



World Library and Information Congress: 70th IFLA General Conference and Council

**22-27 August 2004
Buenos Aires, Argentina**

Programme: <http://www.ifla.org/IV/ifla70/prog04.htm>

Code Number:	086-E
Meeting:	155. Information Technology
Simultaneous	-
Interpretation:	

Facilitate access to e-resources with Eduserv Athens

Lyn Norris
Athens Manager
Eduserv, United Kingdom

Abstract

Managing access to online resources can be a significant challenge for librarians. The average university library in the UK subscribes to over 300 online resources, each with its own separate authentication and authorisation scheme. Use of IP address ranges can provide seamless access for on-campus users, but often excludes off-campus users, including distance learning students. This paper will describe three different ways that libraries in the UK have used the Athens Access Management System to simplify the management of access to common academic electronic resources such as Science Direct and Blackwell Synergy, for both on and off campus users.

The Athens Access Management System has been in use in the UK since 1995, working with librarians and electronic resource providers to ease the management of access to online resources, and facilitate access for authorised users to subscribed resources. All Athens facilities are available from a standard web browser and are designed for librarians, not IT specialists.

Athens provides secure single username access to hundreds of online resources, with the ability to integrate Single Sign On capability to local portals or learning environments, giving seamless authentication to a range of resources. There are over 2000 Athens registered organisations, with over 2.9 million user accounts,

protecting access to 260 online resources. For more information, see <http://www.athensams.net/>.

This paper will describe three different ways in which academic librarians have used Athens:

- By web based self registration from restricted PCs
- By automatic data feeds from Student Registry
- By using a local authentication system within a Virtual learning Environment

Contents

Abstract	1
1. Introduction	2
2. e-resources – beyond e-journals	2
2.1. Barriers to access	3
2.2. Access Management	3
2.3. IP Authentication	3
3. Eduserv Athens	4
3.1. History of Athens	4
3.2. Athens today	4
3.3. MyAthens – a simple portal	5
3.4. The Athens Administrator	5
3.5. Athens in action	5
3.6. Automatic account creation	7
3.7. Federated or devolved authentication	7
3.8. Shibboleth	8
3.9. Attributes	9
4. Case Studies	10
4.1. Case Study 1: NHS Tailored Self registration scheme	10
4.2. Case Study 1A : Self-registration at University College London	12
4.3. Case Study 2: Overnight bulk uploads at Warwick University	13
4.4. Case Study 3: Devolved authentication at the University of Ulster	14
5. Conclusion	15

1. Introduction

This article will demonstrate, using three Case Studies, how the Eduserv Athens access management system can be used to facilitate access for your users to their e-resources. You can use Athens to create usernames for you, or you can use your own. Athens enables you to maximise your investments in e-resources and to empower your users to access e-resources anytime anywhere.

2. e-resources – beyond e-journals

The first electronic resources were bibliographic databases with the ISI bibliographic databases from Bath Information and Data Services (BIDS) leading the way in the UK. For more information see www.bids.ac.uk. Then came electronic journals – a boon to academic librarians everywhere. The major academic publishers now make their new material available electronically and are driving through their back-files to make this material available electronically too.

But electronic resources are not limited to eJournals and eBooks. The range and type of material is getting wider and wider with resources like Anatomy TV, Kar2ouche for making cartoons, and online training resources like Hairdresser-Training.com in the JISC Collections portfolio. There is also a range of image libraries like the Education Image

gallery, and moving image material from the British Universities Film and Video Council (BUFVC).

Electronic resources release pressure on academic libraries for physical space to store books and journals. John Rylands Library in Manchester recently moved 45 kilometres of material out of the library into temporary storage. E-resources also release pressure in libraries for reader space and even longer opening times, as the reader can access the e-resource from his own PC. Librarians can be assured that the electronic copy is complete, unvandalised and in the right place. Also an electronic site licence generally has no concurrency limit, thus providing unlimited access at times of peak demand.

But few of these resources are being used to their full potential because of a number of barriers to access.

2.1. Barriers to access

One barrier to e-resources is the straightforward inability or fear of using a PC. Experience of e-resources has shown that all is needed is for the individual to be shown the e-resource, and shown how easy it is to use. Then they can fly!

Another barrier is the promotion of e-resources – all too often organisations purchase e-resources and are unable to promote the materials sufficiently. With an average library having over 300 e-resources, this is quite a problem. Use of a Virtual Learning Environment, portal or library web site can ease this problem, by targeting resources at groups of individuals, perhaps by way of course-specific materials.

But the greatest barrier to e-resources is the need to impose access controls. Electronic resources are not often free, it is generally necessary to pay a subscription fee, or at least agree to licence conditions. Access to the e-resource is quite properly restricted to authorised users, however quite often the need to restrict access puts barriers in the way of genuine users. More emphasis needs to be given to facilitating access for authorised users.

2.2. Access Management

Managing access to e-resources involves a number of processes, i.e.

- authentication - identifying the person requesting the access
- authorisation - determining from that person's identity, and often using other sources of information, what privileges the individual has and hence whether access should be allowed or not
- accounting - maintaining logs of events for the purpose of generating management information on resource usage

2.3. IP Authentication

IP authentication provides a simple way of recognising an authorised user. When the licence terms are agreed for a new resource, the organisation generally registers its IP address range. Then any PC from that IP address range is deemed to be authorised. This happens seamlessly without the user knowing or doing anything and is very effective.

However it does generally limit access to users on-site or on-campus. Even for on-site users, access is limited by the number of PCs on-site, particularly public access PCs. Users who spend large periods of time off-site – arguably all Further Education students and all distance learners – are likely to experience access difficulties. Some organisations

do provide an authentication system for access to the campus network but this is not very common, and does in itself present another authorisation barrier.

Another significant downside of IP authentication is the inability to identify the individual, and therefore the inability to provide comprehensive statistics eg by department or type of user. This also limits personalisation capability, and the audit trail necessary for individual accountability in cases of suspected abuse.

3. Eduserv Athens

3.1. History of Athens

In 1987, the Computer Board of UK Higher and Further Education established the National Information Systems and Services (NISS) to provide a wide range of information services to the education and research sector. NISS, who were based at the University of Bath, initially developed the Athens access management system to authenticate and authorise access to the NISS services. Athens was subsequently adopted by the Joint Information Services Committee (JISC) as its preferred authentication and authorisation system. With funding from the UK further and higher education funding councils, JISC provides a centralised and co-ordinated direction by providing strategic guidance, advice and opportunities to use ICT to support teaching, learning, research and administration. For more information on the JISC, see www.jisc.ac.uk.

Eduserv works closely with the JISC and its various development programmes to evolve the Athens service to meet the changing needs of the UK academic community. In August 2003, Eduserv was awarded a second three year contract to provide access management services to the UK Higher and Further Education community. This contract includes a stringent Service Level Agreement, the results of which are made public on the JISC's Monitoring Unit web site at www.mau.ac.uk.

3.2. Athens today

Eduserv Athens today is a comprehensive access management system which controls access to over 260 e-resources. With one Athens username issued by the organisation, the user can be authorised for access to all the organisation's Athens resources. These usernames can be used anywhere anytime, thus empowering the user, and maximising the investment in e-resources.

Over 260 e-resource providers use Athens technology to authorise access to their resources. These include many of the major academic publishers such as Elsevier, Thomson Gale, and Oxford University Press; plus an increasing number of other types of resources, such as online training resources, resource discovery systems and portals. Over 2000 organisations, largely UK based, use Athens for access to e-resources.

Athens provides a comprehensive set of facilities for creating usernames for authorised users with options to:

- create users manually
- allow users to self register from a restricted IP address range
- bulk upload usernames from another data source eg Student Registry

These facilities are driven simply from a web browser, and have enabled librarians to provide access to e-resources, often with no input from the IT department.

For more information on Athens, see www.eduserv.org.uk/athens

3.3. MyAthens – a simple portal

Athens provides by default a simple portal called MyAthens. Users log in to this at <http://www.athensams.net/myathens/> and are presented with a clickable list of all resources for which they are authorised. Athens single sign-on capability then offers the user seamless access to all his resources. This provides immediate portal capability for an organisation registering with Athens and provides an effective means of promoting e-resources to an organisation. MyAthens is guaranteed to be up to date with accurate information, thus removing the need to manage a set of e-resources, say on a library web page.

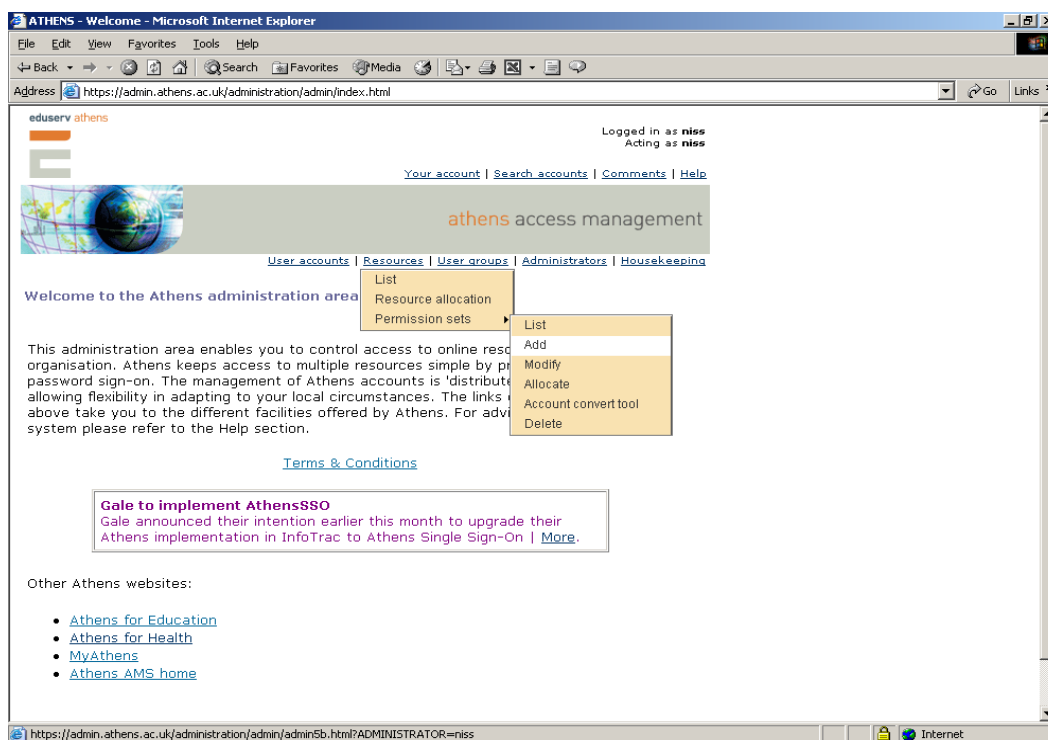
3.4. The Athens Administrator

When an organisation registers with EduserV Athens, it is required to nominate an Athens Administrator who has responsibility for issuing usernames and associating resources with those usernames in accordance with the licence terms of the resources. The Administrator is also required to remove access to resources for a user when the user is not longer entitled to access the resource; and to ensure that users are aware of the relevant licence conditions. These can be seen in detail at <http://www.athensams.net/toc.html>.

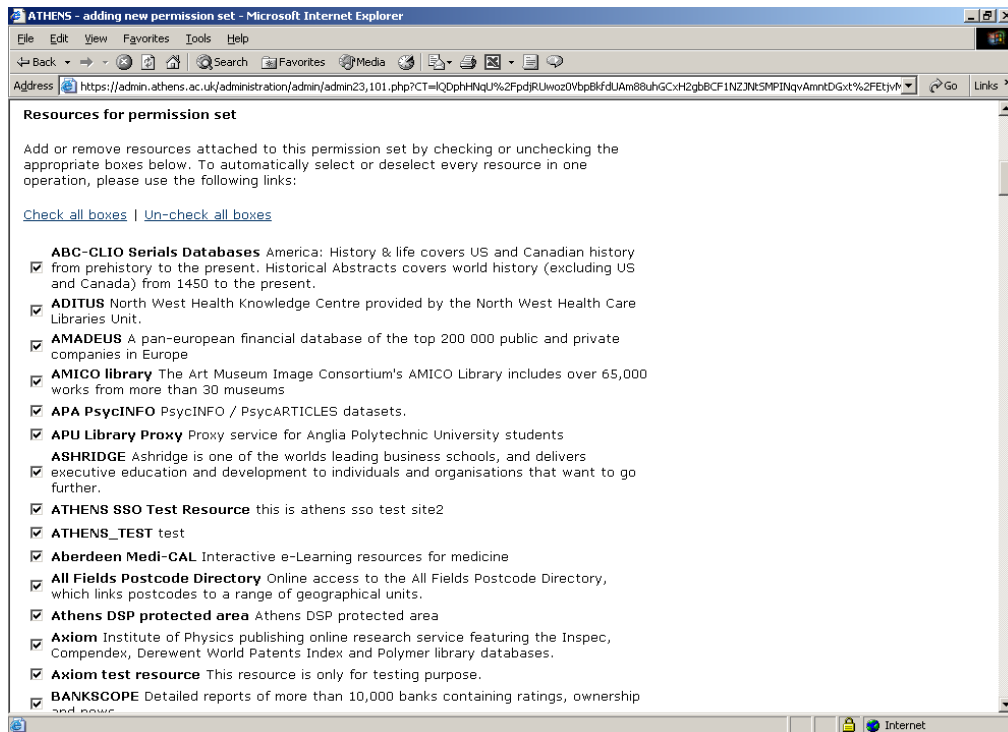
3.5. Athens in action

The administrative functions within Athens are designed to be used by librarians, and have evolved with active input from librarians since their inception in 1996. All facilities are available via a web browser and require little technical expertise.

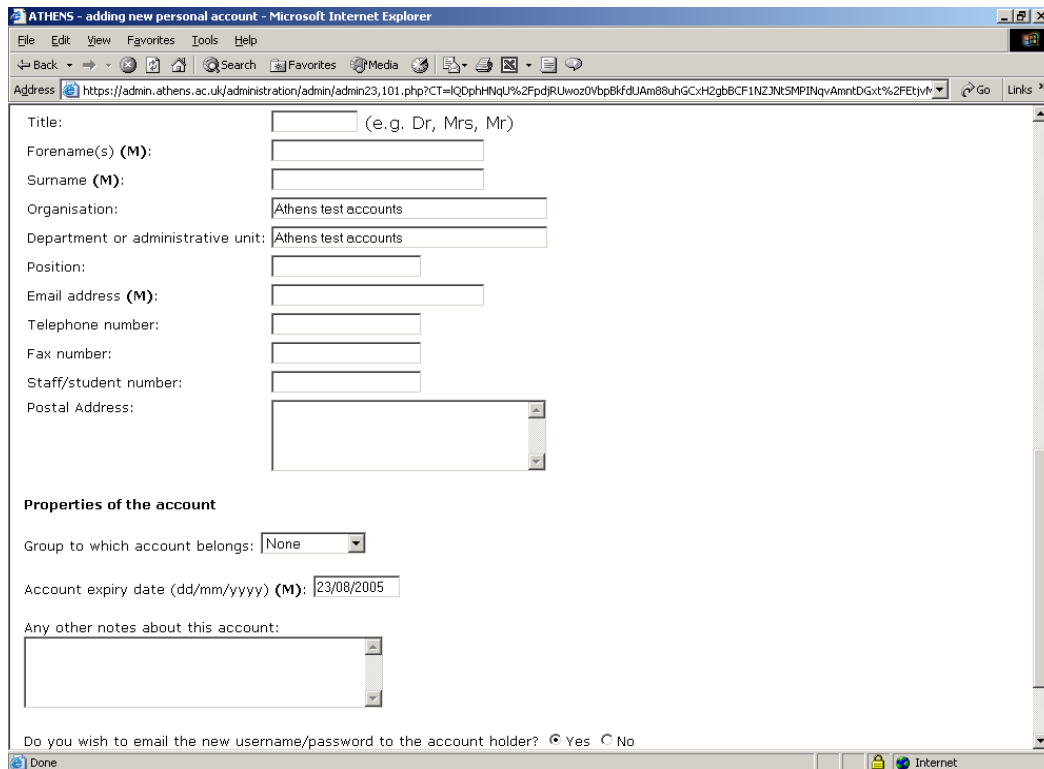
Here is the opening page of the Administrator's Interface:



The first task for an administrator is to create a Permission set, which defines a set of resources appropriate to a category of users. So the administrator selects Resources, Permission sets, then Add. Then he chooses a name for the permission set, and is asked to select which organisational resources are required for this permission set.



The administrator can then create user accounts with access to this permission set, by providing user information as in the following screen



The only mandatory fields are the account name, the forename, surname, email address and expiry date, but other fields are available to assist the administrator in handling his accounts. None of this personal information is made available to any other party – they simply know the account name.

3.6. Automatic account creation

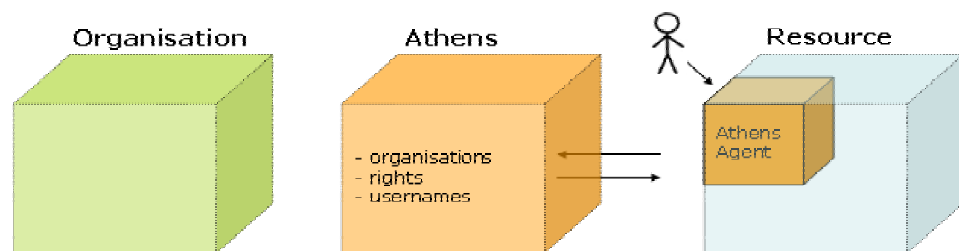
Manual account creation has its place, but it may be more convenient and accurate for accounts to be created from another data source such as Student Registry information, or perhaps a spreadsheet of individuals. Athens provides bulk upload facilities for an administrator to securely upload account details. These can then be emailed directly to the users, or sent to the administrator for hand delivery.

3.7. Federated or devolved authentication

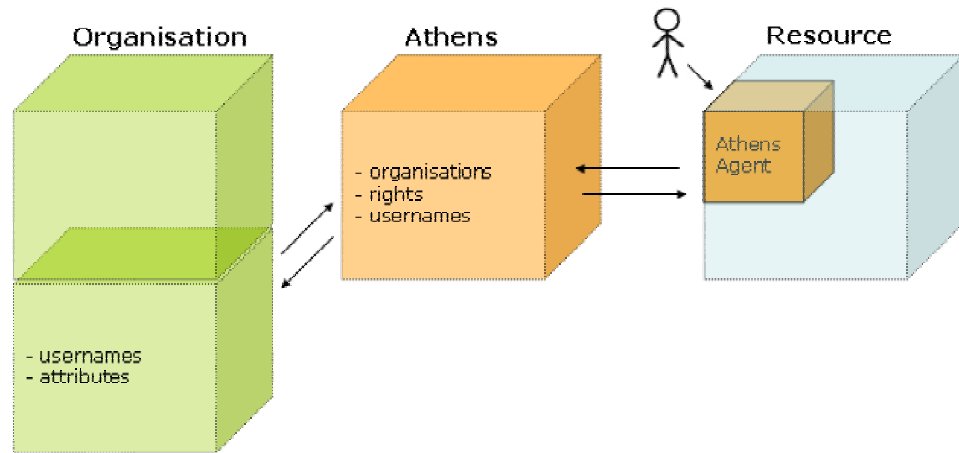
Organisations often have their own set of established usernames, perhaps for access to their network PCS, or their library catalogue or their Virtual Learning Environment. Athens can be configured to use an organisation's preferred set of usernames, provided that the organisation can legitimately authorise access to Athens resources using these usernames. This usually means that the set of people owning the usernames can be categorised for access to Athens resources. All the organisation has to do is provide Athens with a unique identifier for the user, and an Athens permission set.

3.7.1 How does it work?

In classic Athens, the user goes to an e-resource, selects the Athens login option and is redirected to Athens. The username and password are checked and if successfully authenticated, the user is returned to the resource with sufficient information to authorise access to the resource. This is shown schematically in the following diagram



In devolved authentication, the user selects the Athens login, but is then routed to his home organisation to be authenticated and authorised. Athens is provided with a unique identifier for the user, and an Athens permission set. The process then proceeds as before.

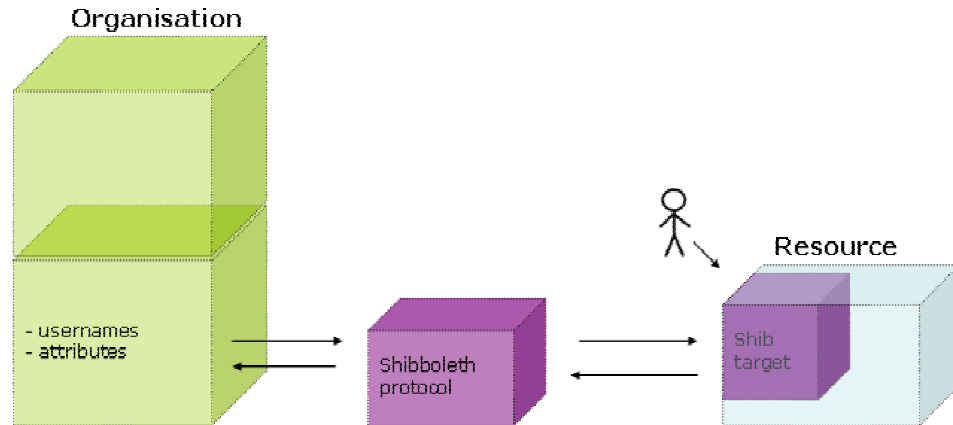


3.7.2 Portal mode devolved authentication

Athens Devolved Authentication (AthensDA) also operates in portal mode. In this case the user simply logs into a local application such as portal or a Virtual Learning Environment, and subject to the user's Athens rights, can then have Athens authentication asserted to Athens behind the scenes. The user is generally unaware of this, but is subsequently able to use Athens single sign-on capability to all authorised resources. Eight organisations in UK Higher Education have implemented this already with around 30 more intending to use it for the start of the next academic year.

3.8. Shibboleth

Shibboleth is an emerging architectural standard for authorisation from the Internet 2 MACE programme which uses standard SAML protocols for passing user attribute information. Shibboleth can be viewed schematically in a very similar way to Athens devolved authentication.



Unlike Athens, Shibboleth has no centre, only routing capability to direct the user to his home organisation, known as Where Are You From (WAYF). This limits the ability of Shibboleth to operate in a portal environment.

Athens is developing Shibboleth gateway functionality so that an organisation who chooses to use the Shibboleth architecture (an origin) will be able to pass authorisation information to an Athens protected resource (target). The Athens gateway will also be able to route users of classic Athens to Shibboleth protected resources.

Over the course of this year, Athens will extend the functionality of its AthensDA software to incorporate the Shibboleth architecture and in particular the SAML protocol for attributes. This work will be developed under the aegis of the JISC Core Middleware Infrastructure programme. See www.jisc.ac.uk for more details.

3.9. Attributes

There are increasing moves internationally to use an individual's attributes to determine authorisation. This allows finer grained authorisation than simple authentication. There are a number of standard schema describing organisations and individuals, the most well known is eduPerson which describes attributes of an individual within an educational establishment. It has been developed in the US and has attributes types such as 'affiliation' whose values can be one of 'student', faculty, staff or alumnus. It is immediately obvious that these naming conventions are very US-orientated (affiliation means something different from role in the UK) and would need some adjustment in other countries. To my knowledge, no commercially available e-resource is currently using attributes for authorisation purposes. Before this can happen, there needs to be a common understanding of attribute names and values by the organisations setting the values, and the e-resources reading them. This is likely to take some time!

However, there is one fairly simple attribute that Athens has been asked to provide for e-resources, which is 'student'. This will be rolled out in June and will allow Athens protected resources to determine whether a user has been flagged as a student. Active users of this attribute will be looking to sell products to students at a discount. However this does require Athens administrators to be able to identify their student accounts and classify these as students. This is also likely to take some time, so Athens also offers the capability to read the classification of the organisation. Resource providers can thus identify users from an educational organisation, and depending on their policy can choose to sell their products to staff as well as students.

4. Case Studies

It is difficult to describe the comprehensive functionality of the Athens access management system in a short article. To see how it may be used in a variety of scenarios, I will now describe three different case studies where Athens has been used in completely different ways.

- self registration scheme
- automatic bulk uploads
- Integrated within a VLE

4.1. Case Study 1: NHS Tailored Self registration scheme

Founded in 1948, the National Health Service (NHS) of the UK is the largest health organisation in Europe. As well as providing free healthcare for everyone that needs it in the UK, the NHS also has a commitment to investing in future treatments and expanding medical knowledge. Between 2002 and 2003, the Department of Health will spend approximately £540 million on their Policy Research Programme and Research and Development in the NHS. The NHS is the largest single employer in the UK with over 1.2 million staff.

The NHS National Core Content project was established in 2002 to purchase electronic resources for the NHS on a national basis. The project is funded by the NHS Workforce Development Confederations, and aims to provide all NHS staff and the wider NHS family with access to a core collection of key electronic resources. The service was launched on 1st April 2003 with access controlled by the Athens access management system.

The first contracts from this national collaborative procurement project were worth more than £4.8 million over the first three years, and provided access to clinical databases from Dialog, including an innovative on-line learning tutorial; full text journals from ProQuest; and an electronic publishing agreement through membership of Biomed Central. For more information on NHS e-resources see the National electronic Library for Health at <http://www.nelh.nhs.uk/>.

4.1.1 Athens for NHS England

Prior to April 2003, the NHS regional and local libraries purchased e-resources for their members separately. Some libraries used Athens usernames and some did not. There was no standard set of usernames across the NHS, although there was a large and growing network infrastructure called NHSNet.

To facilitate access to the core content e-resources in particular, but also access to all other e-resources, it was decided to establish a co-ordinated username self-registration scheme which would enable any member of the NHS family to request an Athens username associated with his organisation. Validation of the request would be automatic if the request came from an NHSNet PC, thus providing almost instantaneous response. Requests made from non-NHS PCs would be validated by an administrator of the

requested organisation, and are processed simply by ticking a box, and using Athens bulk upload facilities to take over. Usernames and passwords are created automatically based on the user's name e.g. nhsJSmith004 and emailed directly to the user's registered email address, thus providing a smooth and seamless process.

A hierarchy of NHS organisations has been established, starting with NHS England, then the regions, then a division into geographical areas, usually counties, then finally into the individual organisations, such as primary care trusts, hospitals etc. The hierarchical nature of this structure enables resources to be purchased and authorised at national, regional and local level, allowing flexibility at all levels.

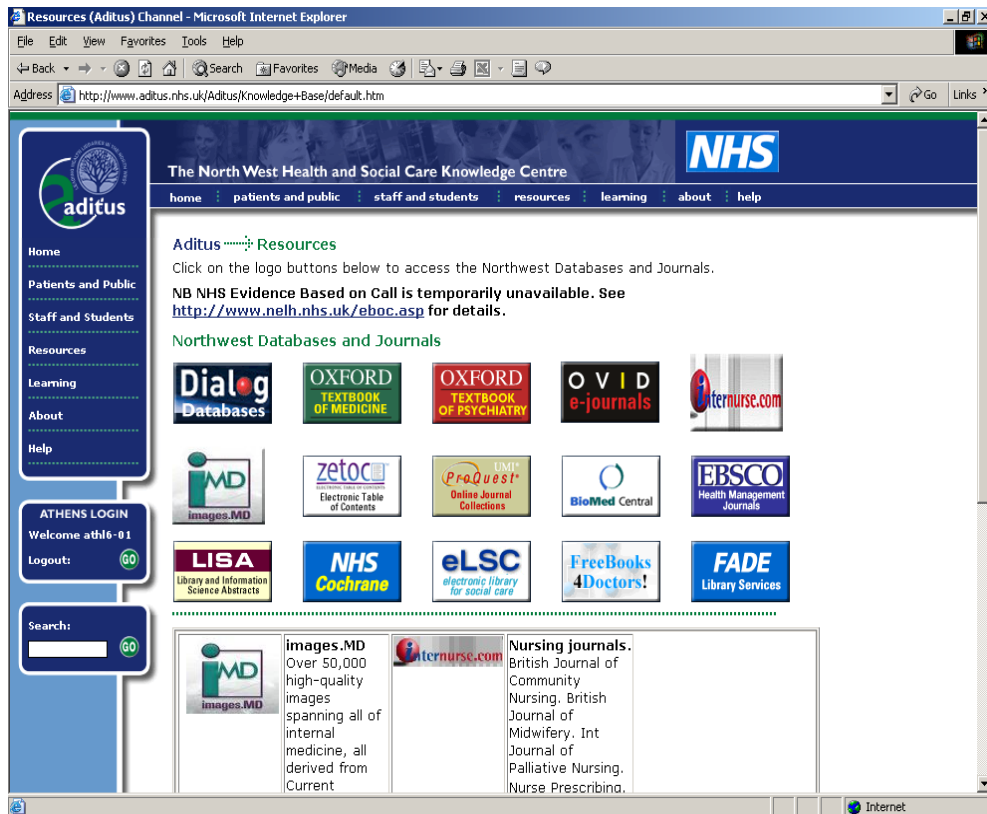
This system has proved very attractive to NHS users. After one full year of operation, over 258,000 users have registered, which constitutes an amazing 20% of the total workforce. Usage figures to e-resources are climbing dramatically and the Athens Service Desk is still receiving calls saying 'Wow. Can I really do this?'

4.1.2 Portal opportunities

This infrastructure enables the NHS to build sophisticated portals which can list and search all the e-resources available to a user. The NHS North West portal, Aditus, is an example of this, where any member of the public can view free resources, members of the NHS family can view a much greater list of resources. With Athens authentication, these portals can be used anywhere anytime, with the re-assurance that authorisation is being handled correctly. Athens single sign-on capability makes the user experience seamless and rewarding.



Resources available to the general public



Resources available to a member of staff of NHS North West..

4.2. Case Study 1A : Self-registration at University College London

Founded in 1826, University College London (UCL) became the first university to welcome all people – regardless of their class, race, religion or sex – dramatically expanding access to higher education. The university's teaching, research and community continue to be inspired by this radical tradition: the refusal to let convention inhibit progress. UCL has the highest number of professors of any university in the UK, with more than 600 established and personal chairs, as well as the highest number of female professors. The UCL community consists of more than 24,500 staff and students in 72 departments.

UCL uses standard Athens self registration. The user is required to complete a UCL Athens registration form and present himself in person to the Registration Desk along with proof of his membership of UCL. Once his credentials are approved, he is issued with an Athens self-registration account for the year of termination of his course. He is then provided with instructions to log in to MyAthens with this account, and create a username and password of his choice within the set of accounts for his termination year and with the appropriate resources. However UCL have only two permission sets, with 99% of users allocated to one of them. So the process is very straightforward.

4.2.1 Pros and Cons of self registration

On the plus side,

- the user is more aware of his responsibility for his username as he created it
- minimal effort for the librarian once the self-registration account and associated IP address range is set up
- can be achieved by the librarian without the help of the IT department

The downside is

- the user can easily forget his username and password and register themselves again. This can lead to a number of superfluous accounts, so it is important in this scenario to set sensible expiry dates so that these accounts can be removed and disabled easily.
- Usernames are controlled by the individual not the librarian so are not seen as the responsibility of the organisation
- Difficult for the librarian to control revocation when a user leaves, unless there is a clear and enforced naming convention

4.3. Case Study 2: Overnight bulk uploads at Warwick University

Many UK universities use the bulk upload facilities of Athens to create usernames from a list of approved individuals from another data source. This could simply be an Excel spreadsheet showing all the students on a course, or more usually it could be a data feed from student registry. Athens only needs a small amount of information : name and email address, however administrators are recommended to add a student or staff number to aid in identifying individuals with similar names in future.

The University of Warwick is consistently ranked in the Top Ten UK Universities. The University Library has about 1 million printed volumes and 10 kilometres of archives in its main building and Modern Records Centre. Over 26,500 items are accessioned each year, adding 1.1 km of stock (700 metres of printed materials, 400 of archives). Over 5000 printed periodical titles (including statistical serials) are currently received, and around 6000 electronic journals.

Around 1 million people enter the Library each year, with 4000-6000 coming through the turnstile during a typical term weekday. At peak times (during the exam term) over 1000 users can be in the Library.

Warwick operates sophisticated control over their Athens accounts. All members of the University register online for their campus login, and can elect to register online for Athens at the same time, or at a later date. New requests are checked against institutional databases of staff and students and if approved bulk uploaded to Athens overnight. Each account is set to have an expiry date of eight weeks ahead. Additionally, every night a check is made against those accounts soon to reach their expiry date. If the user is no longer registered in the institutional databases, the Athens account will be deleted in the overnight bulk upload.

Athens usernames are the same as the campus login, with an additional prefix of 'war' to identify Warwick. This aids user recollection and reduces queries to the Help Desk, although memory of the password is not particularly good.

4.3.1 Pros and Cons of bulk uploads

On the plus side,

- accounts can be created in advance, before registration, say;
- accounts can have meaningful names and be created in structures appropriate to the organisation.
- Accounts will be synchronised with some organisational database and can therefore be revoked promptly if necessary

The only downside is that this generally requires input from the IT department, which is not always available to the Library.

4.4. Case Study 3: Devolved authentication at the University of Ulster

For this case study, I am going to use the example of the Virtual Learning Environment (VLE) implementation at the University of Ulster, but the number of UK Universities using Athens in this mode is increasing all the time, with 8 organisations currently live and 43 more in trial mode. For an alternative case study, see the description of 'Achieving Single Sign-On' at the University of Sussex in their recent article in the CILIP journal Update <http://www.cilip.org.uk/update/issues/may04/article3may.html>.

The University of Ulster is the largest higher education establishment on the island of Ireland, with over 21,000 students. It has four physical campuses spread over a distance of 100 miles and a virtual campus, Campus One, which was launched in 2001.

Since 1999 the University of Ulster has sought to take a strategic approach to the development and implementation of e-learning. To support this work, it has developed an institutional e-learning infrastructure comprising a consolidated server system, new video conferencing facilities and the procurement of an institutional VLE (WebCT). In 2001, the Library introduced a sophisticated web-based resource management facility (TalisList) to provide a controlled gateway to a range of appropriate local and remote resources tailored to students course-specific requirements.

As a matter of policy, every University of Ulster module is currently provided with a student populated WebCT course area containing, as a minimum service, a calendar and a set of dynamic library links.

In 2002, the University of Ulster embarked upon the 4i Project (Interoperable Institutional, Integrated Implementation) led by the University of Ulster in collaboration with WebCT, Talis and Athens. This project was funded by the Joint Information Systems Committee (JISC) under the Linking Digital Libraries and Virtual Learning Environments (DiVLE) programme which aims to explore the technical, pedagogical and organisational issues of linking digital library systems and virtual learning environments. One of the key objectives of the 4i project was to explore the hypothesis that integration of VLE and Library authentication processes can simplify user education, increase usage of electronic resources, reduce helpdesk queries and streamline library business processes.

The use of a common data schema across legacy systems is one of the fundamental requirements for successful VLE-Library integration on an institutional scale. The University of Ulster uses the same categorisation schemas (module code and student number) in its Student Records, VLE and Library systems, with the population of each system being generated from a common data source.

This process was enhanced by the integration of the WebCT and AthensDA login processes to facilitate pre-authentication of VLE users to Athens protected resources. Such use of the authentication functionality of an institutional system (i.e. the VLE) augmented with local verification of Library privileges from an institutional directory service provided an access management model that could enable such Athens pre-authentication to be realised. In the simplest terms, this means that the user only needs one username, for WebCT.

The benefits of this approach have been multi-faceted:

1. Streamlining the Library business process

It is no longer necessary to synchronise the institutions records with the Athens repository, as the institution's own data source, its LDAP Directory, is trusted by Athens. This reduces the administrative burden on library staff.

2. Simplified user experience

As the user only needs one username, this has removed confusion for the user about which username to use in which circumstance. This has been particularly beneficial for distance learning students whose access to helpdesk facilities is necessarily limited.

3. Reduction in helpdesk queries

Library support staff report a large reduction in helpdesk queries as there are now none relating to Athens usernames

4. Increased usage of e-resources

There has been a three fold increase in the first year of some e-resources, statistics across the board show a 93% increase overall. This is partly due to the promotion of e-resources within the VLE, but also due to the increased awareness of e-resources by academic staff, as a side-effect of the production of e-resource reading lists.

4.4.1 Pros and Cons of Athens devolved authentication

The benefits of integrating Athens into a Virtual Learning Environment are many, as described in the previous section.

The downsides are few, and relate largely to the ability of the institution to have a coherent and categorised set of usernames. It is also necessary to have an experienced programmer, and the ability to hook into the authentication sequence for the chosen application, in this case the VLE.

5. Conclusion

Athens operates in the real world, with real resources, real users and real solutions.

Athens is a mature, scalable access management system with an extensive range of facilities. It has an established base of 260 e-resources, 2000 registered organisations and over 3 million users. Athens has an aggressive development programme and will be fully integrated with Shibboleth by the end of 2004.

Empower your users to access their e-resources anytime anywhere with Athens. Any organisation world-wide can register with Athens to use their access management systems.