

Institutional Data Feed Service Case Study – People Search

Background

The existing directory tool to search for University members' telephone numbers and email addresses needed updating so the introduction of the Institutional Data Feed Service (IDFS) was a good opportunity to begin this work. It promised to bring the required data together from the definitive sources in a controlled, extensible and documented manner.

The resulting "People Search"¹ would allow web-based searching for members of the University, to find useful information including email addresses, telephone numbers and staff profile URLs. It would allow an individual to see the data held about them and also, importantly, provide a means of reporting inaccuracies and mistakes. This feedback loop, to correct the definitive source of the data, is imperative to improving the quality of the data.

The main objectives of the new People Search tool were:

- to be simple to use
- to have a clean interface that is recognisably a University application
- to make it easier to find someone (compared to the existing directory tool)
- to allow University members to search for staff and students and to allow non-members to search for staff information
- to replicate the personal information available to individual University members that was available in the existing directory tool
- to provide a mechanism for feeding back corrections to the original source of the data

The Approach Taken

As data from multiple sources was needed, the new IDFS was used to pull the required data together into one database. The IDFS request process, as detailed in the service definition², was followed and this resulted in the necessary data being imported directly into a MySQL database on a nightly basis. This meant that the development work could concentrate on querying the database and displaying the results whilst allowing the IDFS to look after populating the tables.

The front end of the People Search made use of the University's relatively new Application Style Guide³, to bring it into line with other University applications (unlike the existing directory tool).

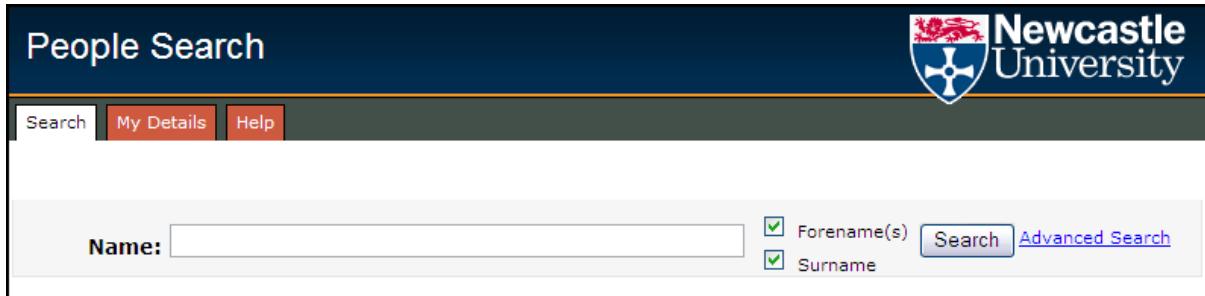
One of the main reasons for developing a new People Search tool was to make the tool easier to use. The interface was designed to be simple, taking a lead from Google, where a single search box is presented to the user with additional options available in an advanced search, if required. A help page is also provided to give search tips and advice.

¹ <https://directory.ncl.ac.uk/>

² http://research.ncl.ac.uk/idmaps/resources/IDFS_Service_Definition.pdf

³ <http://www.ncl.ac.uk/iss/web/styleguide/>

Figure 1: Basic search view



People Search

Newcastle University

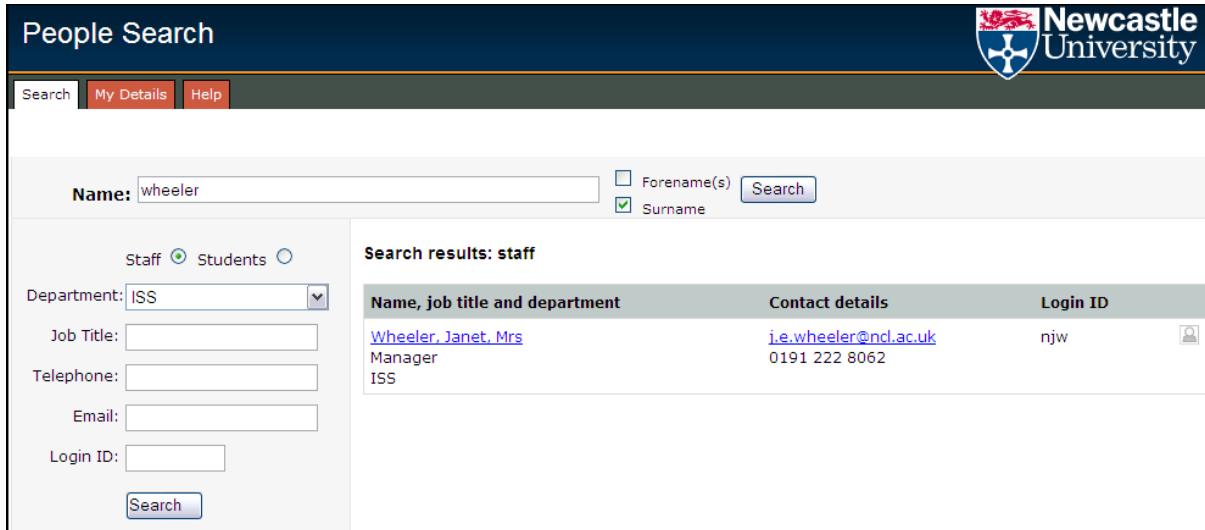
Name:

Forename(s) Surname

[Search](#) [Advanced Search](#)

The basic search, returning only members of staff and the publically available information about them, is unprotected thereby allowing external parties to use it as well as members of the University. The advanced search, restricted to University members through integration with the University's Web Login Gateway⁴, returns more information about a person and allows for the searching of students as well as staff.

Figure 2: Advanced search view



People Search

Newcastle University

Name: Forename(s) Surname

[Search](#)

Staff Students

Department:

Job Title:

Telephone:

Email:

Login ID:

Search results: staff

Name, job title and department	Contact details	Login ID
Wheeler, Janet, Mrs Manager ISS	i.e.wheeler@ncl.ac.uk 0191 222 8062	njw 

Another driving reason for the new system was to increase the ease of finding someone. This has been tackled in two main ways. Firstly, through the advanced search, more fields are available to search on and drop down lists, populated from the database, are used for department (for staff) and school (for students) so that ineligible parameters cannot be entered. In addition, and probably more importantly, the SQL queries used to find the name in the database has been designed to be more inclusive. By combining a number of queries, and applying a scoring system to the results, the desired result can be obtained more easily. Exact matches will be returned as the top results, with other results also included in descending order of score. The search term entered in the name field is also used to search against the known as and email address data, meaning that people who might not usually use their real name can still be found.

The other major requirement of the system was to expose, and allow a means of correcting, errors in the data held about members of the University. As the IDFS pulls data from its definitive sources, the developer can be made aware of what the actual definitive source of the data is so that a

⁴ <http://www.ncl.ac.uk/iss/web/infrastructure/weblogin/>

mechanism can be put in place to allow users to get this corrected. This is either done themselves or by informing the relevant person (or team), depending on the data to be corrected. Having a page that clearly displays the information that the University believes to be true about someone will, it is hoped, encourage that person to report and correct any inaccuracies. The People Search uses data from the HR, Campus Management, computer account management, Active Directory and staff profile systems and allows corrections to be fed back to the source.

Figure 3: Personal information (with links to feedback errors)

People Search

 **Newcastle University**

[Search](#) [My Details](#) [Help](#)

My Details

These are the details we have for your login ID, **ndc39**. If any of the details are incorrect, please report them through the indicated channel.

Staff number	00030984	If incorrect, contact HR
Surname	Churchley	If incorrect, contact HR
Forename(s)	David William	If incorrect, contact HR
Known as	Dave	If incorrect, contact HR
Title	Mr	If incorrect, contact HR
Job title	Web Analyst	If incorrect, contact HR
Team	ISS-Information Apps and Delivery	If incorrect, contact HR
Department	ISS	If incorrect, contact HR
Phone number	0191 222 8248	Phone number amendments form
Email address	dave.churchley@ncl.ac.uk	ISS information amendments form
Profile URL	www.ncl.ac.uk/iss/about/staff/profile/dave.churchley	ISS information amendments form

Finally, the way the People Search has been implemented allows it to be easily integrated with other University applications, for example, with the Module Data Aggregator pilot that was developed for the IDMAPS project. There are also plans to integrate it with the University's main web search tool.

In addition to replicating the functionality of the previous tool, the People Search has some new features as well: Each staff result returned from a search also presents a vCard (an electronic business card) and a link to their profile, if they have one; on campus University members who are using Internet Explorer are automatically logged in using SPNEGO and Kerberos technologies; when logged in, members of the University will have access to a link to access their University filestore via WebFolders⁵.

⁵ <http://www.ncl.ac.uk/iss/getstarted/storage/webfolders.php>

Figure 4: Technical information (including a link to University filestore via WebFolders)

People Search

Newcastle University

Search My Details Help

ISS Technical Information

If you think any of the information on this page may be incorrect, please use the [ISS information amendment form](#).

This information shows which ISS servers you use and provides a link to access your [Home Folder](#) via [WebFolders](#).

Home folder path:	\Tower7\home39\ndc39
Home folder via WebFolders:	https://webfolders.ncl.ac.uk/campus/home39/ndc39
Profile path:	\CAMPUS\profile\profile33\ndc39
Trofile path:	\campus\profile\trofile33\ndc39
Exchange servers:	MS04, SG04, EXSAN02
OUS:	Staff Users, Campus Users

Problems Experienced

Perhaps the biggest difficulty was in writing the queries to obtain the best possible search results. By using a scoring system to rank closer matches higher, it is hoped that the results that are returned highest are the most likely to be the required results. By including more, less well-matched results as well, the chance of including the actual required result is increased. Of course, there has to be a balance struck between returning too many results and being too exclusive. There was a fair amount of tweaking involved in obtaining this balance and it might still require further work once it's been used for a while and some feedback has been received.

The use of soundex matching was considered, trialled and, eventually, rejected. The idea was to try to catch misspellings, alternative name spellings and typos but it was decided against for two main reasons. Firstly, searching for certain offensive words would return results which would be wholly inappropriate. The intention is to keep the system as simple as possible so adding all of the necessary exceptions seemed impractical. Secondly, the soundex functions were simply returning too many results to be truly useful.

Another difficulty came from the University's department and team structure, which has considerable variances in depth in different areas. In order to return the department, rather than the actual team, the tree structure has to be traversed for just the right distance. This wrangling was done by the IDFS so that the data is correct by the time it reaches the database powering the People Search.

The University's telephone infrastructure and numbering system is generally standardised but with some exceptions. The exceptions have six digit direct-dial extensions, rather than the usual four digit extensions. To simplify matters, full external numbers are returned instead of internal extensions. This has the added bonus of certain mobile devices actually recognising that it is a telephone number and being able to dial it directly from a hyperlink.

Future Plans

Amongst the further development ideas are introducing a stylesheet for mobile devices and enabling search results to be output as web services so that they can be integrated with other systems. There are also some ideas for personalisation and customisation, including providing printable phone lists. Finally, the SQL that queries the database could be tweaked further to improve results, perhaps depending on feedback received after it's been in use for a while.