



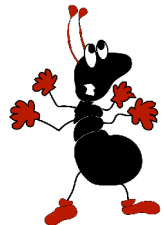
Shibboleth®



Blackboard®

Blackboard as a Shibboleth target: ready for production?

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Learning Technologies Team Leader
IT Service



iamsect



**Durham
University**



Talk Outline



- Project driver: shared Bb course
- Authentication & Authorisation
- Blackboard's Implementation
- Setting up Shibboleth
- Configuring Blackboard as a target
- Out the box functionality
- Further refinements
- Recommendations



What we want



A shared Blackboard course

Phase 1 Medicine
Queen's Campus, Stockton



1 Medicine in the Community

- Durham students authenticated by Durham
- Newcastle Students authenticated by Newcastle



UNIVERSITY OF
NEWCASTLE UPON TYNE

- If students leave/fail – handled at source
- Library entitlements – reflect source institution



Blackboard as a Target



Questions of the Target Request:

Is the user authenticated ?

- has a valid cookie been set ?

Is the user authorised for this service ?

- request attribute data using the ticket

Show user their own profile

- request persistent but anonymous user ID



Access Control



1. Authenticate

- Pass
- Fail

2. Authorisation

- Based on some attribute
e.g. course membership, course role, institution role, etc.



Authentication & Authorisation



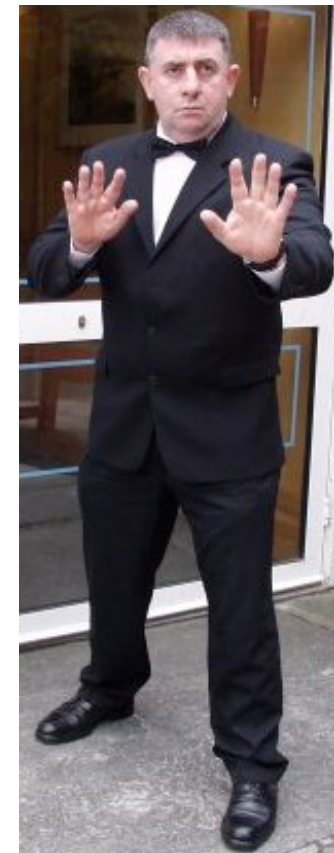
Authentication

- Knowing if someone is who they say they are



Authorisation

- Knowing if someone is allowed to use or do something





Blackboard Authentication



 **bruno**    [Home](#) [Help](#) [Logout](#) [Developer Copy](#)

[Welcome](#) [Courses](#) [Community](#) [Greenhouse](#) [System Admin](#) [IAMSECT Project Info](#)

[ADMINISTRATOR PANEL](#) > AUTHENTICATION





End-User Authentication Configuration

<u>Currently Enabled</u>	<u>Authentication Type</u>	<u>Configuration Settings</u>
	Web-Server Delegation	View Configuration Settings
	LDAP	View Configuration Settings
✓	SHIB	View Configuration Settings
	Blackboard Challenge-Response	View Configuration Settings
	Passport	View Configuration Settings
	DATATEL	View Configuration Settings



Blackboard Authentication



 **bruno**    [Developer Copy](#)

[Welcome](#) [Courses](#) [Content Collection](#) [Community](#) [Greenhouse](#) [System Admin](#) [IAMSECT Project Info](#)

[ADMINISTRATOR PANEL](#) > [AUTHENTICATION](#) > VIEW AUTHENTICATION CONFIGURATION PROPERTIES

Configuration Settings For Authentication Option: SHIB

1 Blackboard Application

Implementation Class:	<code>blackboard.platform.security.authentication.BbShibbolethAuthModule</code>
User Account Management:	Reconcile
Def Key:	BatchUid

[OK](#)



Getting Blackboard Talking



- Need SSL enabled
 - Watch out or you will break your collaboration server ☹️
- Get your Shibboleth Origin setup
- Get a Target set up for your Blackboard server
- Join a Federation
- Change various files on Blackboard and your Shibboleth target
- **Change Bb Authentication method via GUI**



Blackboard Authentication



Make these changes on your Shibboleth target to the file

`/opt/shibboleth/etc/shibboleth/apache.config`

```
<Location /secure>
  AuthType shibboleth
  ShibRequireSession On
  require valid-user
</Location>

<Location /webapps>
AuthType shibboleth
ShibRequireSession On
require affiliation ~ ^member@.+$
# accept any valid principal name passed from the Origin.
require user ~ ^.+$
</Location>
```

```
ShibMapAttribute urn:mace:dir:attribute-def:
eduPersonPrincipalName Shib-EP-BBUSER_NAME
```



Blackboard Authentication



Make these changes on your Shibboleth target to the file
`/opt/shibboleth/etc/shibboleth/shibboleth.ini`

```
wayfURL = https://shib.dur.ac.uk/shibboleth/HS
```

Note that the Blackboard documentation directs you to point at your own Origin server!

Later we changed this to point at the SDSS WAYF to allow others to access bruno...

A few other changes, e.g. adding details of trusted certificates



Blackboard Authorisation



Only at simplest level – has this user an account?

Still largely the job of the Blackboard database, mapped to a user – **not handled by Shibboleth**

Based on

- System Role
- Institutional Roles
- Account Availability

- Course & Community Enrolments
- Course & Community Roles



Impact on Your Blackboard Server



Goodbye Portal Direct Entry

Hello PubCookie

The screenshot shows a web browser window titled "Durham University Authentication - Microsoft Internet Explorer". The address bar shows the URL "https://shib.dur.ac.uk/cgi-bin/index.cgi". The page content includes the Durham University logo and the following text:

The resource you requested requires you to authenticate.

ITS Username

Password

After you have authenticated using this page you will be able to access other similarly protected web resources for up to 8 hours **without** having to log in again (assuming you keep your web browser open).

To maintain your privacy and prevent others from accessing your resources always close down (exit) your web browser before you log off or leave your computer unattended.

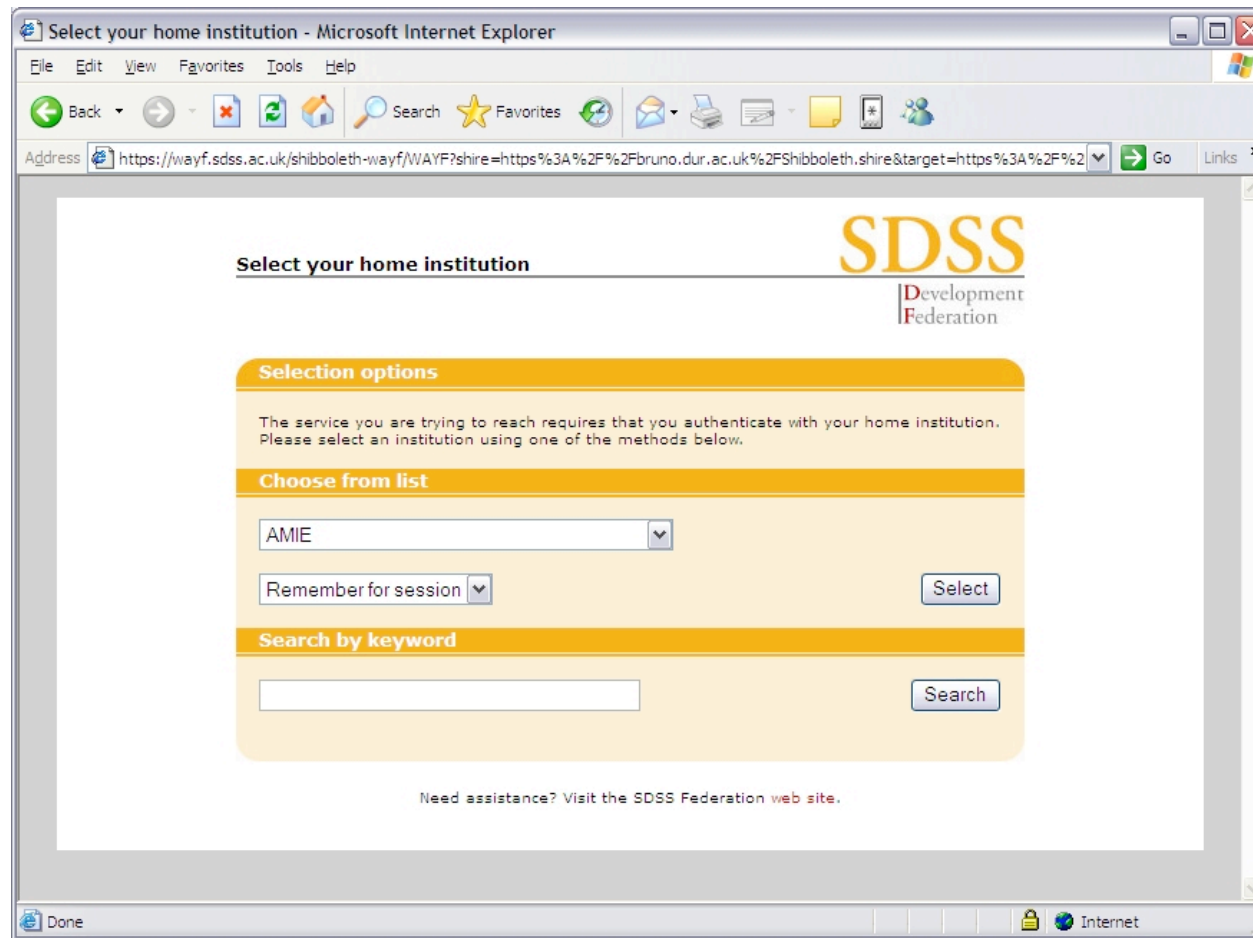
Use of this service is governed by Durham University's [Regulations for the use of IT Facilities](#).



Use the WAYF instead



With a bit of tweaking it can show this instead:





Architecture



Development environment

Uses two servers:

1. Shibboleth Origin & PubCookie
2. Blackboard & Shibboleth Target





Shibboleth Origin




beagle

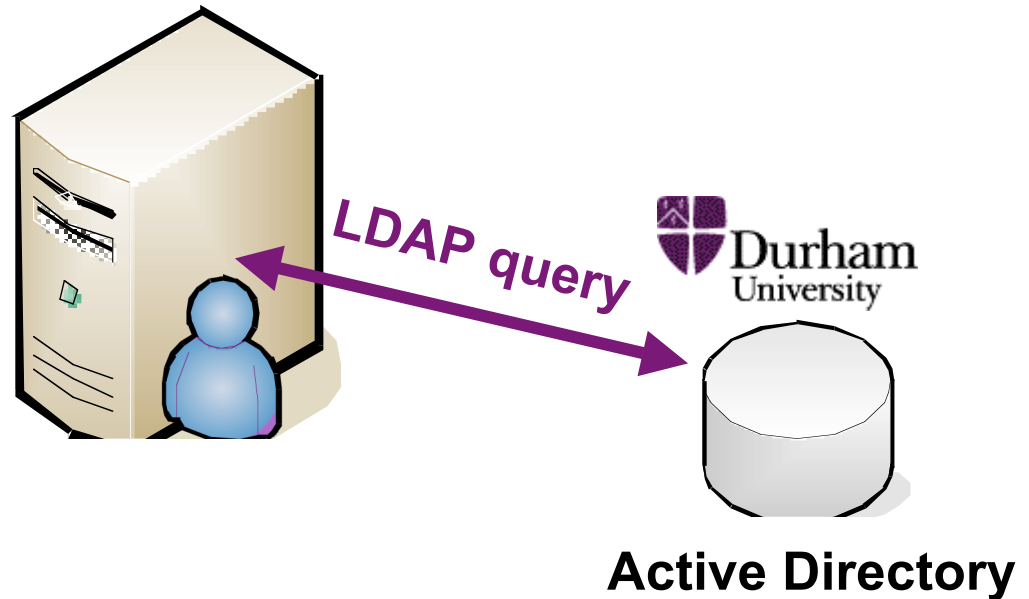
2 x 2.8 GHz Xenon CPUs

2 GB Memory

Linux Red Hat AS

“hopelessly over-powered”

Shibboleth <ul style="list-style-type: none">• Origin 
PubCookie <ul style="list-style-type: none">• WebISO 





Shibboleth Target



2 x 1 GHz Pentium III CPUs

2 GB Memory

Linux Red Hat AS

“not suitable for production”

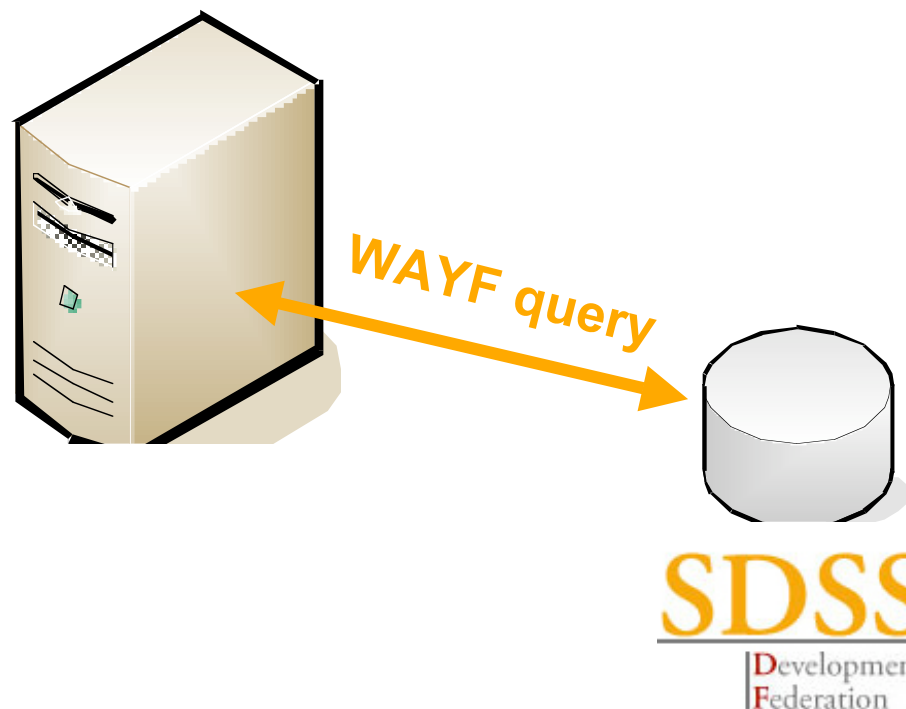
Bb Academic Suite

- Web Server
- Collaboration Server
- Oracle database



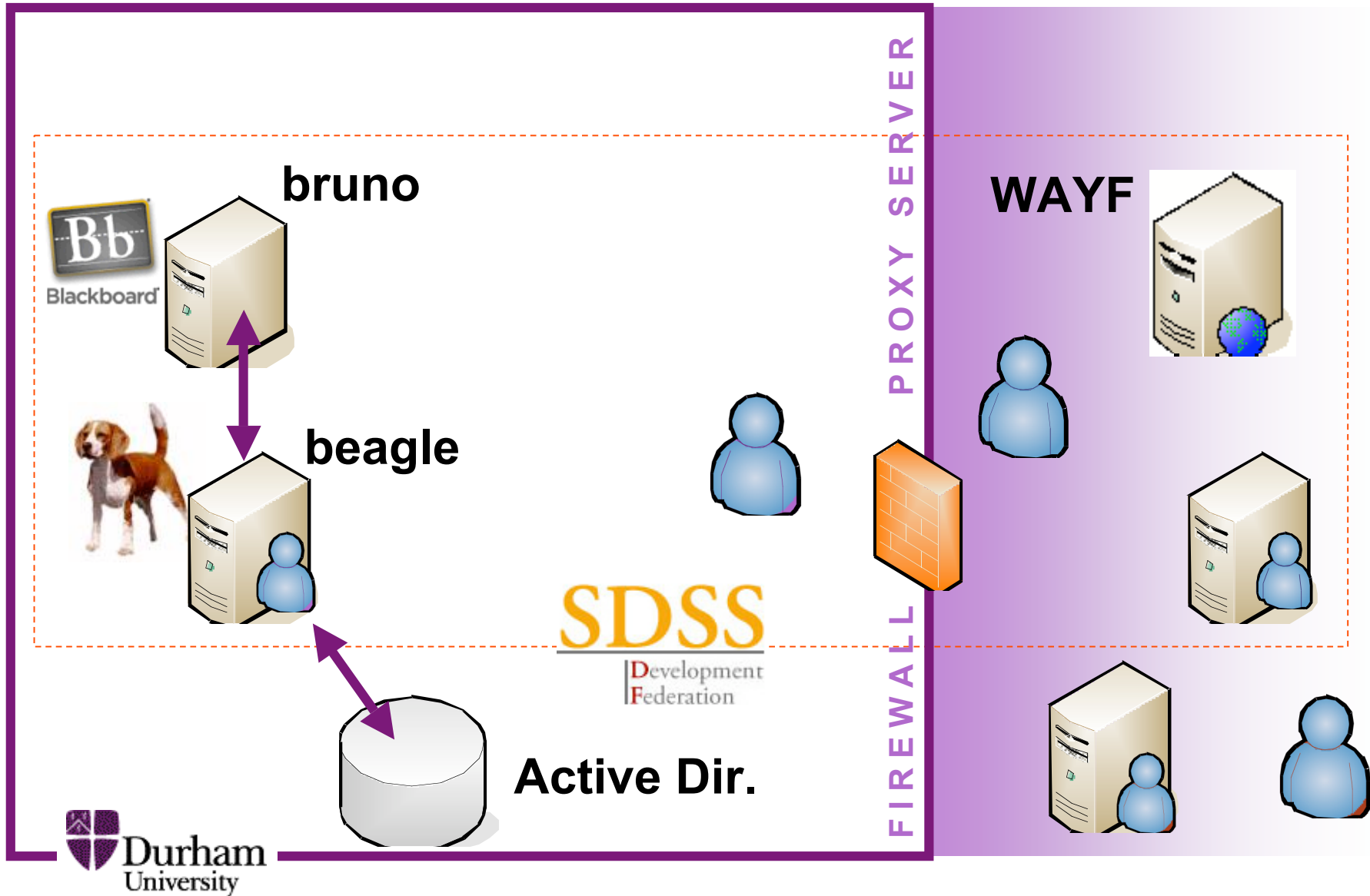
Shibboleth

- Target



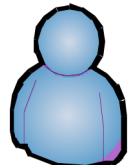


Connecting it all together





How it works - Durham



Local user attempt to access the target (bruno) for the first time that day...



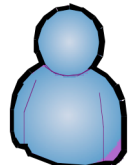
No cookie so redirected to the WAYF page...



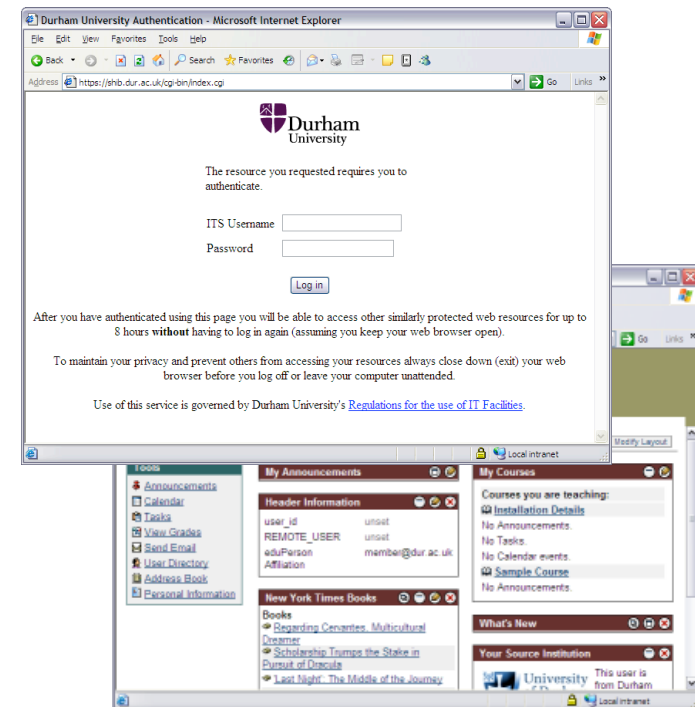
Need assistance? Visit the SDSS Federation web site.



How it works - Durham

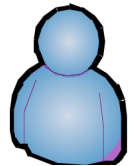


Chooses Durham University and is redirected to our PubCookie page to authenticate...





How it works - Durham



Chooses Durham University and is redirected to our PubCookie page to authenticate...

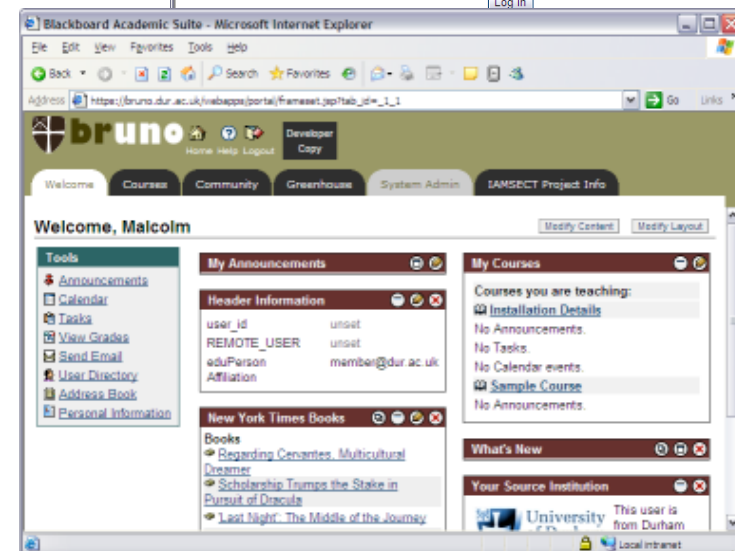
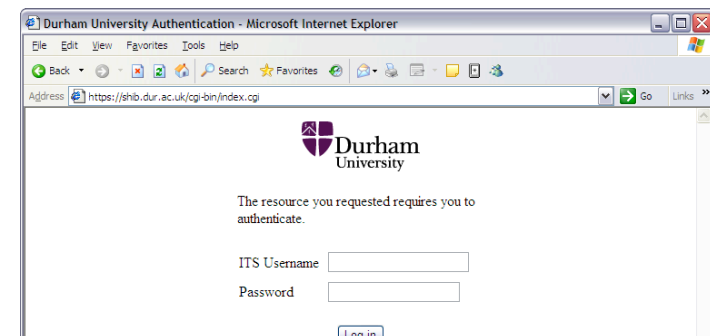
If successful they are redirected...

Shibboleth Handle Request Processed

You are automatically being redirected to the requested site. If the browser appears to be hung up after 15-20 seconds, try reloading the page before contacting the technical support staff in charge of the desired resource or service you are trying to access.

Redirecting to requested site...

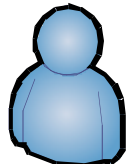
Transferring data from shibboleth.blackboard.com...



to bruno...



How it works - Newcastle



Chooses Newcastle University and is redirected to their PubCookie page to authenticate...

Shibboleth Handle Request Processed

You are automatically being redirected to the requested site. If the browser appears to be hung up after 15-20 seconds, try reloading the page before contacting the technical support staff in charge of the desired resource or service you are trying to access.

Redirecting to requested site...

Transferring data from shibboleth.blackboard.com...

Information Systems & Services

The resource you requested requires you to login.

User ID

Password

WARNING: To protect your privacy and prevent unauthorized use, completely close your Web browser when you are finished. This is the easiest way to ensure you are logged out of all web applications.

bruno

Home Help Logout Developer Copy

Welcome Courses Community Services

Tools

- Announcements
- Calendar
- Tasks
- View Grades
- Send E-mail
- User Directory
- Address Book
- Personal Information

Welcome, Jon Contents Layout

My Announcements

No system announcements have been posted today. [more...](#)

My Courses

You are not currently enrolled in any courses.

Who's Online Module

Usage for Mar-14-2005 12:23:27.673

Total users in last minute 1

Total users in last hour 2

Your Source Institution

UNIVERSITY OF NEWCASTLE UPON TYNE This user is from Newcastle



Live Demo







<https://bruno.dur.ac.uk>



If it can't match the user...




 **bruno**    [Home](#) [Help](#) [Login](#) [Developer Copy](#)

[Greenhouse](#) [Welcome to Bruno](#) [IAMSECT Project Info](#)

Welcome to Bruno

Links



You are looking at Bruno - one of Durham University's Blackboard™ servers. Blackboard is the software which Durham uses to deliver the University's e-Learning environment. Bruno is a *development* server as such access is restricted and there's not much for guests to see. If you are interested in Durham's

Done

Login Here

Welcome. [Please click here to login.](#)

Weather across Campus

Durham

Ashtab - Fri Nov 25 15:27:12 2015

Reconcile External Account

Enter your Blackboard account username and password one last time; this new login (SHIB) will be used from now on.

Username:

Password:



Problem



- Users authenticating using an Origin Server outside Durham are failing because the IP address of their request and the return don't match.
- Outward Responses from Durham go via the web proxy server and so have the IP address of the proxy server, not the user or the origin server, so authentication fails 😞
- Our authentication to external targets fails too 😞
- We are working on this...



What works



- Authentication uses the same host as other systems in Durham – Active Directory
- Bb Shibboleth Authentication works for local users
- If we resolve the proxy issue, external users should be able to access bruno too
- WebDav works for local users



What doesn't



- Lost portal Direct Entry
- Lost the ability to log out
- Most other services still want you to go through some authentication process
- One-time mapping of accounts is clumsy
- Bb Documentation out of date
- Not an easy/cheap option for Windows users
- Support issue – TSM or Global Services?



Sys Admin Manual



SHIBBOLETH INTEGRATION

Overview

The Shibboleth initiative is developing an open, standards-based solution to meet the needs for organizations to exchange information about their users in a secure, and privacy-preserving manner. This document offers a brief overview of Shibboleth and explains how it is installed on the *Blackboard Learning System*.

Shibboleth allows organizations to exchange information about users securely and privately. Shibboleth is designed to provide a way for a person using a web browser (for example, Internet Explorer or Netscape Navigator,) accessing a target site to be authorized to access a target site using information housed at the user's security domain. This permits users to access controlled information securely from anywhere without additional passwords, or needlessly compromising privacy. For example, if a Student is taking classes at two universities, and both schools use Shibboleth, the Student may have a single user name and password to access information at both universities' Web sites.

Shibboleth is fully supported as a custom authentication option for *Blackboard Learning System* on UNIX operating systems. Due to the experimental nature of the underlying Shibboleth technologies, and limited operational expertise available for Shibboleth, Blackboard recommends customers consider running a restricted, pilot implementation on a test or development server before making this feature generally available on their system.



NOTE: Shibboleth has only been tested with *Blackboard Learning Systems* on UNIX Operating Systems.



Windows Users



**Blackboard does offer
Shibboleth authentication
beginning with version 6.1.5.1
also for Windows based clients,
however all implementations of
this special authentication
method will need to be made via
an engagement of Blackboards
Global Services team.**



Breaking Things



Note that many custom auth schemes (such as Shibboleth or CAS) are webserver-authentication-based and work by setting the environment variable `$REMOTE_USER` in the webserver. Such schemes cannot use portal direct entry, since webserver-authentication is only triggered by the main login page.

Also note that custom authentication will for similar reasons not work with WebDAV (aka Web Folders) for Content System users.



What next



- Look at modifying authentication classes
 - Not CustomAuthentication – breaks WebDAV etc.
 - Instead extend the existing LDAPAuthentication class (BB_OPEN-SRC project)
- Else we hope Shibboleth 2.0 fixes the logout problem



Recommendations



- Worth playing with
- Blackboard is a very undemanding target
– only wants authentication
- Not ready for production yet 😞