

This plugin can have a parent, but we will configure it without one; that means it will be the only means for users of the Moodle system to log on to their linked Mahara account.

Mahoodle://Integrating Mahara with Moodle

Configuring the XMLRPC plugin

A new window will open with configuration options for the xmlrpc plugin.

The authority name will identify this authority to you, the administrator. I've called this 'Mahoodle XMLRPC', although I could just have called it XMLRPC because I already know that this authority will only authenticate users from the Mahoodle institution.

The parent authority is 'None'. If we had already configured an authority for this insitution, and that authority was itself canonical (i.e. does not require a parent), then it would appear as an option in this dropdown list.

The next field – WWW Root – is absolutely crucial to get right, and most problems with Mahara & Moodle integration that we've experienced in testing are caused by errors in entering this value. In fact it's very simple: the WWW Root must be exactly what is specified in Moodle's config.php.

Please take care not to enter a 'www' before the WWW root hostname, if there is no www in your wwwroot field. While it might be possible to access the Moodle site at this URL, this will cause problems for you, and will likely prevent networking between the sites from working.

In short – find out what is entered in the config.php file of your Moodle and enter exactly that.

Choose the application that is being hosted at the remote site from the pulldown menu – in our case, we want to choose Moodle – and then enable some networked services by clicking on the checkboxes underneath.

By enabling 'They SSO in', you're permitting users who log on at Moodle to enter your Mahara site without having to log on again.

By enabling 'Update user info on login', you're asking your Mahara server to check that the user hasn't changed his details on Moodle each time he logs in, and if he has, update his Mahara user record with those same details.

By enabling 'We auto-create users', you can automate the process of creating user records, so that a Mahara

user record is automatically created for every Moodle user who clicks on the SSO link to be signed on to Mahara.

In this example, we're going for the most-automated option, so we don't have to do any user-setup on our Mahara site at all.

Click on 'Submit'. The window will close and the new xmlrpc authentication plugin instance will be listed on your 'Administer Institutions' page:

Mahoodle://Integrating Mahara with Moodle

Configuring the XMLRPC plugin

If Mahara has been unable to communicate properly with Moodle at the WWW Root that you've entered, you're likely to see an error message like this one.

Please double check that you've chosen 'Moodle' as your application, and that the WWW Root you've entered matches the value in Moodle's config.php file.

If you've managed to configure this correctly, the window will disappear when you click 'Submit' and the authority name you've entered here will appear as a new authority on your institution's config page.

Click 'Submit' at the bottom of the institution's configuration page to complete SSO setup on Mahara.
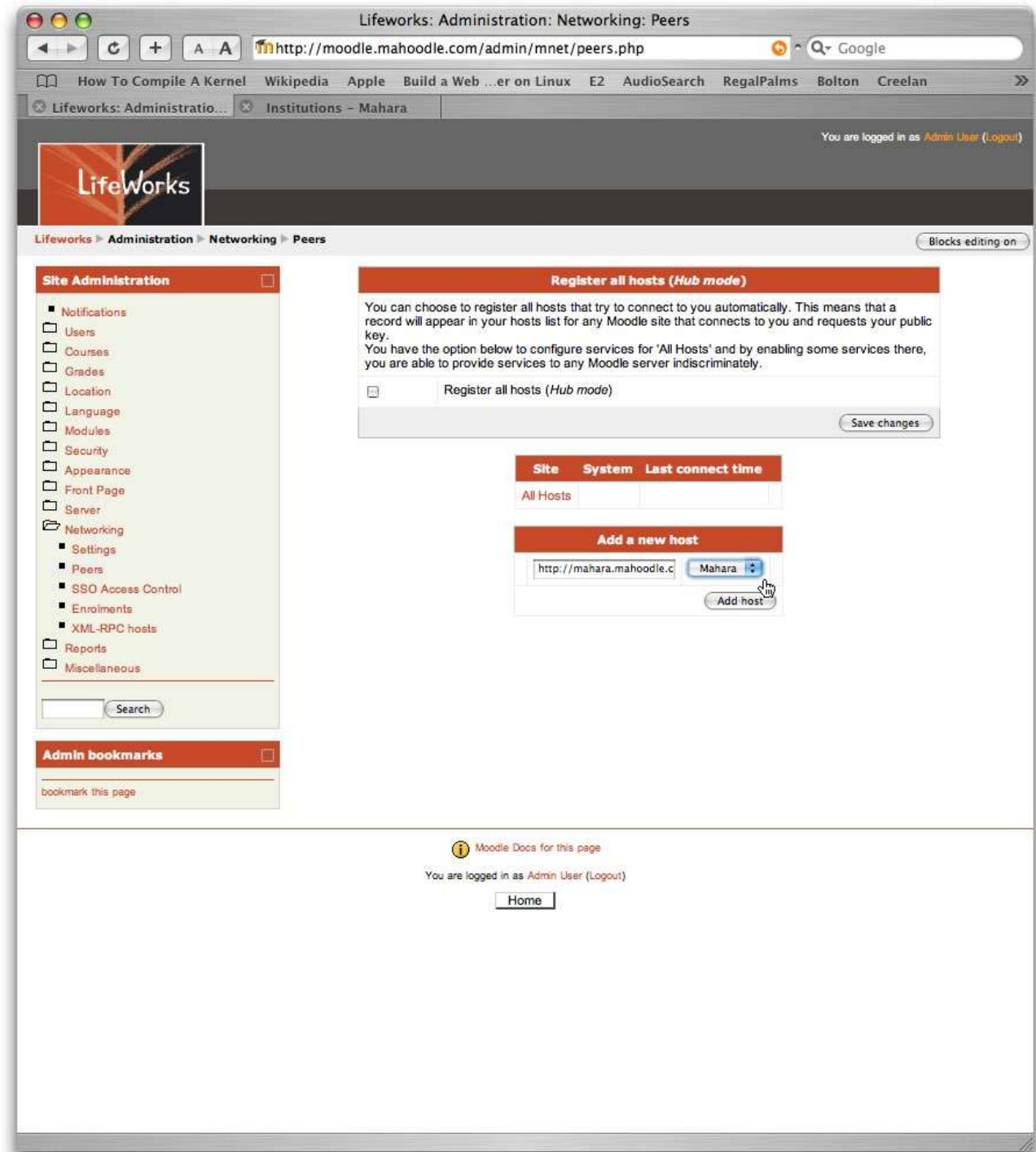
Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Next we go back to our Moodle app, and again – ensure that we're logged on as an administrator.

From the Site Administration menu, choose Networking >> Peers:

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Ignore the 'Register all hosts' option for now. This will probably not be relevant to very many Moodle operators.

Under 'Add a new host', enter the WWW Root value from your Mahara site into the field. You can find this in the network administration page of your Mahara site.

Choose 'Mahara' from the dropdown menu, and click on 'Add host. Moodle will fetch the public encryption key from the Mahara server and display it on the next screen.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

The 'Site' value on this page is editable. You can change this to something descriptive that will identify your Mahara site to you and your students. In the screenshot, I'm about to delete 'Home - ' from the Site name.

If there are no error messages on the screen, and the 'Public key' field is filled with '-----BEGIN CERTIFICATE-----' followed by some seemingly random text, then your Moodle has successfully retrieved Mahara's public encryption key.

If Moodle reports an error in retrieving Mahara's key, check that the value entered in the Hostname field of this page is the same as the WWW Root value displayed on Mahara's Networking page.

If everything looks ok, click on 'Save changes'. The same page will reappear, with a new tab listed at the top. Click on this 'Services' tab to setup SSO with Mahara.
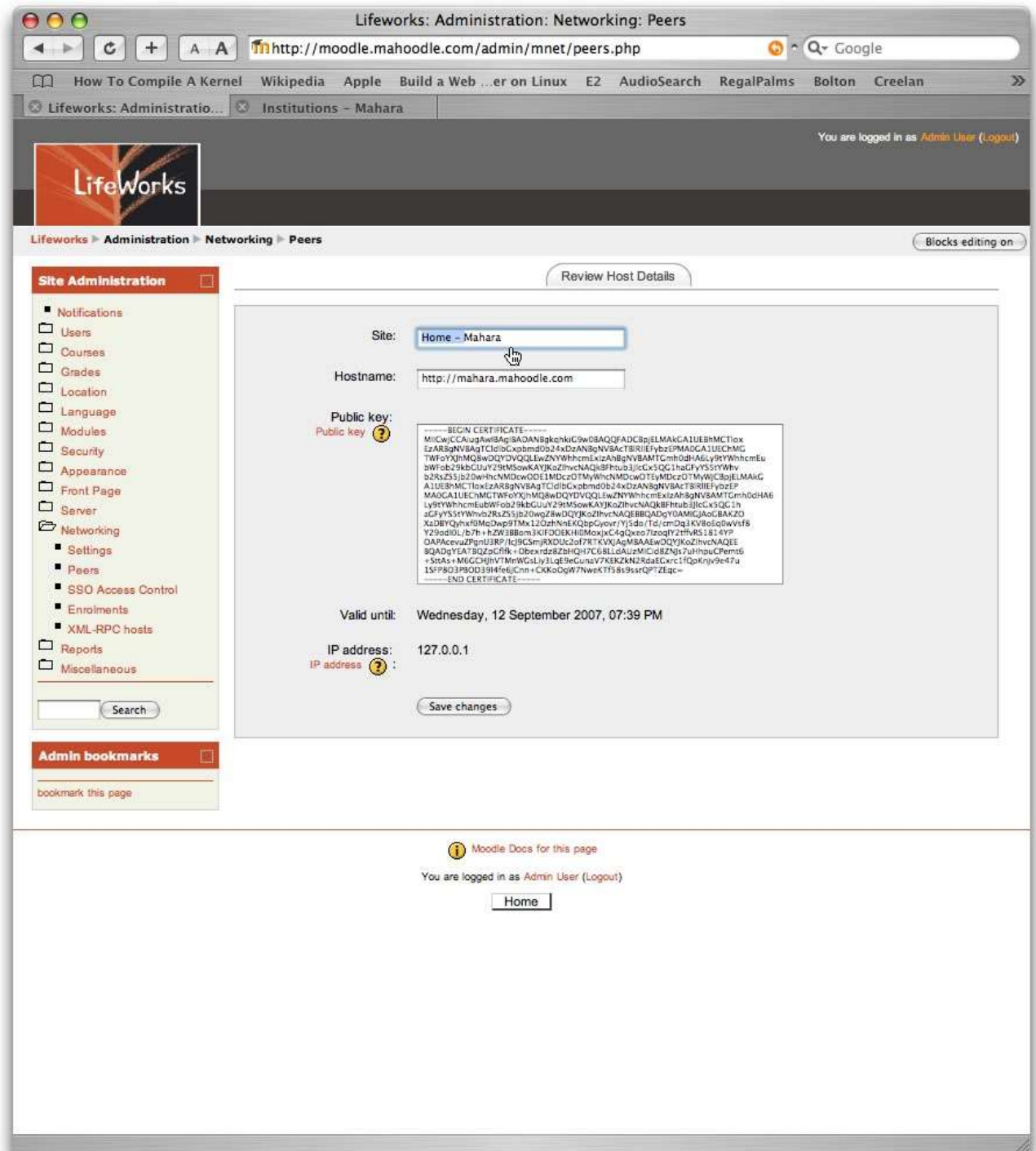
Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

The first service listed; 'Moodle networked enrollment' is only relevant to Moodles networking with other Moodles, so we can ignore that for now.

In the section titled 'SSO (Identity Provider)', you want to tick the 'Publish' checkbox. Moodle is going to publish a service to Mahara which identifies users to Mahara. You can leave the 'Subscribe' box unchecked.

In the section titled 'SSO (Service Provider)', click on 'Subscribe' to tick that checkbox. Moodle users will subscribe to services that are provided by the Mahara site.

That's all for now – click on 'Save changes'.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

In the Site Administration panel, click on Users and choose Authentication from the menu.

Enable the Moodle Network Authentication plugin, and click on 'Settings'.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

We don't actually want to change any of the values in this page, but we can see that it lists the sites that our users have the option of roaming to. Our Mahara site is listed here.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

The final step in enabling SSO with Mahara, is to give your users the permission to roam to other sites in the Moodle Roles system. Choose Users >> Permissions >> Define Roles from the Site Administration menu.

Click on the 'Edit' button for the 'Authenticated User' role. In practice of course you're free to provide access to the Mahara server to a restricted group of users; perhaps just the students on a particular course.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Scroll to the option 'Roam to a remote Moodle' and click the second radio button to enable this. Click on 'Save changes' at the bottom of the screen.
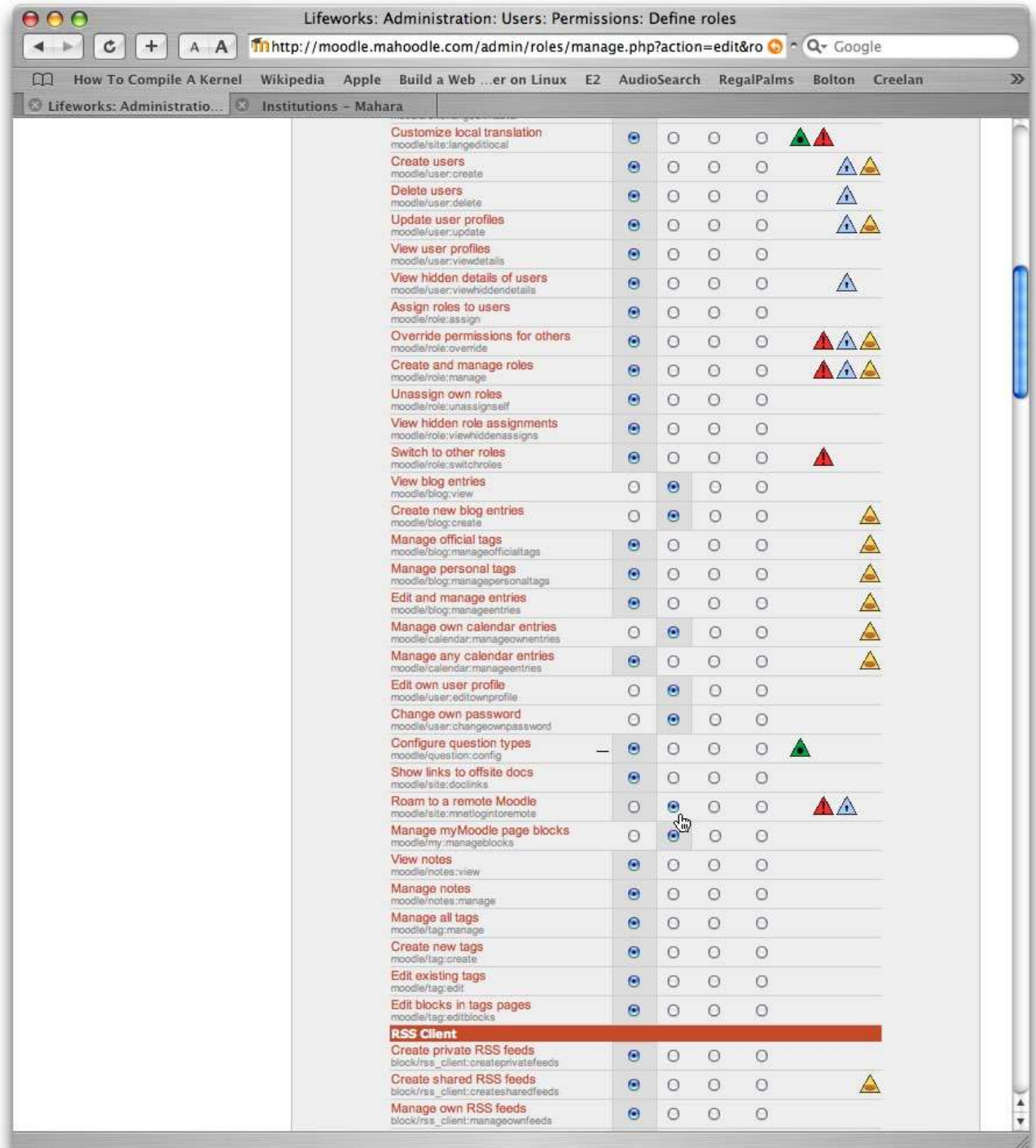
Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Now that everything is set up to allow our users to roam to Mahara, we just have to provide them with a link to bring them to the site.

Navigate back to your Moodle homepage and click on 'Turn editing on'.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Once you choose the 'Network servers' block from the Blocks menu, your Mahara server should be listed in it, alongside its mini-icon.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

We'll need some users to allow us to test our new SSO configuration. I've created records for a couple of names you might recognise.

Now that we're done configuring SSO, we can log off from both Moodle and Mahara, and log back into Moodle (only) as Rosa Parks.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Our Mahara server is listed in the 'Network Servers' block. Click on 'Mahara' to initiate SSO.

Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

We arrive at the Mahara welcome page, and we're told that "You are logged in as Rosa". The 'logout' option appears at the top of the screen.
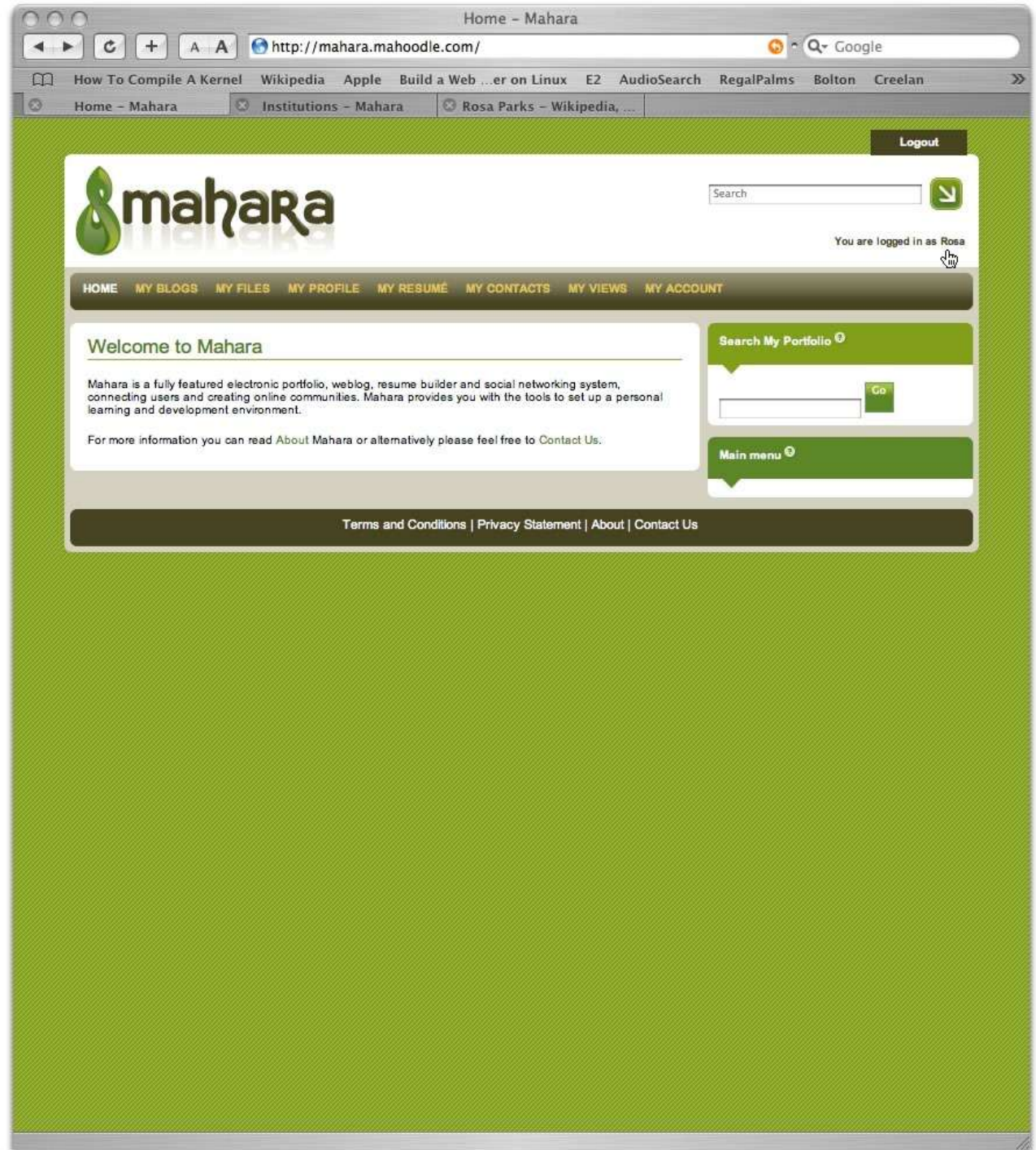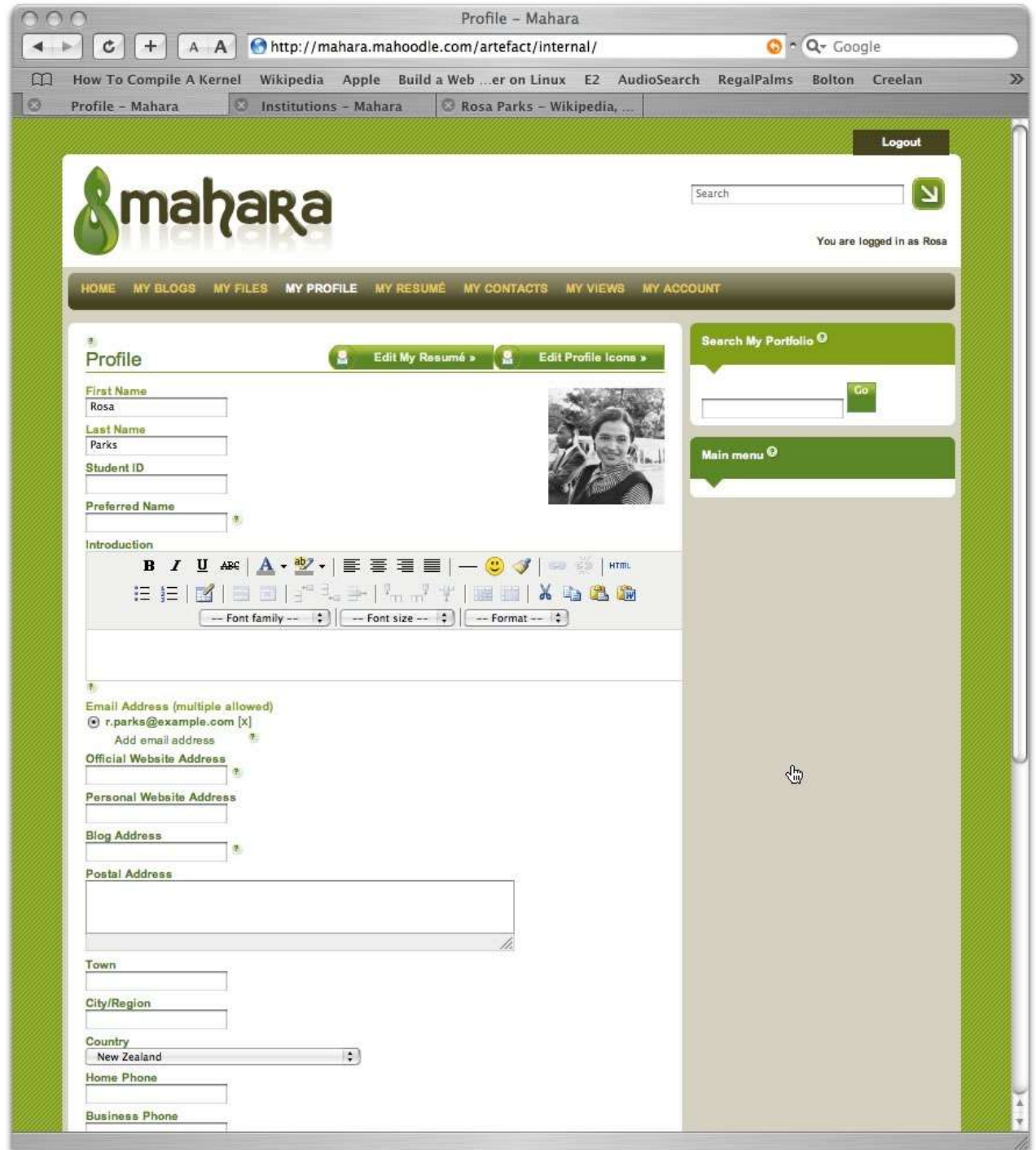
Mahoodle://Integrating Mahara with Moodle

2://Enable SSO: Moodle

Click on "My Profile" to visit the user details for Rosa Parks. Note that the image that I uploaded to Rosa's Moodle profile has been carried over to Mahara along with her other details.

In these first two sections, we enabled networking on both Moodle and Mahara, and we configured Mahara to accept users who SSO via a Moodle.

In the next section, we'll configure Mahara to allow Moodle's users to log in directly to Mahara, or to log in via SSO, as they choose.

Mahoodle://Integrating Mahara with Moodle

3://Advanced SSO: Mahara

Log on to Mahara as the admin user, and navigate to the configuration page for the institution that we created earlier.

In the pulldown menu of authentication plugins, select 'internal' and click on the 'plus sign' button beside the menu to add the internal authentication method to the auth stack.

An authentication method labelled 'Internal' will appear in the authentication stack for your institution. The configuration pop-up window doesn't appear because there are no configuration options for internal authentication.

Click on the 'up-arrow' beside 'Internal' to move it to the top of the stack.

Now - click on 'Mahoodle XMLRPC' to reopen the window displaying its configuration options.

Mahoodle://Integrating Mahara with Moodle

3://Advanced SSO into Mahara

In the pulldown menu of Parent Authroities, the Internal plugin will now appear. Select 'Internal' as the parent authority for this XMLRPC instance, and click on submit.

This confirms to Mahara that users from this institution who SSO in from Moodle are also permitted to sign on directly with a username and password, and be authenticated against the internal Mahara database.

That's all we need to do here - log out of Mahara, and log into Moodle as Rosa Parks.

Mahoodle://Integrating Mahara with Moodle

3://Advanced SSO into Mahara

This time, when we try to SSO from Moodle to Mahara, we're prompted to 'change our password'. Mahara has noticed that we don't have a password to use with the 'internal' authentication plugin yet, and is prompting us to provide one.

Once we supply a password to Mahara, we can log out of the application and then log back in directly without going through Moodle.

If we're already logged on at Moodle, we can still click on the link in the Network Hosts block to be signed on to Mahara automatically.

Mahara ships with three authentication plugins; internal, XMLRPC and IMAP. The IMAP plugin is designed to authenticate users against an eMail server.

The application is designed to allow new authentication plugins to be added fairly simply.
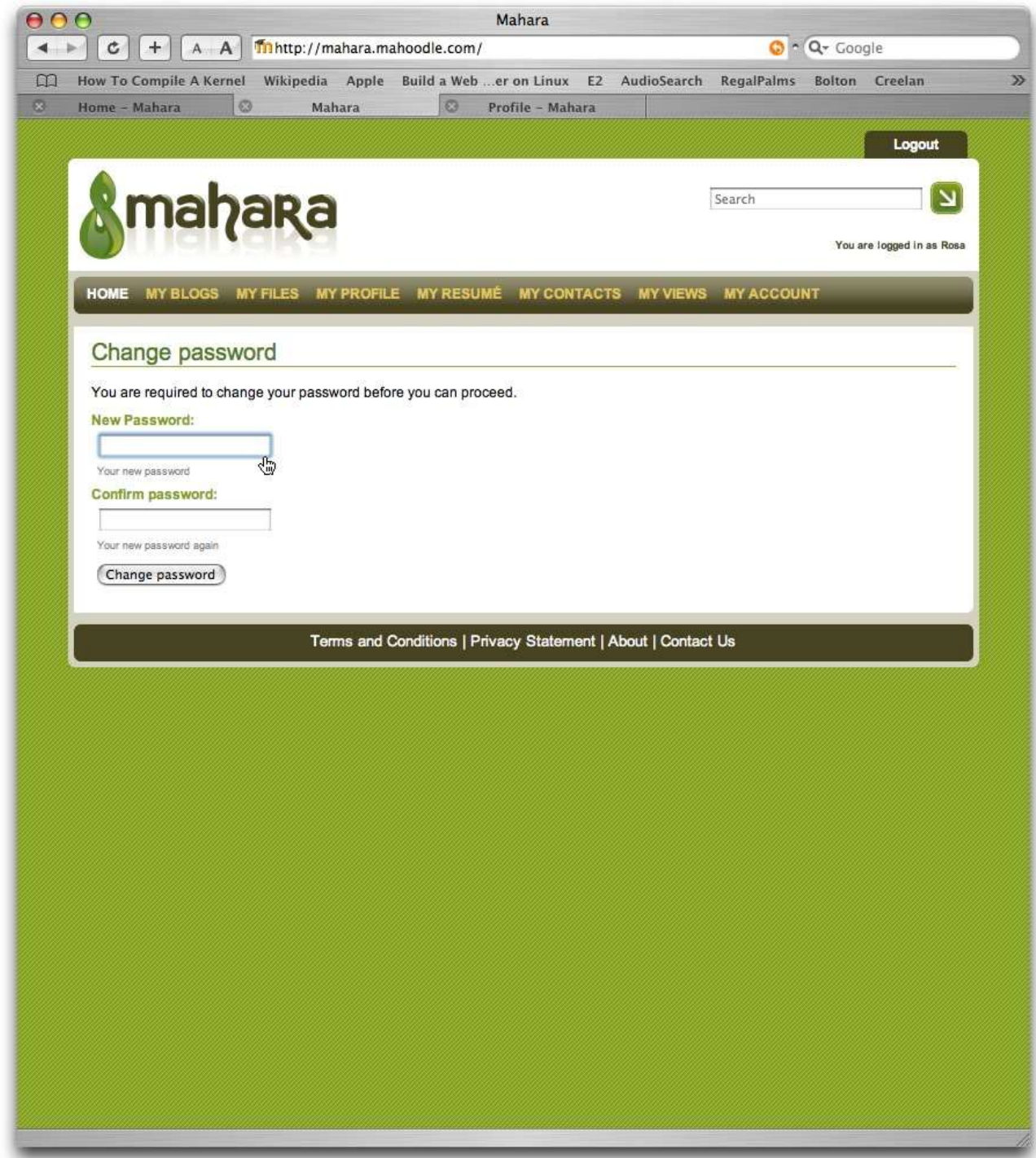
Mahoodle://Integrating Mahara with Moodle

4://SSO into Moodle

Log out from Moodle, and re-authenticate as the admin user. From the admin menu, click on Networking >> Peers, to view the details for your configured hosts. Our Mahara server will appear in this list.

Click on the Mahara site name, to review the host's details, and then click on 'Services' to review the configured services for this host.

Let's switch around our options - instead of publishing the SSO (Identity Provider) service, let's subscribe to it, and instead of subscribing to Mahara's SSO (Service Provider) Service, let's publish that service.

In this way, we provide an opportunity for users to access Moodle via their Mahara account. The users that could formerly SSO from Moodle to Mahara will no longer be able to do that, but they will be able to log into both Moodle and Mahara directly.

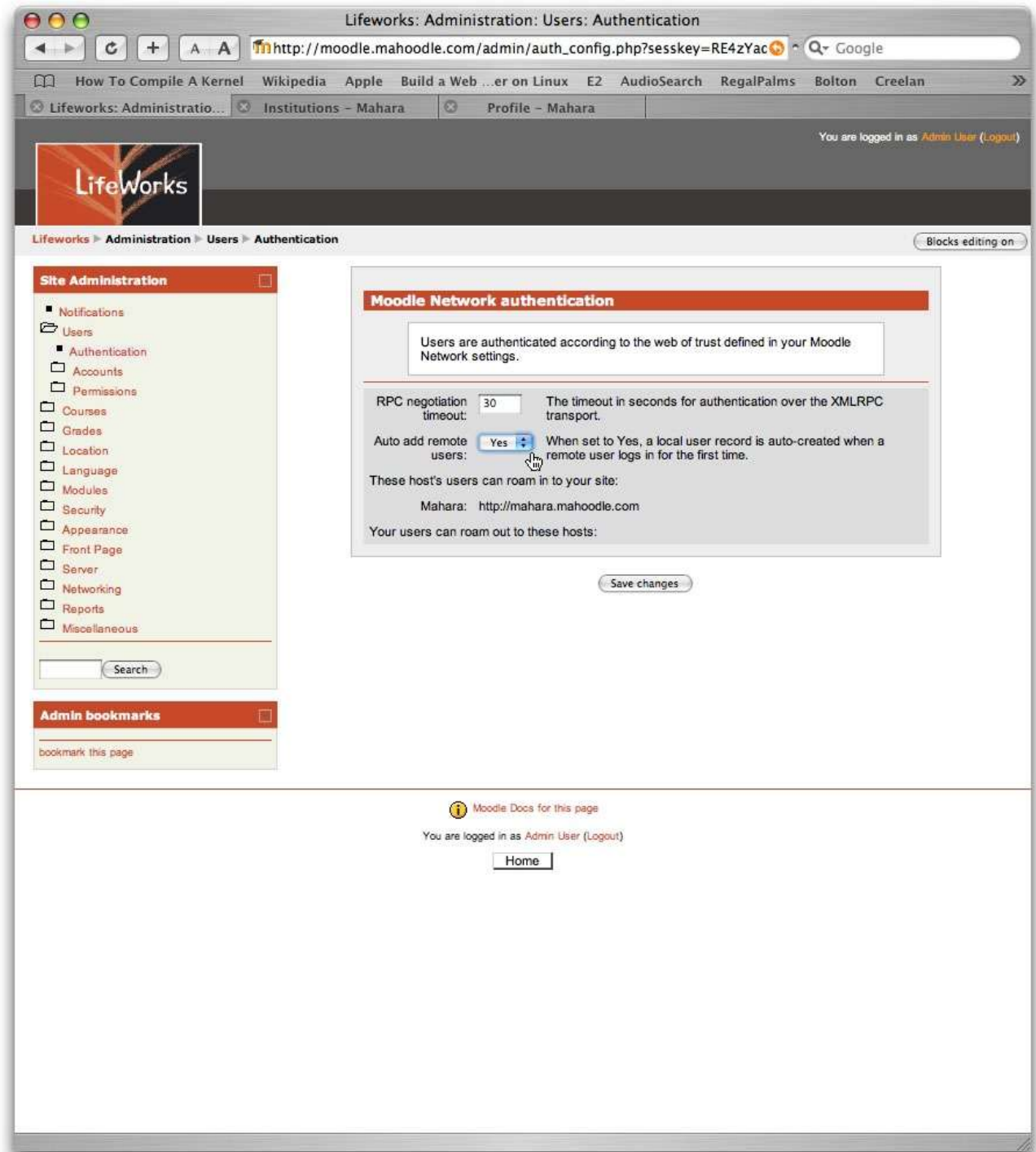# Mahoodle://Integrating Mahara with Moodle

4://SSO into Moodle

From the admin menu, click on Users >> Authentication, and click on Moodle Network Authentication's details link, to review the details for that plugin.

In the pulldown menu, choose 'Yes' for "Auto add remote users". You can see that the plugin reports that "These hosts' users can roam into your site", and that our Mahara host is listed there.

Now we should be ready to create a user account on Mahara, and use it to SSO to Moodle. We could use the Rosa Parks record on Mahara, but on arriving at Moodle for the first time, Moodle would create another user record for Rosa, leading to confusion.

This is a result of the two applications reversing the direction in which their users SSO. To accomplish this in a production environment would require careful planning.

Mahoodle://Integrating Mahara with Moodle

4://SSO into Moodle

Log into Mahara as the admin user, and navigate to the config options for the institution we created earlier. Open the XMLRPC configuration window, and reverse the checkboxes so that 'We SSO out' and 'They auto-create users' are both checked.

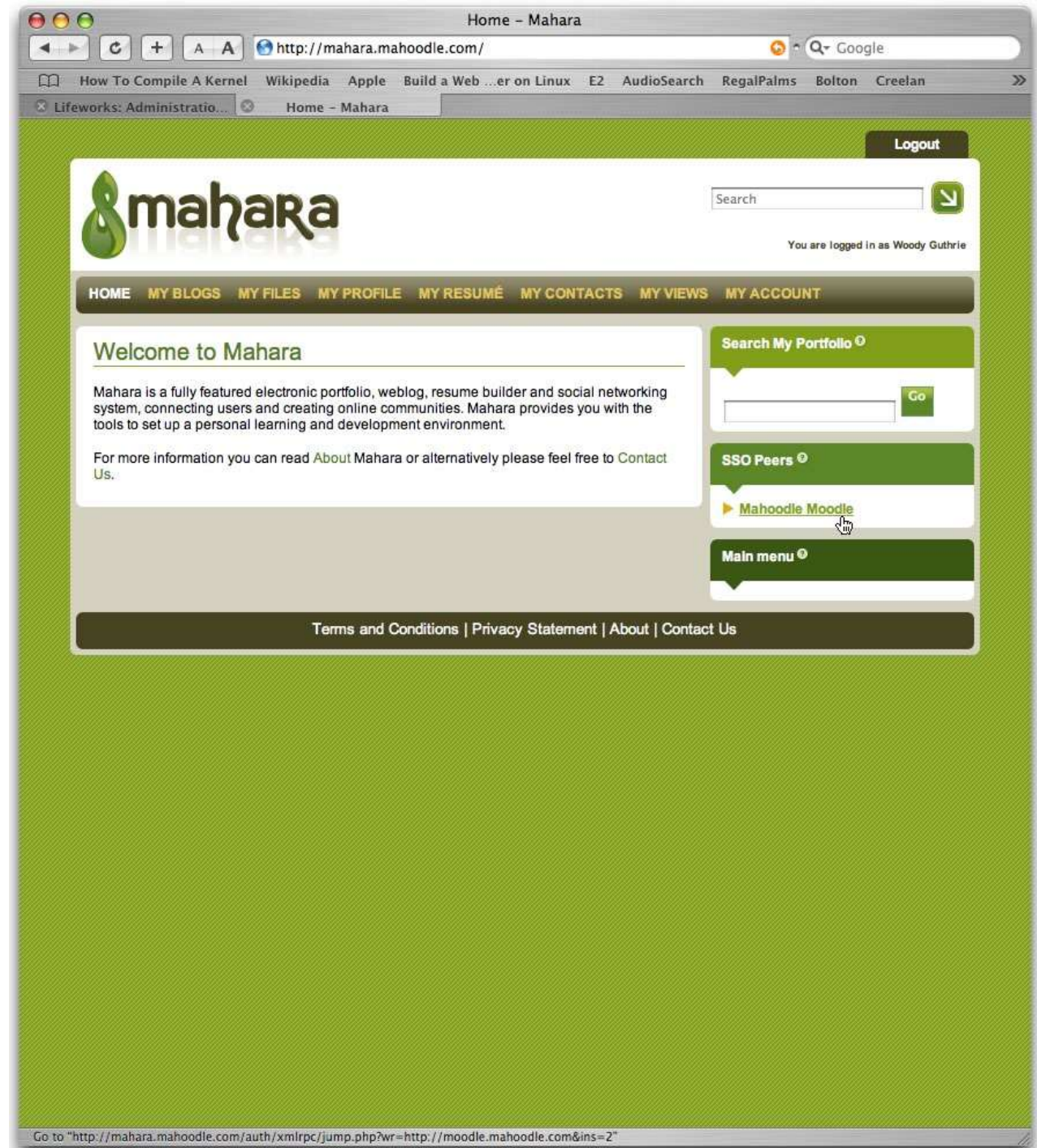# Mahoodle://Integrating Mahara with Moodle

4://SSO into Moodle

Create a new user record - I've created a record for Woody Guthrie. Log off from the admin account, and log back in as the new user you have just created. Make sure that you've signed out from Moodle.
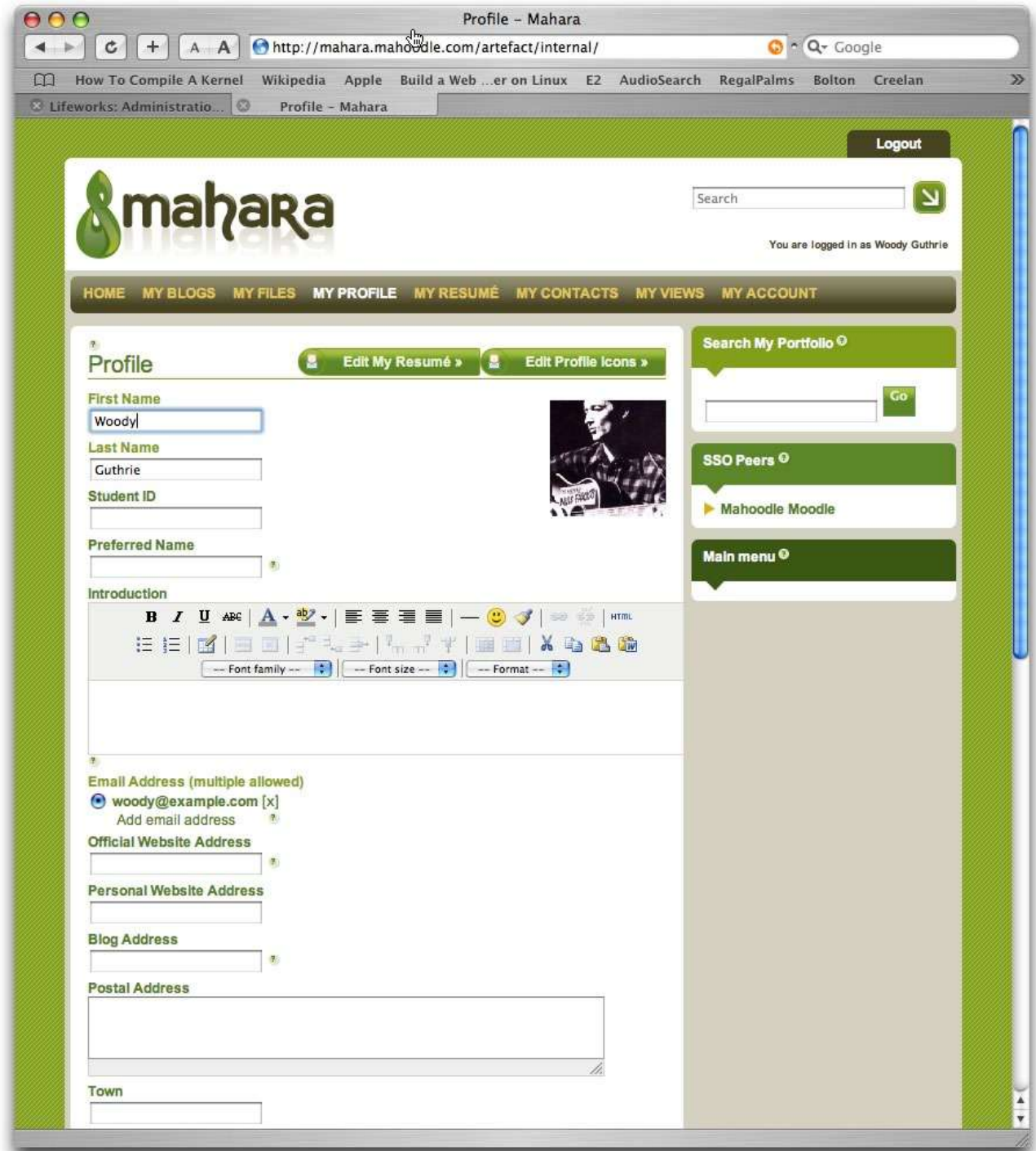
Mahoodle://Integrating Mahara with Moodle

4://SSO into Moodle

Note that an SSO Peers block has appeared on the welcom page, and it contains a link to the Moodle site. Click on the link to be signed on at Moodle.

Mahoodle://Integrating Mahara with Moodle

4://SSO into Moodle

At this point, you should find yourself signed on at Moodle as Woody Guthrie.

Mahoodle://Integrating Mahara with Moodle

A word on Authentication Plugins

An institution can have any number of authenticating authorities, and Mahara will try to authenticate users against those one at a time until it hits upon an authority that knows the user. An authority could be any system that already stores username and password information for your users, for example, a student management system, an email server, an LDAP server or just a plain old database.

Mahara may be able to access the same authority by different means, for example, if your user data is in a Moodle database, a database-authentication plugin could access that database and compare the credentials your users supply to the values in Moodle.

In this example, the Moodle database is the canonical or 'parent' store of data for username/password information.

Users who login to Mahara, and are authenticated against a Moodle database, might also log into Moodle and click on a special link to be automatically signed on to Mahara. This feature is provided by a Mahara authentication plugin called 'xmlrpc', and because the users' credentials are stored in the Moodle database, the database authentication plugin is said to be the parent of the xmlrpc authentication plugin.

Authentication stacks are an advanced topic that won't be relevant to most Moodle and Mahara deployments. We cover this topic further in chapter 4.