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Your Partner in Technology

Directory Manager

Business Case



Directory Manager

Identity Management for Healthcare

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BDS Solutions Overview

BDS Solutions is a leading Information and Communication Technology (ICT) partner for NHS organisations throughout the country, delivering quality ICT products and services to enable organisations to fully harness the potential of today's technologies.

Service Delivery



BDS Solutions' Strategic Partners

Since its inception BDS Solutions has evolved into a technology specialist delivering an ICT portfolio consisting of a wide range of products and services. The company's continued success has been underpinned by the establishment of key working relationships with partners who specialise in specific technical areas, including:

Microsoft Partner

Gold Datacenter
Silver Identity and Access
Silver Devices and Deployment
Silver Application Development
Silver Data Platform
Silver Hosting



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1. Introduction

This document has been produced for healthcare organisations considering the deployment of Directory Manager, the identity management solution dedicated to healthcare organisations using the Electronic Staff Record (ESR) system and Microsoft's Active Directory. BDS Solutions work closely with the ESR Interface Team to define how Directory Manager utilises data provided by the ESR Generic Outbound Interface or bespoke file outputs produced from ESR. This data is used to systematically manage accounts in Active Directory, Exchange, NHSmail and any other system that offer a suitable programmatic interface (API).

Directory Manager was first developed for NHS organisations in 2002. At the time, it was used to extract data relating to staff starters, changes and leavers in the human resources systems and to process this in batches to manage Active Directory accounts. In the last decade, the solution has been extended to provide visibility over each transaction being processed via the dedicated web portal. This permits administrators to view and approve changes individually before these are applied to Active Directory. The web portal also allows selected users to process account requests manually and for users to request changes to their own account. All activity through the system is monitored by a workflow engine that orchestrates the management of individual transactions through review and approval.

With over 50 organisations across England and Scotland using the Directory Manager software, it has become an established solution to improving the accuracy and efficiency of healthcare infrastructure and its management. The case for deploying the software is established overleaf and can be summarised as follows:

- **Administration of Active Directory and email Services** – it takes an average of 30 minutes per user, per year, to manage directory and messaging services. By systematically applying these changes, an organisation saves approximately 300 hours per year for every 1,000 users. In monetary terms, this is a cost saving of £4,500 per year, per 1,000 users.
- **Efficiency of user communications and application of user policies** – by ensuring that there is systematic management of security and distribution groups, cross-referencing of ESR and email addresses permitting upload to ESR, and having user accounts in the correct location in Active Directory to apply policies effectively, the working efficiency of the directory service is enhanced significantly. If this saves every user just 5 minutes per week in reduced logon times and ease of locating and communicating with other staff, it saves 3,500 hours per year for every 1,000 users.
- **Reducing software licence requirements and improving development projects** – having an accurate record of active users in the directory not only facilitates effective governance, it also ensures that organisations are not procuring more software licences than required. Active Directory underpins other system enhancements, and as such, by having a data source that cross-references HR, Active Directory and messaging, it eases the introduction of future solutions.

2. Standard Business Case

The business case for adopting Directory Manager derives from objectives for automating the management of Active Directory and related central systems, fulfilling information governance and audit requirements and simplifying future development, maintenance and support.

Administrative Cost Saving

The creation and management of accounts within directory and messaging systems accounts requires administration time amounting to 30 minutes per user, per year. Based on data provided directly from the input system (typically ESR), Directory Manager's business rules determine what accounts should be created, changed or expired allowing administrators to review and approve the application of these changes with a single-click. This automation can reduce directory and messaging administration time by up to 75%.

Based on these figures, it can be calculated that directory administration consumes approximately 400 hrs per 1,000 users per year. In monetary terms, with staff costs of around £15 per hour, this represents an administration cost of approximately £6,000 per 1,000 users per year. Directory Manager can reduce administrative time by 75% thus providing a saving of 300 hours or £4,500 per 1,000 users per year. In an organisation of 4,000 users, this equates to a potential saving of 1,200 hours or £18,000 per year.

Directory Accuracy

The directory is often the primary source of staff contact details in an organisation. For those that use Microsoft Outlook or SharePoint this is especially true with details in the directory forming the views used to select message recipients, meeting invitees or task allocations. By ensuring that current staff details are continually fed through to the directory, Directory Manager helps ensure that internal users are accessing the correct details about their colleagues. With Directory Manager's capability of integrating data from additional systems such as telephone or security systems, the directory becomes the focus for communication.

In addition to ensuring staff details are properly maintained, Directory Manager can link staff with their manager based on supervisor ID in ESR. Alternatively, if this data is not available from ESR, departments can update this value through the Directory Manager portal. With this relationship applied, when viewing staff within the portal, a link will be shown to their manager.

Problems identifying contact details described above can often result in several minutes spent trying to establish how to contact colleagues. By ensuring that the directory is maintained accurately, if every user saved an average of 1 minute per day identifying or communicating with colleagues, it would represent a saving in excess of 3,500 hours per year per 1000 users or an equivalent cost saving of over £50,000 per year.

Complementing Enterprise Developments

Many organisations have implemented or are considering other enterprise access solutions such as Single Sign-On (SSO) or Application/Desktop virtualisation. These technologies place greater reliance on the accuracy of the directory as these solutions use account information to secure access to services and applications. Employing Directory Manager helps to ensure that the directory accurately reflects the staff in the organisation and that only those with suitable privileges have access to the organisation's applications and data.

In addition to the operation of enterprise access solutions, many of these products rely on numbers of live users within the directory as a basis for licence cost. By introducing Directory Manager, relationships with source HR data and account activity are examined to establish validity of existing accounts. In some organisations 25% of live accounts were identified as inactive or unneeded. If licences had been purchased for the accounts, for example Microsoft Enterprise Client Licences at approximately £40 per user, this may have represented an additional cost of 250 licences per 1000 users totalling £10,000.

Information Governance and Audit

Directory Manager introduces procedures for ensuring that the lifecycle of an account is firmly controlled. Accounts are created only when needed, changed in accordance with customer business rules and expired when end dates have been reached. Throughout the management of this lifecycle, Directory Manager records the source of data that affects accounts, the administrators who approve changes and the resultant changes applied to the directory. This evidence is stored in the Directory Manager central database and provides support to Information Governance (IG) and Audit teams seeking to demonstrate compliance with the IG Toolkit and good systems practice.

Access Management

In many organisations the directory underpins the security infrastructure by controlling access to systems and resources through membership of security groups. Membership of these groups is often allocated upon request however the equivalent revocation of these permissions is often overlooked when roles change. Directory Manager can manage group membership based on department, division, job role or other pertinent attribute. When staff details change, group membership is updated accordingly thus avoiding the accumulation of security permissions throughout the life of the account.

Providing the Staff Identity Data Source

Many organisations aim to have a single source of verified staff data that can be provided to internal and external systems. By maintaining verified and approved records of staff identities in an accessible but secured central database, Directory Manager offers a cost-effective method of achieving this. Based on SQL Server, it is possible to establish views on the Directory Manager data that can be easily secured and made available to other systems or administrators via data extract or directly via any tools that can connect to SQL Server (e.g. Excel, Access, Crystal Reports).

Supporting Devolution of Directory Management

Engaging employing departments in the management of directory has become a strategic objective for many organisations. Directory Manager provides support for this model by providing a web portal allowing administrative users to add, update and approve records for their department or the departments to which they have been given permission. The web portal also permits any user of the directory to request changes to their own record. These requests pass via an approval process before the changes are applied to the directory.

Notification of Key Events

Having timely information regarding key events is crucial to effective directory management. Directory Manager comes equipped with a fully configurable notifications service that emails designated staff when a particular event occurs. This email can be sent optionally to the user affected, their manager and/or another designated administrator. Examples of these events are:

- A manager being advised when an account has been created that is associated with them
- A user and departmental administrator being informed when an account is due to expire
- A directory administrator being informed when a record is updated in the directory without data being supplied via HR

These emails can be formatted so that they can be received by service desk solutions that accept email requests to create incidents automatically.

Automating Data Extracts

Some systems or administrators need to be provided with data from the directory on a cyclical basis to ensure that they are kept up-to-date. Examples of this are:

- security systems being provided with end dates of staff leaving the organisation or changing role
- NHSmail receiving details of staff for populating the NHS national mail service
- partner organisations receiving contact details of key staff

Having defined the data to be extracted, extracts can be sent as CSV files by Directory Manager automatically on a schedule. An audit record of the extract and dispatch of these identifiable files is automatically retained by Directory Manager ensuring that the audit trail is maintained.

Providing Extensibility Options

Directory Manager supports the management of Microsoft Active Directory and Exchange. However, often organisations have their own systems or other third-party systems that they would like to manage directly. BDS Solutions can supply bespoke management components or 'connectors' to integrate with these systems economically. All business rules, audit and control processes are separate from these components therefore once a connector has been put in place, it will benefit from these controls implemented by Directory Manager.

NHS User Community

Directory Manager v1 was first developed in 2002 and continues to be used by many of the organisations that adopted the product at that time. With increased interest in Identity Management solutions and the advent of Directory Manager v2, more than 50 organisations are now using the BDS directory services portfolio. This growing user community provides feedback and guidance that steers the development and maintenance of the product.

Solution Architecture, Maintenance and Support

Directory Manager utilises Microsoft Server technology in common use within the NHS (SQL Server & Internet Information Services (IIS)). Customers who choose to adopt Directory Manager are automatically entitled to any updates that affect the implemented version of the product. It is directly developed and supported by Microsoft Partner, BDS Solutions, who have a service desk team with N3 connectivity. Many of these updates are applied under the annual support contract by the service desk in conjunction with Trust staff.

Established Deployment Procedures

The procedure for deploying Directory Manager has been established through multiple projects and the analysis exercise preceding the deployment provides opportunity for organisation staff to specify all processing requirements. Once the data relationships between the input (typical ESR) and the directory are formed, the introduction of systematic processing of starters, changes and leavers is established quickly.