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Deployment Guide Series: IBM Tivoli Identity Manager 5.0

Full coverage of planning your identity management project

Complete hands-on installation and configuration guide

Based on best practices

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Walter Karl
Jani Perttilä

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International Technical Support Organization

Deployment Guide Series: IBM Tivoli Identity Manager 5.0

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Note: Before using this information and the product it supports, read the information in "Notices" on page ix.

Third Edition (December 2008)

This edition applies to IBM Tivoli Identity Manager 5.0.

Contents

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Summary of changes

This section describes the technical changes made in this edition of the book and in previous editions. This edition might also include minor corrections and editorial changes that are not identified.

Summary of Changes
for SG24-6477-02
for Deployment Guide Series: IBM Tivoli Identity Manager 5.0
as created or updated on December 10, 2008.

December 2008, Third Edition

This revision reflects the addition, deletion, or modification of new and changed information pertaining to IBM Tivoli Identity Manager Version 5.0. Changes will appear in all portions of this book wherever we made use of the new functionalities.

Preface

Deploying an identity management solution for a medium size business begins with a thorough analysis of the existing business and IT environment. After we fully understand the organization, its deployed infrastructure, and the application framework, we can define an applicable representation of these assets within an identity management implementation.

This IBM Redbooks publication takes a step-by-step approach to implementing an identity management solution based on IBM Tivoli Identity Manager. Part 1 discusses the general business context and the planning approach for an identity management solution. Part 2 takes you through an example company profile with existing business policies and guidelines and builds an identity management solution design for this particular environment. We describe how the components can be integrated into the existing environment. Then, we focus on the detailed configuration of identity management integration tasks that must be implemented in order to create a fully functional end-to-end solution.

This book does not introduce any general identity management concepts, nor does it systematically explain all of Tivoli Identity Manager's components and capabilities; instead, those details are thoroughly discussed in *Identity Management Design Guide with IBM Tivoli Identity Manager*, SG24-6996-00, and *Enterprise Security Architecture Using IBM Tivoli Security Solutions*, SG24-6014.

The team that wrote this book

This book was produced by a team of specialists from around the world working at the International Technical Support Organization, Poughkeepsie Center.

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Partners who are focused on the IBM Tivoli portfolio. He holds a degree in Information Technology from Fachhochschule Munich/Germany and has over 16 years experience in IT Service Management. In the last seven years, he became a specialist in the Identity and Compliance Management area. Besides supporting and enabling IBM Business Partners, he successfully developed and taught workshops for various Tivoli solutions.

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Thanks to the following people for their contributions to this project:

Andrew Annas, David Cavanaugh, Bassam Hassoun, Leanne Chen, and Ann-Louise Blair
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Part 1

Planning and deploying

In this part, we discuss the business context of an IBM Tivoli Identity Manager solution. We then describe how to plan for the overall solution to be deployed in an existing client environment.

1

Business context for Identity and Credential Management

As the world of e-business gains global acceptance and access to these systems becomes mission critical, the traditional processes of corporate user administration are no longer able to cope with the demands for increased scale, scope, and availability that are expected from them. *Identity Management* is a super set of older user provisioning systems that allows for the management of identity and credential information for clients, partners, suppliers, automated processes, corporate users, and others. New functional capabilities provide businesses with an opportunity to re-engineer their procedures for managing access to their IT resources based on their business policies, which in turn drive their IT security policies and their IT security procedures.

Unfortunately as more businesses establish their presence on the Internet, these IT assets attract the attention of people who want to use them for illicit purposes. Legislation is being enacted worldwide to insure the integrity of a corporation's IT assets, especially those assets that determine the corporation's financial results. New audit and compliance reporting rules are the result.

For example in June of 2004, central bank governors and bank supervisory authorities for members of the Group of Ten (G10) countries endorsed the publication of the "International Convergence of Capital Measurement and Capital Standards: a revised framework" commonly called Basel II[1]. This product provided financial incentives for banks worldwide to upgrade and improve their business models, their risk management systems, and their public disclosure information to provide greater transparency of their operations. Banks must manage their capital resources efficiently, because capital not only affects their profitability, it also provides the foundation for growth and the cushion against an unexpected loss. Basel II implementation began in 2006.

In the United States, the Sarbanes-Oxley Act[2] of 2002 requires all publicly held corporations with more than three hundred shareholders, which are being traded on the United States stock exchanges, to provide information about the accuracy of their financial records and the internal controls to the financial data. This legislation has created a ripple effect in the international community, because the Sarbanes-Oxley requirements can exceed legislation in the countries where these international companies have their headquarters. In certain cases, the Sarbanes-Oxley requirements might conflict with the local legislation.

Companies that are implementing accounting and audit procedures to comply with the Sarbanes-Oxley legislation are stating that the core problem is identifying who has access to the financial information and the business reasons that they have been given this access. Fundamentally, it is an identity management and provisioning challenge.

The Gramm-Leach-Bliley Act[3] of 1999 established regulations for the protection and privacy of an individual's financial information that is maintained by private organizations. Compliance was mandated by July 2001.

Revisions to existing legislation and new legislation are under consideration to control access to personal information contained in these IT assets, such as an individual's health information or financial data. For example in the United States, the Health Insurance Privacy and Accountability Act of 1996 created national standards to protect an individual's medical records and other health information. It gives patients more control over their health records and limits the use of information contained in these records.

Today, health care providers and the health insurance companies are looking to reduce costs while improving the quality of health care. They are studying the creation of electronic health records whose contents must be secured. New applications based on Radio Frequency Identification (RFID) and point-of-presence technology are becoming available, and they will require access to secured personal data.

[1] More information about the Basel II framework can be found at: http://www.bis.org/publ/bcbsca.htm
[2] More information about the Sarbanes-Oxley Act can be found at http://www.sarbanes-oxley.com/
[3] More information about the Gramm-Leach-Bliley Act can be found at http://www.ftc.gov/privacy/glbact/

Organizations must be able to demonstrate due care, due diligence, improved security, and compliance with legislation in all countries where they operate. Unauthorized access has become so pervasive that Data Governance groups are being formed around the world by business consortiums, IT vendors, and telecommunications providers. All these groups share a common goal to develop standards and best practices for securing the data stored on their IT assets.

In this chapter, we talk specifically about the business goals that drive the need for Identity Management solutions. In addition, we also examine several of the concepts surrounding identity management and how they impact costs and business risk mitigation. Life cycle management concepts and the Role Based Access Control Model (RBAC) are examined in greater depth, because they help create both a valid Return On Investment (ROI) and drive better control over the assets of an organization.

1.1 Security policies, risk, due care, and due diligence

The senior management team of an organization has to show due care in all their dealings, including security-related matters. Showing due care helps to create a professionally managed organization, which in turn helps to maintain shareholder value. Due care can also be an important step toward avoiding claims of negligence resulting from security breaches and reported by the media. From a security perspective, showing due care can be achieved by having well thought-out security policies.

Security policies have to balance a number of conflicting interests. It is easy to write security policies that deny access or make access controls so onerous that either no business gain can be achieved or the security policies are ignored in order to make reasonable business gains. In certain cases, security polices are developed, but they are not enforced. Therefore, securities must be monitored, measured, and reported by the IT department according to a schedule that the business defines is commensurate with the importance of the data. Security policies must be audited frequently by a separate organization.

Security policies must set a sensible level of control that takes into account not only the culture and experience of the organization, but an appreciation of the risks involved.

Risk assessment is an important topic in its own right, but it is outside the scope of this book. Briefly, risk is usually assessed either formally or informally using quantitative or qualitative methods. This assessment can be as structured as a full external risk assessment or simply based on the intuition of members of an organization who know and understand how their business is constructed and the risks involved.

Risk can be dealt with in one of four ways:

Transfer risk The most common way of transferring risk is through insurance. In the current economic environment, the availability and cost of insurance is variable. Currently, this method is more volatile than in the past.

Mitigate risk Mitigation of risk can be achieved by identifying and implementing the means to reduce the exposure to risk, which includes the deployment of technologies that improve the security cover within an organization. Deploying an Identity Management tool mitigates the security risks associated with poor identity management.

Accept risk An organization can choose to accept that the impact of the risk is bearable without transferring the risk or mitigating the risk. This approach is often taken where the risk or its impact is small, or when the cost of mitigation is high.

Ignore risk Often confused with risk acceptance, ignoring risk is all too common. The main difference between accepting risk and ignoring risk is that risk assessment is an implicit part of risk acceptance. Not assessing risk at all raises a warning flag. This flag points toward the dangerous path of ignoring risk.

Understanding the risks that exist allows us to write appropriate security policies. Having security policies shows the exercise of due care, but unless the policies are implemented, due diligence cannot be shown. Many organizations write good security policies only to fail at the implementation stage, because implementation represents a difficult or costly challenge. In the next section, we show how a centralized identity management solution can be used to enforce security policies relating to identity management, which gives us demonstrable due diligence with respect to identity management.

1.2 Centralized user management

The benefits of centralizing the control over user management, while still allowing for decentralized administration, impacts these four business areas:

- The cost for user management can be significantly reduced.
- The amount of lost productivity while users wait for their accounts to be created or to have their passwords reset can be reduced.
- The risks of former employees having access to IT resources after they separate from the business can be reduced.
- Security policies can be automatically enforced.

Let us take a closer look at the capabilities of centralized user management that help realize these benefits.

1.2.1 Single interface

Most large IT systems today are extremely complex. They consist of many heterogeneous resources (operating systems, databases, Web application servers, and so on). Individual user accounts exist in every database or user identity repository, which means that an administrator has to master a different interface on each platform or resource type in order to manage the user identity repository. This situation can be compounded by having specialized administrators focusing on specific platforms.

As the number and complexity of operations increases, the result is often an increase in errors due to mistakes, time delays, or coordination problems. This situation can be resolved through the centralization of identity management and by implementing role-based access control over the administration of users.

The centralization of the cross-environment management provides a common interface for administration of user identity information, thus reducing education and maintenance costs.

1.2.2 Security policy enforcement

Identity management policies must be implemented as part of the standards and procedures that are derived from the corporate security policy. Implementing identity management policies that comply with the corporate security policy is a key factor for a successful Identity and Credential Management system. Central control makes it possible to accommodate the business and security policies, enabling security administrators to implement them in an efficient and enforceable way.

Without centralized identity management and the use of life cycle rules, it is almost impossible to enforce the corporate policy in a complex environment dealing with a variety of target platforms, different system specifications, and different administrators.

1.2.3 Central password management

A user typically has multiple accounts and passwords. The ability to synchronize passwords across platforms and applications provides ease of use for the user. It can also improve the security of the environment, because each user does not have to remember multiple passwords and is therefore less likely to write them down. Password strength policy can also be applied consistently across the enterprise.

Centralized password resets enable a user or administrator to reset one or all account passwords from a central interface that prevents lost productivity due to the inability to access critical systems.

If a user’s password changes on the target resource directly, it might be useful to update the central system in certain environments if the password conforms to the password policy or the password change is not allowed. If password synchronization is used, other accounts can be synchronized to maintain consistency.

1.2.4 Delegation of administration

As the number and type of users within the scope of an organization's identity management system changes, there will be increasing burdens on the system. Any centralized system run by an IT department can face the burden of having to manage users who are in other business units or even in other partner organizations.

A key feature of any centralized system is therefore the ability to delegate the day-to-day management of users to nominated leaders in other business units or partner organizations.

The extreme example of delegation is delegation to an individual to manage features of their own identity, for example, changing location details or the password self-reset.

1.2.5 User self-care

The most frequent reason that users call the help desk is because they have forgotten their password and they have locked their account while entering incorrect passwords.

A robust identity management solution provides users with an automated tool for resetting their passwords based on their supplying correct responses to one or more password challenge questions. Depending on the risks or the classification of data on the server, this tool can send the new password to the user's e-mail address of record or present the user with a Web page to enter a new password dynamically. The tool can also generate audit records and notifications to IT or administrative personnel monitoring user self-care activities.

1.2.6 Multiple repository support

When we talk about repository support, we look at two types of repositories:

- User repositories
- Endpoint repositories

User repositories

User repositories contain data about people, and most companies have many user repositories and will continue to add new ones due to new and custom applications. These user repositories can be:

- Human resources systems
- Applications
- Lightweight Directory Access Protocol (LDAP) and other directories
- Meta directories

Endpoint repositories

Endpoint repositories contain data about privileges and accounts, and most companies have a great variety of these repositories implemented throughout their environment. Some of these are:

- Operating systems, such as Windows®, AIX®, or Linux
- SecureID
- Tivoli Access Manager
- Network devices
- Resource Access Control Facility (RACF)

It is important, therefore, when considering centralized identity management systems to be sure that the coverage of the system takes both types of repositories into full account.

1.2.7 Workflow

Managing identity-related and account-related data involves a great deal of approvals and dependencies. It takes a lot of time and effort to collect the necessary approvals and check for all sorts of dependencies between related components.

To reduce these often manually conducted chores, the identity management system must have an automated workflow capability that allows the system to:

- Gather approvals
- Reduce administrative workload
- Reduce turn-on or activation time for new managed identities (account generation, provisioning, and so on)
- Enforce completeness (do not do this task before everything else is gathered)

The workflow component is one of the core value points within an identity management solution.

1.2.8 Centralized auditing and reporting

Traditionally, many organizations have treated audit logs on each of the corporate repositories as places to look for the cause of a security breach after the fact. Increasingly, this approach will be seen as an inadequate use of the information available to an organization, which can exhibit better due diligence if it monitors and reacts to logged breaches in as near to real time as possible.

This requirement can only be met using centralized threat management tools, but an important step toward meeting this goal is to be part of an identity management solution. Centralized auditing and logging of all additions, changes, and deletions made on target repositories must be part of any centralized identity management solution (summarized in Table 1-1 on page 11).

Table 1-1 Summary of centralized identity management benefits

Centralized management feature	Cost reduction impact	Security impact
Single interface	Lower skill set is required to add, modify, and delete users.	Single interface leads to less human interaction and error.
Security policy enforcement	Because the policy is enforced centrally, less time and cost are spent on enforcement and auditing.	Security risks are reduced, because corporate security policies are controlled at the center.
Central password management	Users spend less time managing multiple passwords, and productivity gains are therefore realized.	Password strength is uniformly applied across the enterprise.
Delegated administration	This feature allows the organization to off-load part of the day-to-day workload and therefore costs.	Changes made to accounts by delegated administrators still have to conform to the security policies in force.
Multiple repository support	Including all user repositories in the coverage of identity management solutions reduces the cost of specialist administrators.	Including all user and account repositories in the coverage of identity management solutions allows policy to be applied uniformly.
Workflow	This feature reduces turn-on time and manual administrative operations.	Workflow provides approval enforcement.
Centralized auditing and reporting	This feature reduces time spent on audit trails on disparate systems.	Centralized auditing makes the tracing of events more realistic and therefore much more secure.

Considerations

An enterprise identity management solution must provide standard (pre-formatted) reports, plus the ability to prepare custom (dynamic) reports that are designed to address special circumstances. Custom reports can include the modification of a standard report or the creation of a unique report using the audit and log data.

The enterprise identity management solution must have its own client reporting tool, plus it must provide an interface to a third-party report creation tool, such as Crystal Reports. We highly recommend that all reports are available in more than one format (for example, Adobe PDF and HTML).

For large enterprises (those enterprises in excess of 10 000 accounts), the client reporting tools must have the ability to filter the amount of data reported so that the report can be useful to the person reading it.

Suggested report groups are:

- Individual Reports
- Access Reports
- Service Reports
- Workflow Reports
- Custom Reports

1.3 Simplify user management

This section describes how to simplify the user management process, which is largely achieved by having a clear security policy, a well organized implementation of the policy, and sensible automation of the necessary processes in place.

1.3.1 Automation of business processes

All user accounts have a life cycle: They are created, modified, and deleted. It can take a long time to get a new user online, because administrators are often forced to manually obtain approvals, provision resources, and issue passwords.

Generally, with manual work, there is the opportunity for human error and *management by mood*. Self-service interfaces enable users to perform many of these operations on their own information, such as password resets and personal information updates.

Automating part of the business processes related to the user account life cycle reduces the chance for error and simplifies operations.

Any centralized identity management solution must provide the means to emulate the manual processes involved in provisioning requests, an approvals workflow, and an audit trail, in addition to the normal provisioning tools.

1.3.2 Automated default and validation policies

When creating user account information, many characteristics are common to all or a subset of users based on the context. Default policies, which fill in data entry fields with pre-set values automatically if not specified, reduce the effort to fill out those values for every account.

A *validation policy* ensures that information about an object complies with the rules defined for that object in the enterprise, for example, the field *user name* must be eight characters and start with a letter. Another validation policy might be that every user must have at least one active group membership.

1.3.3 Single access control models

Defining an access control model for each type of resource (e-business, enterprise and existing platforms, and applications) in an organization can be complex and costly. A single access control model provides a consistent way to grant users access to the resources and control what access the user has for that resource or across a set of resources.

For many organizations, a Role Based Access Control (RBAC) model is a good thing to aim for, because it reduces cost and improves the security of identity management. We discuss access control models in 1.5, "Access control models" on page 16.

1.3.4 Ubiquitous management interfaces

Work styles are changing and not everyone is office bound. Many people work in a different business location every day, or other people work from a home office. Identity management interfaces must be ubiquitous to adjust to our work styles. It might be necessary for users in partner organizations or clients to self-manage part of their account data, which means that the software on the access device might not be under the control of the parent organization. It makes sense that any identity management solution interface must be Web-based, because a Web browser interface is a pervasive interface that is available on most devices.

In order for administrators to perform their work tasks anytime from anywhere with a network connection, the identity management solution must be Web-enabled and capable of being integrated with Internet-facing access control systems.

1.3.5 Integration of other management architectures

Identity management is one part of an overall security architecture. Many organizations are experiencing the benefits of automating and centralizing security administration. Integrating identity management with access control solutions and threat management architecture can help an organization to deploy applications faster and pursue new business initiatives, while enforcing policy compliance across the organization. Security management also needs to integrate with systems management so that potential threats to an organization can be detected and resolved. For example, if the threat management detects an unpatched application server, operating system, and so on, the systems management tools must automatically distribute the required patch.

Within the field of identity management, the use of automated provisioning can trigger workflows. Distributing software or updating the configuration of the user's workstation using the software distribution functionality that is found in the systems management architecture is one example of the type of functionality required from an identity management solution.

1.4 Life cycle management

Life cycle management introduces the concept that a person's use of an IT asset from the time that the account is created until the time that the account is deleted will change over time due to external events, such as transfers, promotions, leaves of absence, temporary assignments, or management assignments. There might also be a need to routinely verify that the account is compliant with security policies.

A *life cycle* is a term to describe how accounts for a person are created, managed, and terminated based on certain events or a time-based paradigm.

Figure 1-1 on page 15 represents a closed loop process where a person is registered to use an IT asset, an account is created, and access provisioning occurs to give this person's account access to system resources. Over time, modifications occur where access to certain resources is granted while access to other resources might be revoked. The cycle ends when the person separates from the business and the terminate process removes access to resources, suspends all accounts, and eventually deletes the accounts and the person from the systems.

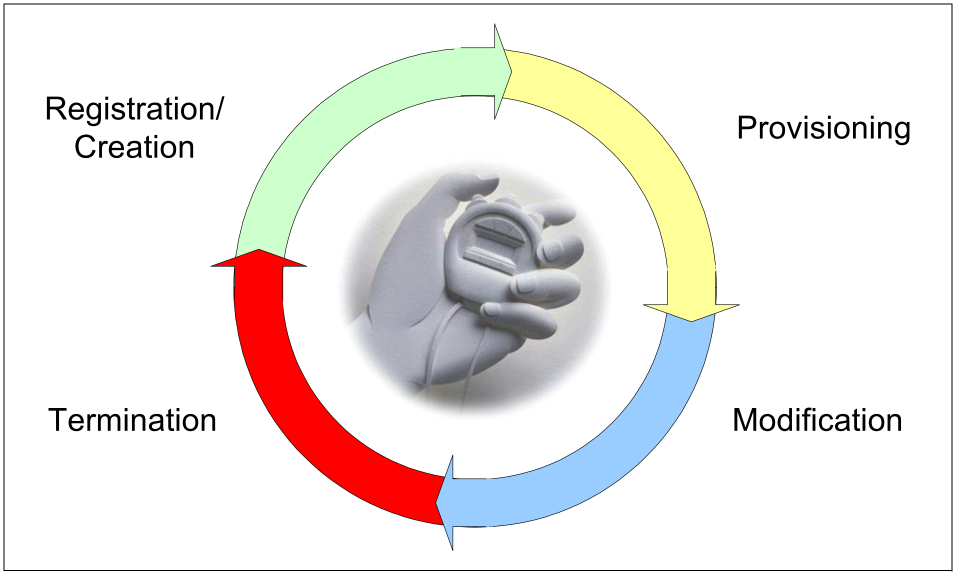


Figure 1-1 Life cycle management overview

Life cycle rules provide administrators with the ability to define life cycle operations (automated processes) to be executed as the result of an event. Life cycle rules are especially useful in automating recurring administrative tasks. For example:

- Password policy compliance checking
- Notifying users to change their password before it expires
- Identifying life cycle changes, such as accounts that are inactive for more than thirty consecutive days
- Identifying new accounts that have not been used more than ten days following their creation
- Notifying users to recertify their account's access to a restricted resource before it is revoked
- Identifying accounts that are candidates for deletion because they have been suspended for more than thirty days
- When a contract expires, identifying all accounts belonging to a business partner or contractor's employees and revoking their access rights

Table 1-2 on page 16 describes life cycle rules in more detail.

Table 1-2 Sample life cycle rules

Event	Life cycle rule	Life cycle operation
Daily at 12:01 a.m.	Password expiration	Search all account entities for the Identity Manager and the Access Manager services and generate an e-mail for all user accounts where the password will expire within the next seven days. Where the password is more than 45 days old, suspend the account.
Contract expires	Suspend contractor accounts	Search for all accounts defined for a specific contractor and suspend them at the close of business on the day the contract expires.
Monthly on the first day at 01:01 a.m.	Recertify Linux account holder	Search all accounts for the Linux service, identify all accounts, and send an e-mail to the account holder asking the account to recertify their need to use the system.

1.5 Access control models

In this section, we describe several of the access control models that are commonly found or are planned for use with a centralized identity management solution.

Note: There are many resources available that address access control models. For our discussion, we refer to the *CISSP All-in-One Exam Guide* by Harris. Another source you might want to check out is the National Institute of Standards and Technologies at:

http://www.nist.gov/

1.5.1 The Role Based Access Control model

Role Based Access Control (RBAC), as its name suggests, is the granting of access privileges to a user based upon the work that the user does within an organization. This model allows an administrator to assign a user to single or multiple roles according to the work that the user performs. Each role enables access to specific resources.

RBAC examples:

A new customer Alex registers with an organization by completing a form on a Web site. As a result of doing so, Alex might be awarded the role of “customer” by the central user administration system that in turn populates Alex’s account to all customer-facing resources.

A new employee Betty, on starting with an organization, might be awarded the role of “basic user” by the administrator, and as a result, her account information can be populated to the network access system and to an e-mail system. Betty might not yet have interacted with any of the systems, so in this case, the administrator has to assign the accounts with a default password and insure that each system makes Betty change her password upon first access.

A senior employee Charles already has the “basic user” role from the time when he joined the organization. His work now requires that access is granted to applications that are not included within the “basic user” role. If he now needs access to the accounts and invoicing systems, Charles can be awarded the “accounting” role in addition to the “basic user” role.

A manager Dolly already has the “basic user” role from the time when she joined the organization and might also have other roles. She has been promoted to a management post, so her need to access other systems has increased. It might also be, however, that her need to access certain systems, as a result of her previous post, is no longer appropriate in her management role. Thus, if Dolly had “basic user” and “accounting” as her roles before promotion, it might be that she is granted the “manager,” but she has her “accounting” role rescinded, which leaves her with the “basic user” and “manager” roles suitable for her post.

1.5.2 Other access control models

There are two other access control models that are often found in use: the Discretionary Access Control (DAC) model and the Mandatory Access Control (MAC) model.

DAC

The DAC model is when the owner of a resource decides whether to allow a specific person access to their resource. This system is common in distributed environments that have evolved from smaller operations into larger ones. When it is well managed, it can provide adequate access control, but it is very dependent upon the resource owner understanding how to implement the security policies of the organization, and of all the models, it is most likely to be subject to "management by mood." Ensuring that authorized people have access to the correct resource requires a good system for tracking users leaving, users joining the organization, and users changing jobs. Tracking requests for change is often paper driven, error-prone, and can be costly to maintain and audit.

MAC

The MAC model is where the resources are grouped and marked according to a sensitivity model. This model is most commonly found in military or government environments. One example is the markings of Unclassified, Restricted, Confidential, Secret, and Top Secret. A user's privileges to view certain resources will depend upon that individual's clearance level.

1.5.3 Which model

All three models just discussed have advantages and disadvantages associated with them. Which model an organization uses will depend upon a number of factors, including, but not limited to, externally mandated policies, the maturity of existing identity management processes, the range of identity management target systems, future requirements, the number of users managed, and risk assessment and return on investment statistics.

MAC

The key to this kind of system is the ability to use background security checking of personnel to a greater level than that which is normally carried out in a business or non-governmental environment. It is also key for data of different levels of sensitivity to be kept segregated.

For example, a user must not be able to cut and paste information between documents of differing sensitivities. This segregation has traditionally been achieved by keeping data physically separate. In this environment, therefore, a user might have a number of different workstations; one workstation for restricted work, one workstation for secret work, and so on, each workstation running on completely different and separate architectures.

Conducting identity management across multiple sensitivity classifications or silos with one central identity management system raises a number of issues. The central system itself must be classified at the highest level, because it holds user rights to all sensitivity silos. Normally in this environment, various security certifications and accreditation processes have been completed, and also any cryptographic keys are in hardware storage.

As the Web portal approach matures, this kind of multiple silo approach might change, but in the short term, a software only solution is not possible.

One further approach is to treat each sensitivity silo as a discrete identity management problem, which means that there is a distinct solution for each silo and that the best access control model can be chosen from the other two models. For example, at the lowest sensitivity silo, there are likely to be many more users that best fit an RBAC solution, while at the top level, there are fewer users and other (physical, procedural, personnel, and technical) more rigorous controls, so a DAC solution might be more appropriate.

Despite its limitations, this type of access control model will continue to be used in military and government environments, because it provides the solid foundation for segregation of information based upon sensitivity. Identity management solutions for this space are probably best focused on the lower sensitivity silo, unless approvals can be gained to connect all silos with a highly secure management layer that includes identity management.

DAC

Discretionary Access Control is the model that is most likely to be used as a default or evolved decentralized access control solution. Organizations are familiar with the concept of each application administrator or owner being responsible for granting access to the application or system owned or administered by them. Key features of a centralized identity management system that allows this model to continue are the ability to specify over-arching corporate security policies, combined with the ability to delegate responsibility for account management to individual systems. A centralized identity management system with these features allows for a reduction in the amount of “management by mood,” but it ensures that corporate security policies can be applied, while allowing a degree of actual and real political ownership of the target resource.

The various access control models are compared in Table 1-3.

Table 1-3 Access control model comparison and notes about desirable features

Access control model	Advantages	Disadvantages
MAC	1. Ideally suited to military and government security requirements. 2. Highly secure.	1. Costly to implement because of personnel vetting and data segregation requirements. 2. Difficult to centrally manage all identities because of sensitivity silos.
DAC	1. Likely to already be in use. 2. Easy to implement centralized identity management solution. 3. Suited to most commercial organizations, prior to centralized identity management or during conversion to RBAC.	1. Subject to management by mood. 2. Policy enforcement and audit costly. 3. Centralized identity management possible but less return on investment (ROI) than single RBAC model.
RBAC	1. Useful for strong role-focused organizations. 2. Useful for organizations with high staff turnover and reliance on temporary or casual staff. 3. Recommended for large user populations, particularly where users include customers and partner organizations.	1. RBAC design can be difficult politically and logically. 2. Strong policies required particularly where delegated administration is used.

1.5.4 Selection process

The following questions and comments are several of the thought processes that are used to help choose an access control model and centralized identity management system. Figure 1-2 and the questions following it show the path through the maze. Local, particularly non-functional requirements, might modify the approach that you need to take.

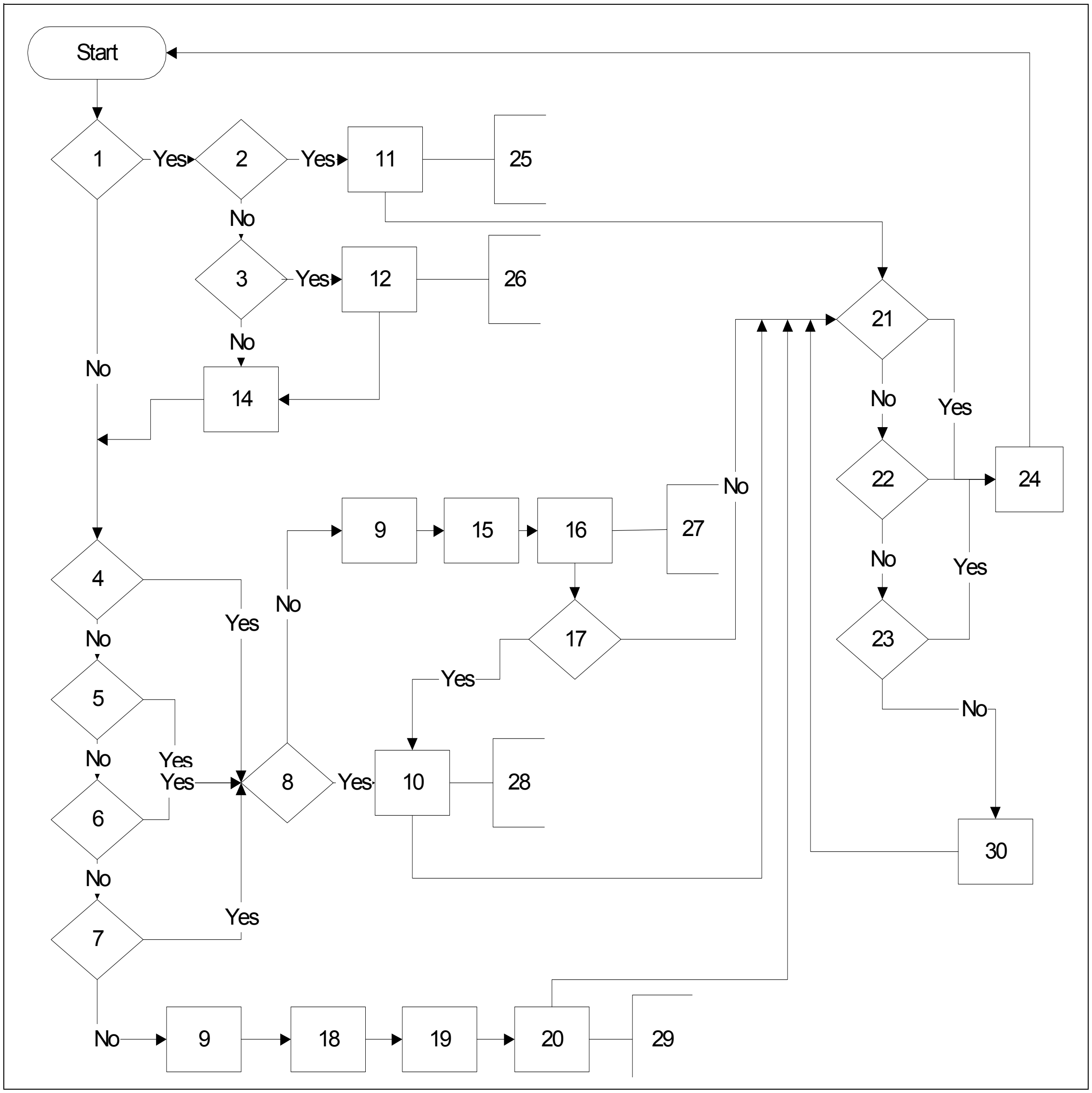


Figure 1-2 Selection flow diagram

Key questions and comments:

1. Does your organization mandate the use of sensitivity silos (confidential, secret, top secret, and so on)?
2. Your organization mandates the use of the sensitivity silos; does it approve the use of one centralized identity management solution bridging all of the sensitivity silos?
3. If you cannot bridge the sensitivity silos with one solution, the only option is to treat each silo as a separate organization. Will your organization change its policy on the single centralized identity management system to allow bridging in the future?
4. Does your organization have a high staff turnover or have a large number of contractors or outsourced staff?
5. Is your organization large or does it have multiple geographies that are self-managing?
6. Does your organization already have a centralized or metadirectory in place or is it planning one?
7. If your organization is already using the DAC model with resource owners and administrators managing the identities of users, you can use a centralized solution to imitate this system or you can move to an RBAC solution. Do you want to see greater ROI and increased security?
8. If you choose to a fully implement an RBAC model, will the political and business structures within your organization fully support the design work involved?
9. DAC Design selected.
10. RBAC Design selected.
11. Implement a single centralized identity management system with users assigned access rights based upon their approval to access one or many sensitivity silos, which is a simple form of RBAC with one role per sensitivity silo. You can make the silo model more granular, but this approach might detract from the essentially simple nature of the implementation. Note that a user with access to one silo will gain access to all information within that silo, and therefore, in its purest form, this architecture does not address the issues of Privacy or “Need to Know” management.
12. You can implement an identity management solution in each sensitivity silo, but if your organization’s policy changes, you will be able to place a master Identity Manager over the existing silo Identity Managers to gain maximum ROI. Therefore, select a centralized management solution that is capable of supporting a hierarchy of identity management systems.

13. If you have reached this point on the flowchart, it is probably time for a cup of coffee or a break. There is no step 13 on the flowchart.

14. Treat each sensitivity silo as a discrete problem and analyze the RBAC/DAC requirements for each silo.

15. This selection is DAC. You will need to make sure that the centralized identity management tool that you selected has the capability to securely delegate the administration of users to the resource owner through an interface that does not require onerous training nor does it need a thick client to be distributed. Administration of the users must be delegated to the owners of the resources. Delegated resource control must be in line with corporate policies. Centralized audit for non-compliance reports must be submitted to the resources owner regularly for their action.

16. When deployed, assistance must be given to those business units that want to develop an RBAC model within their “Owned” space. In addition, you must maintain up-to-date business cases and continue to try to win greater political influence for the RBAC model.

17. Has sufficient political ground been gained to implement an RBAC model?

18. Your organization has chosen to use DAC, which will not allow for part of the ROI traditionally associated with RBAC. Other product features also show savings, however, and you must favor products with good feature and function coverage in these areas.

19. Workflow processing. The automation of the business processes for new hires and so on must be seen as a priority. Reducing the waiting time for provisioning new users will reduce productivity losses.

20. Even though DAC is the organizational model, it might still be possible to save money by using limited or default roles. For example, every new user automatically gets LAN and e-mail accounts set up, while other systems remain within the purview of the resource owners.

21. Has a period of more than 12 months passed since you last checked the identity management system design?

22. Have any major infrastucture changes within your organization’s operational systems taken place?

23. Has the nature of the external threat you face as an organization changed significantly?

24. A change has occurred within your operating environment or a long period of time has passed since you last validated your identity management system decisions. Run through the algorithm again to check on your design and amend it, if appropriate.

25. You have selected a very simple type of RBAC to map onto the MAC model in place within your organization, which means that you will also be placing increased reliance upon the nature of your personnel and the vetting processes applied to them. It is possible to improve the silo granularity, but it will take time to design this granularity. Other software and hardware involved with privacy management and networking, for example, might already be in use within your organization, which must be factored into any design and planning for the solution.

26. The selection flowchart seems to suggest that you will be treating each of the sensitivity silos as a discrete identity management problem, but that you might in the future get approval to bridge the silos. The suggested method is to use a hierarchy, but if budgets and operational requirements allow, you can also scrap the existing system and replace it with a single central identity management model.

27. Reaching this point in the flowchart has meant that owing to political limitations within your organization, you have been forced to use the DAC model rather than the RBAC model, which you might naturally have selected. Using DAC, however, can be seen as a stepping stone toward RBAC. In simple terms, allowing the business owners to use the system might enable them to create roles for their own systems. It might be possible to consolidate these local roles into larger ones as time passes.

28. As you move into the real design and planning work involved in an RBAC scenario, many of the “customer” business units will be asked for their input into the role design problem. It might only be at this point, that “customer” business units realize exactly the impact of what you are proposing upon their “rights” to manage their own systems in their own way, regardless of the organization’s security policies or of the costs involved. If this situation happens, return to question 8 and answer that question no.

29. The DAC has been selected and the focus has been on methods (other than RBAC) of saving costs. Do not lose sight of the fact that having a central tool also brings centralized audit capabilities that will improve the security of an organization. This risk mitigation, while difficult to quantify, still improves the viability of a business.

30. Wait one month before continuing, which insures a revalidation of your identity management strategy every month. The length of time chosen must be less than one year, but it is at the discretion of your organization, taking into account all of the threat, risk, and resource issues that you face.

1.5.5 Roles as opposed to groups

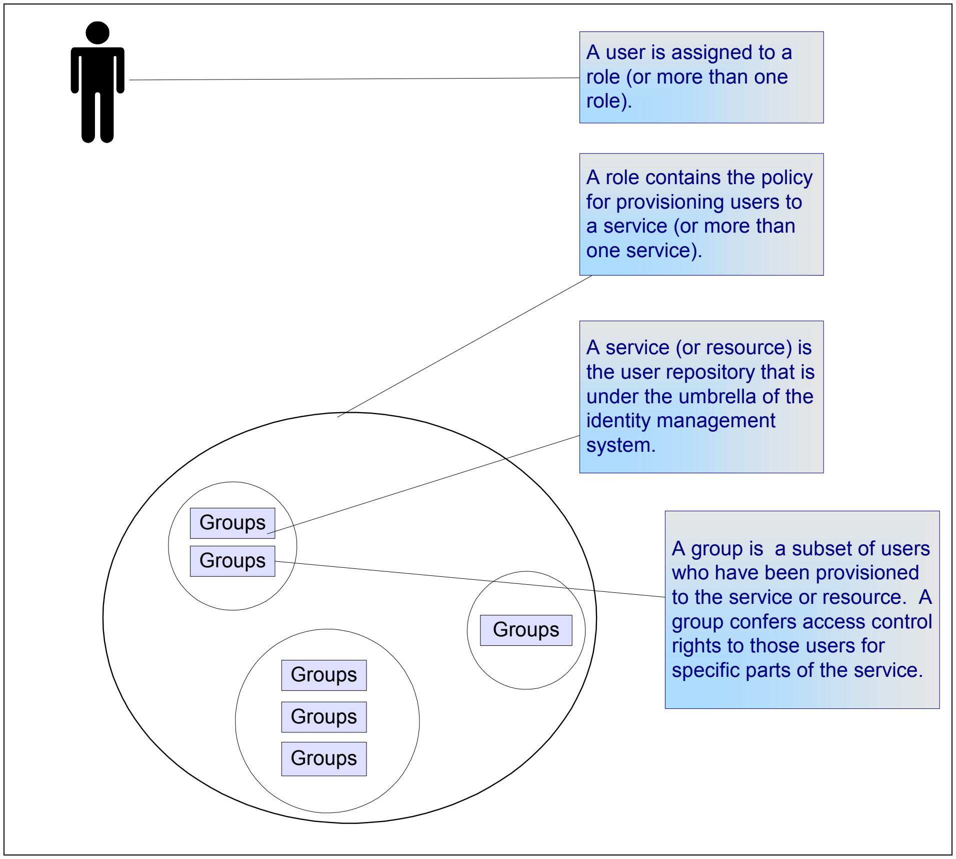
One of the difficulties that identity management system designers face is the way in which the terms *groups* and *roles* are used, often interchangeably or without a true understanding of their significance.

They are defined as follows:

Roles A role is specifically a description of a type of user that must be provisioned to one or more services or resources.

Groups A group is specific to a target resource. It contains a subset of the users provisioned to that resource and grants access rights to a part of the resource.

Figure 1-3 shows the relationships between users, roles, services, and groups.



A user is assigned to a role (or more than one role).
A role contains the policy for provisioning users to a service (or more than one service).
A service (or resource) is the user repository that is under the umbrella of the identity management system.
A group is a subset of users who have been provisioned to the service or resource. A group confers access control rights to those users for specific parts of the service.
Groups
Groups
Groups
Groups
Groups
Groups

Figure 1-3 User/Role/Service/Group relationships

Many identity management systems allow the users to be assigned to roles and hence provisioned to services. In addition, they can also provision users directly to services complete with group membership.

You can therefore use these systems to merely provision users directly to services, which is done in the absence of a valid RBAC design or in the case of the use of pure DAC.

You can also design the RBAC system so that one service is represented by one role. If each role represents only a single application, OS, database, and so on, it is technically still an RBAC system, but it is functionally closer to a DAC system. This model is sometimes found within organizations that have not been able to successfully overcome the underlying politics. They can therefore claim to have upset no one and to have implemented a full RBAC system. The downside to this approach is that you have spent the time and resources on implementing an RBAC system that will not deliver the expected ROI. This model is therefore pointless and not recommended unless political considerations are more important than cost concerns.

1.5.6 Designs

The process of designing an RBAC system is fairly straight forward.

If we had only two services to access (Service A and Service B), users can be placed into one of three roles: Role 1 (Service A only), Role 2 (Service B only), and Role 3 (Service A and B).

In summary:

To access two services, the number of possible roles is three:

- One role containing two services
- Two roles containing one service

Similarly, to access three services, the number of possible roles is seven:

- One role containing three services
- Three roles containing two services
- Three roles containing one service

To access four services, the number of possible roles is 15:

- One role containing four services
- Four roles containing three services
- Six roles containing two services
- Four roles containing one service

As the number of services increases, so do the potential number of roles. By the time twenty services are required (a lot less than the average number of services in a standard organization), there are 1 048 575 possible roles. It is clearly not practical to create all the possible roles and populate them. We must reduce the number of roles to those roles that are required rather than to all those roles that are possible.

It seems that a common sense approach is to list all the user repositories and then to list all the users along with their account requirements. An example of this kind of approach is shown in Table 1-4.

Table 1-4 User to repository mapping

User	Repositories				
	Windows NT	**Internet customer application**	**SAP**	**E-mail**	**UNIX®**
Alwena	Yes	No	Yes	Yes	No
Brian	Yes	No	No	Yes	Yes
Claudette	No	Yes	No	No	No
Daphne	No	Yes	No	No	No
Elizabeth	Yes	No	No	Yes	No
Francesca	Yes	No	No	Yes	No
Geoff	No	Yes	No	No	No
Helen	Yes	No	No	Yes	No
Ian	Yes	No	No	Yes	No
Jolina	Yes	No	Yes	Yes	No
Katya	Yes	No	No	Yes	Yes
Lupe	No	Yes	No	No	No
Mike	Yes	Yes	Yes	Yes	Yes
Neil	Yes	No	Yes	Yes	No
Ondine	No	Yes	No	No	No
Peter	No	Yes	No	No	No
Queenie	Yes	Yes	Yes	Yes	Yes

User	Repositories				
	Windows NT	**Internet customer application**	**SAP**	**E-mail**	**UNIX®**
Ray	Yes	No	Yes	Yes	No
Sarah	No	Yes	No	No	No
Thomas	Yes	No	No	Yes	Yes
Uist	Yes	No	No	Yes	No
Vera	No	Yes	No	No	No
William	Yes	No	No	Yes	Yes
Xerxces	Yes	Yes	No	Yes	No
Yvette	Yes	No	No	Yes	No
Zach	Yes	No	No	Yes	Yes

Grouping these roles into similar access requirements reveals that there are six logical roles. So, in this example, five services provide six roles instead of all 31 possible roles, as shown in Table 1-5.

Table 1-5 User to repository mapping with roles

User	Role	Repositories				
		Windows NT	**Internet customer application**	**SAP**	**E-mail**	**UNIX**
Elizabeth	Basic	Yes	No	No	Yes	No
Francesca	Basic	Yes	No	No	Yes	No
Helen	Basic	Yes	No	No	Yes	No
Ian	Basic	Yes	No	No	Yes	No
Uist	Basic	Yes	No	No	Yes	No
Yvette	Basic	Yes	No	No	Yes	No
Mike	CEO	Yes	Yes	Yes	Yes	Yes
Queenie	CEO	Yes	Yes	Yes	Yes	Yes
Claudette	Customer	No	Yes	No	No	No

User	Role	Repositories				
		Windows NT	Internet customer application	SAP	E-mail	UNIX
Daphne	Customer	No	Yes	No	No	No
Geoff	Customer	No	Yes	No	No	No
Lupe	Customer	No	Yes	No	No	No
Ondine	Customer	No	Yes	No	No	No
Peter	Customer	No	Yes	No	No	No
Sarah	Customer	No	Yes	No	No	No
Vera	Customer	No	Yes	No	No	No
Xerxces	Emp and Cust	Yes	Yes	No	Yes	No
Alwena	HR	Yes	No	Yes	Yes	No
Jolina	HR	Yes	No	Yes	Yes	No
Neil	HR	Yes	No	Yes	Yes	No
Ray	HR	Yes	No	Yes	Yes	No
Brian	System Admin	Yes	No	No	Yes	Yes
Katya	System Admin	Yes	No	No	Yes	Yes
Thomas	System Admin	Yes	No	No	Yes	Yes
William	System Admin	Yes	No	No	Yes	Yes
Zach	System Admin	Yes	No	No	Yes	Yes

This approach is fine for 26 users and five services, but the next problem that emerges is one of scale. The mere collection task involved for 1 000 users and a larger range of services becomes costly and, in larger cases, unrealistic. What is needed is a single data source that is collected automatically and contains all user/service information, which can be used for reporting and analysis. Many centralized identity management solutions provide this kind of collection and reporting facility. As we have seen in an earlier section, one way of countering the political objections to RBAC is to implement centralized identity management and progress toward RBAC as political support is developed. Once again, deployment of a centralized identity management solution can be used as a tool to develop a design for an RBAC model prior to the deployment of the RBAC model itself.

There are a few other things to be careful of:

- No matter how you collect the information, it has to be correct at the point of collection. Examination of the user information in Table 1-5 on page 28 suggests that Queenie and Mike both have identical roles, in this case, CEO. In practice, however, Queenie has the full access, because she is the CEO, while Mike has been with the organization since leaving school and acquired a number of access permission, because he has moved jobs within the organization, and his access rights have not been rescinded. He is not the CEO.
- Similarly, Uist and Yvette both perform the basic role, but neither person has worked for the company for over a year. Both these cases highlight the need to perform a reality check audit as part of the process of designing an identity management system (whether or not it is RBAC).
- Several services might have no IT dependencies. If a service is provisioned and the provisioning results in the involvement of a physical process (smart card generation and issue, uniform manufacture, and so on), care must be taken not to include these potentially time-delayed tasks into a workflow, which might delay other provisioning requirements. An RBAC design must take this type of service into account.
- Up to now, we have talked about a service as though it were one repository. We know, however, that repositories can have subsidiary groups. Most resource targets can define at least two groups (administrators and users), so in practical terms, the five services used in the 26 user example are 10 services and have a potential 1 023 possible roles.
- Xerxces seems to be in a role of one person. He has picked up this unique role, because he is both a basic employee of the organization and he is also a customer. We must therefore check with the security policy to see if he is allowed this “double” role under one name. It makes sense in certain organizations to specifically separate Basic and Customer roles and disallow the Emp and Cust role.
- Even if an immediate RBAC design cannot be achieved, certain roles are self-evident. A basic corporate employee user (with network and e-mail access) and an eCustomer role (with e-business application access) are examples. Implementation of these roles will serve to stimulate the RBAC design process and reduce the scale of the problem.

In practice, given the likely scale of most RBAC designs, it is necessary to include costing associated with the collection, cleanup, and analysis of the existing user and repository data. We strongly recommend that any centralized identity management solution chosen must be capable of being deployed as a tool to help with the design of the full RBAC model. While this RBAC design is in preparation, ROI can be gained from the automation of user provisioning and workflow processes.

1.5.7 Observations

Most enterprises use a blend of access control models based on the sensitivity of the information or the level of effort that is required to change the applications. Ideally, the enterprise must have a predominant access control model, such as RBAC and use the other access control model to handle exceptions. As a general rule, use the 80/20 ratio. However, this ratio will vary based on the enterprise's business policies and security policies.

1.6 Identity management compared to Meta Directory

Identity management and user provisioning are often lumped together with directory strategy and also meta directories. This problem arises because most people have slightly differing definitions of each of these areas, and, in addition, each OEM vendor selects slightly different feature/function sets to be implemented within their product or solution, which results in a lot of overlap and confusion.

Figure 1-4 on page 37 shows how several of the features of both identity management and directory strategy requirements map onto an idealized set of products.

Typically, most organizations start with many directories and either a requirement to reduce operating costs with user provisioning tools or a strategic vision for a single universal directory/repository, such as x.500 or Microsoft® Active Directory. These two approaches are typified by teams, such as the “Strategic Directory Team” or the “User provisioning Project.” Their titles indicate the direction they are likely to take.

Directory strategy teams are predisposed to recommend single directories (x.500, RACF, MS Active Directory, and so on) as the solution to an organization's needs, while user provisioning teams have a tendency to recommend tools that are essentially best to address the help desk costs or user password reset problems.

Certain organizations even appoint teams of both types. They might or might not adequately communicate their plans with each other, which can lead, in the worst cases, to political control battles for the ownership of the space, or at best, in an agreement not to tackle the areas common to both teams, thus leaving an unaddressed set of problems.

It is much better if organizations appoint a strategy/project team whose purview spans both user repositories (directories and Meta Directory strategy) and the tools needed to manage them effectively and efficiently (user provisioning and identity management). There needs to be representative from an organization's security team appointed to this type of project team.

Table 1-6 and Figure 1-4 on page 37 describe several of the tool sets that you must consider. Other equipment manufacturer (OEM) products or solutions might not map exactly to this broad definition set, and organizations might not need to cover all these areas in one deployment. What is key, however, is that consideration is given to all of these areas as one integrated project and design exercise.

Table 1-6 Tools used in identity management and directory areas

Product/solution type	**Notes**	**Advantages**	**Disadvantages**
Single directory	A single repository is mandated, for example, x.500, RACF®, and Microsoft Active Directory.	All users are defined in one place, and audit, user management, and reporting are less costly. Security policies can be applied in one place.	A single directory can require the purchase of administration and management toolkits. Many applications might have to be rewritten or customized to allow authentication and authorization against the directory.

Product/solution type	Notes	Advantages	Disadvantages
Many directories	Normally, the state of an organization itself generates the need to look strategically at the problem. The situation often has evolved rather than been designed and controlled.	High degree of flexibility. Little or no design effort required.	Costly to manage. Subject to management by mood. Difficult to audit and apply a security policy. More subject to human error. Longer provisioning time scales resulting in decreased user productivity. Less secure because of orphaned accounts.

Product/solution type	Notes	Advantages	Disadvantages
Meta Directory	A true Meta Directory is effectively a complete copy of all the user repositories within an organization held in one place. The copy is created using a set of rules contained within a join engine.	This tool allows for the creation of a single user directory from the one already in existence. It allows applications written to use a different repository to continue to do so. It allows business units to manage users with the existing tools and allows the Meta Directory to cope with the creation of a central directory.	Still has multiple points of administration, so costs are not reduced. The central directory schema definition and creation of rule sets can be complex and therefore costly. Implementation time scales and future flexibility can be unacceptable. Can result in a large, non-performing centralized directory.
Virtual Meta Directory	The Virtual Meta Directory is similar to a Meta Directory, but it does not create a complete copy of the multiple user repositories; rather, it relies upon its join engine to perform organization-wide distributions of changes detected in the directories under its control.	Has all the benefits of a true Meta Directory without any of the same performance limitations. Will be able to cope with future deployment of a single directory.	Still requires the definition of a rule set. User management tools might be limited. Might not have real integration points with identity management tools. Might still require a specialist to maintain and manage.

Product/solution type	Notes	Advantages	Disadvantages
User administration	User provisioning tools can be thought of as a tool to perform a one-way automated push of users held in a central repository (often LDAP) out to target systems. Certain implementations have the ability to manually retrieve users, but this ability is usually limited.	These kinds of tools have been around longer than many of the others. The amount of user experience is therefore greater. Many of the other tools, by definition, have user provisioning built in. There might be no need, therefore, to consider this type of product.	Usually based upon a proprietary framework that might need to be deployed. GUIs are often thick client applications. Old technology that is being supplanted by more functional Identity Management solutions. Integration points to the other parts of the solution stack are often limited. Might not be able to cope with the requirement for Internet user registration in terms of scale.

Product/solution type	Notes	Advantages	Disadvantages
Identity Management	Can be thought of as user provisioning plus. The use of generic protocols (http, https, and so on), in addition to better integration with other products, makes this solution the most fully functional.	Widest range of features based upon modern non-proprietary standards. This solution allows better integration with other tools (for example, Virtual Meta Directories) and other pieces of the security architecture (for example, centralized authentication and authorization systems). The GUI interface is Web-based, which requires a lower skill set user for all interactions. Self-service and delegated user management allows partners, users, and suppliers to self-manage their information. Approval workflow engine to authorize data changes.	Many solutions (particularly those in the user provisioning space) use this title for their products. Coverage of target platforms must be checked, particularly where no integration point with Virtual Meta Directories exists.

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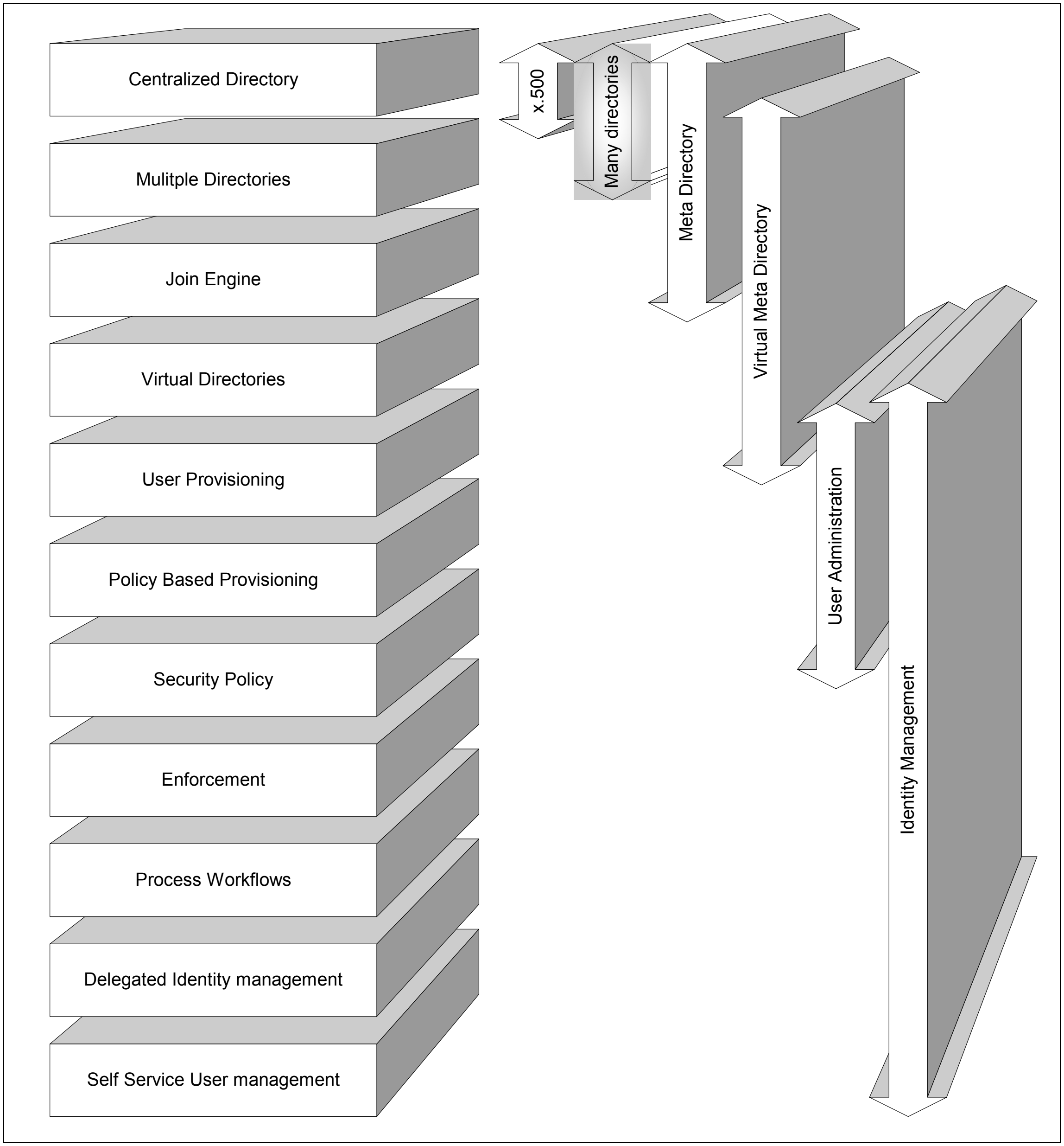


Figure 1-4 Identity management features (blocks) mapped against solution types (arrows)

The section “WEM Shipyards” on page 38 gives a (fictitious) example of an organization and three potential approaches to these problems to help clarify the approaches to this problem set.

WEM Shipyards

WEM Shipyards is a small but growing ship builder. In recent years, new management has bought more technology to the organization, which has resulted in increased efficiency and more orders. WEM Shipyards is currently working on three vessels with orders for seven more vessels. Those vessels are:

- Naval Craft - HMS Nonesuch: A new Mine Counter Measures vessel that will also have a patrol boat role. WEM Shipyards is the lead contractor for this vessel, but much of the technology, sensors, and weapons systems are designed and fitted by subcontractors who need access to the WEM Shipyards IT systems.
- Americas Cup Yachts - Project Doris: A pair of 12 meter racing yachts designed for competition in the next Vuitton Cup and the Americas Cup. The customer requirements include a high level of secrecy surrounding the design, particularly the hull below the waterline.
- Traditional Gaff Cutter - Elizabeth Anne: A new yacht built, along the traditional lines of a Bristol Pilot Cutter, but with modern electronic navigation, communications, and control systems. Designed for safe long distance cruising for two or three people. If successful, WEM Shipyards hopes to market the design.

WEM Shipyards has noted that they need to continue to modernize their technology and keep the cost of ownership to a minimum if they are to continue to win orders. One part of this approach is to address the cost associated with IT provisioning; in particular, user management is becoming a cost burden.

They tried using a directory strategy approach and then a user provisioning approach. Both approaches revealed weaknesses and several of those weaknesses are:

Directory strategy Having defined the IT requirement for a single directory, WEM Shipyards addressed a number of non-functional requirements and found that the team building the Elizabeth Anne had specialized sail-making software that cannot easily (and therefore without cost) be configured to use the designated single directory.

The same team also wanted to continue publishing information and progress reports on the build on the Web, but they had plans to create an application to ask users to register for access, which they will use to help market future builds of this class. The potential for the number of registered users from this Internet-facing application was thought to be large and management of these users must be an IT function, because the build team did not have the skills or resources. But IT was not comfortable allowing

Internet users direct access to their central directory for authentication and authorization.

The team working on project Doris said that their customer was uncomfortable with the use of a single user repository particularly when several of the subcontractors working upon HMS Nonesuch were also working on other yachts competing for the next Americas Cup. They required that the specialized hull design software and therefore its data be treated separately from the single directory approach.

The subcontractors assisting in the build of HMS Nonesuch were happy with the idea of a single directory, because it appeared to give them a more efficient working interface with WEM Shipyards, while the management overhead is entirely funded by WEM Shipyards.

WEM Shipyards realized that they cannot implement a single central directory. At best, they can manage a central directory with three other directories: the Sail Design application repository, Internet LDAP directory, and the Hull design repository for Doris. They concluded that in any single directory implementation, there are always external requirements that mandated multiple directories, and it is, therefore, at best, an 80%/20% solution.

User Provisioning

This approach found that although there were improvements over the existing system of user management, there were a number of issues that stalled the project.

The costs associated with managing subcontractors defined within the system still remained with WEM Shipyards. More importantly, the customer for HMS Nonesuch was concerned that there was no workflow/approval process to register a user on the system and that the only requirement was a request from a subcontractor. Under the old system, a manual process had been in place, but because of the automation, it was easier for a user to be provisioned and bypass that process.

User provisioning was one-way only, which meant that the administrators of the target platforms, who might still change user details locally, might corrupt the system integrity, because there was no detection or synchronization method within the solution set.

Holistic approach WEM Shipyards came to the conclusion that this issue was too large to address all at once. As a result, they have chosen to address each issue one at a time. By selecting two or possibly three solution set products and implementing them over time, they are able to gain maximum commercial advantage. The steps to addressing these issues is:

Step 1: Implement an Identity Management solution (which shows the greatest ROI), because this solution allows them to control their overhead.

Step 2: Integrate the system with a Virtual Meta Directory as a second project, which allows WEB Shipyards to extend the scope of the solution.

Step 3: Consolidation toward a single user repository. This latter step was not seen as being needed internally, but it is likely that this project might start as a result of external pressures, such as a customer requirement, general changes to the global IT environment, or, more realistically, as a result of a successful merger or takeover bid.

Reaching this conclusion was only possible because they took the holistic approach and examined critically all the options. The selection of products will have to be done on the basis that full integration, while not an immediate requirement, is definitely mandated.

1.7 Conclusion

Let us finally take a look at the general goals of using a centralized Identity and Credential Management infrastructure:

- Easing compliance with security audits
- Providing standard and custom reporting
- Consolidating control of the user management processes
- Eliminating inconsistencies from human error and “management by mood”
- Reducing training costs and education requirements

- Reducing help desk and overall administrative costs
- Involving fewer people in day-to-day management and redeploying them to higher value assignments
- Dividing work along organizational and departmental structures
- Improving response to user changes
- Leveraging user information in all business processes

Table 1-7 summarizes the business benefits of an Identity and Credential Management solution.

Table 1-7 Identity Manager benefits

Features	**Advantages**	**Benefits**
Centralized Web (HTML) administration interfaces	Provide ubiquitous management interfaces and centralize the definition of users and provisioning of user services	Reduce the education and training costs and complexity associated with managing from multiple native interfaces, while leveraging the consolidated repository of user information
Role-based delegated administration	Enables delegation of administrative privileges along organizational and geographical boundaries	Accommodates political or distributed management needs
Self-service interfaces	Enable users to perform password resets, password synchronization, and modifications to personal information without administrative intervention	Help reduce help desk costs and ease the burden of daily administration on help desk and IT staff
Embedded workflow engine	Automates the submission and approval processes for access requests and changes to user information	Helps decrease the potential errors and inconsistency common to manual business processes
Life cycle rules	Automate administrative tasks based on an event or time	Consistent policy enforcement plus the timely removal of incorrect entitlements and inactive accounts

Features	Advantages	Benefits
Standard reporting	Monitors entities as close to the time of updating as possible	Demonstrates compliance with security policies while providing an audit trail
Embedded provisioning engine and application management toolkit	Automate the implementation of administrative requests on the environment and provide a mechanism for extending the management model to support new and custom environments	Help increase potential productivity and reduce administrative overhead, while supporting new business initiatives as the company grows
Delegated administration	Allows the organization to off load part of the day-to-day workload and, therefore, costs	Changes made to accounts by delegated administrators still have to conform to the security policies in force.
Multiple repository support	Including all user repositories in the coverage of identity management solutions reduces the cost of specialist administrators.	Including all user repositories in the coverage of identity management solutions allows policy to be applied uniformly.
Centralized auditing and reporting	Time spent on following audit trails on disparate systems is reduced.	Centralized auditing makes the tracing of events more realistic and therefore much more secure.

2

Planning for the client engagement

In this chapter, we discuss the service engagement for Tivoli Identity Manager in general. This chapter is directed toward IBM Global Business Service agents and IBM Business Partners who assist clients in deploying Tivoli Identity Manager.

2.1 Services engagement preparation

This section describes resources that are available to help you deliver a solution successfully.

2.1.1 Implementation skills

To successfully develop and deploy a Tivoli Identity Manager solution requires the following specialized skills:

- General skills:
  - Operating system administration skills on the platform where Tivoli Identity Manager, the Lightweight Directory Access Protocol (LDAP) Directory Server, and database are being installed
  - Skills in each of the systems where Identity Manager will manage users
  - Skills in the HR system from where user data originates
  - High availability skills, in case this environment will be implemented
- Lightweight Directory Access Protocol (LDAP) skills

  Skills to install, configure, and troubleshoot LDAP
- DB2 skills

  Skills to install, configure, and troubleshoot DB2
- WebSphere Application Server skills

  Skills to install, configure, and troubleshoot WebSphere Application Server
- Tivoli Identity Manager skills:
  - Tivoli Identity Manager solution design and architecture
  - Tivoli Identity Manager deployment
  - Tivoli Identity Manager customization

Depending on the target environment, you might need additional skills to understand the whole application environment. You might be able to acquire these skills from the resources that we list in the next section.

2.1.2 Available resources

The prerequisite skills that we list in the previous section are those skills needed to customize or develop the solution. For each of these skills, there are a variety of resources available to help acquire the necessary skill level.

The educational resources available are:

- Online help

  Tivoli Identity Manager provides online help and product manuals at the following Web site:

  http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/index.jsp?topic=/com.ibm.itim.doc/welcome.htm

- Classroom training

  IBM PartnerWorld® provides current information about available classes, their dates, locations, and registration.

  Additionally, check the Partner Education Web site, which serves as a single point of contact for all IBM Business Partner education and training.

- IBM Technical Education Services (ITES)

  ITES offers a variety of classes at all knowledge levels to help you achieve any of the offering's prerequisite skills.

- IBM Redbooks publications

  You can access various practical and architectural information regarding IBM hardware and software platform from IBM Redbooks publications. You can download PDFs of IBM Redbooks publications from the following Web site:

  http://ibm.com/redbooks

2.2 Services engagement overview

You need to define the scope of the solution, which can vary from a small-scale proof-of-concept to an identity management solution for a global company. In this section, we discuss a medium-sized engagement (typically, 5 000 - 20 000 users).

For any engagement, consider performing an Executive Assessment prior to estimating the services involved.

2.2.1 Executive Assessment

The *Executive Assessment* is a billable service that you can offer to your prospective clients. It offers a process designed to help you evaluate the business needs of a company that is planning to deploy a solution for e-business. It was created for IBM Business Partners to help you close a higher percentage of opportunities. It has been field-tested in markets all over North America and Europe and has received enthusiastic feedback.

The benefits of using the Executive Assessment in your sales process include:

- Earning additional service fees
- More effectively qualifying prospective clients
- Shortening the sales cycle
- Streamlining the development process
- Closing a much higher ratio of potential engagements

This toolset helps you ask the right people the right questions so that you get the information that you need to propose the appropriate solution. This assessment then helps you create a compelling business case that will persuade your prospect to buy the required hardware, software, and services from you in the shortest possible amount of time.

This is a business-case assessment, not a technical assessment, so your audience must be business owners, line-of-business executives, marketing and sales managers, and finally, the IT manager. The business owner or line-of-business executive is likely to be the decision maker.

For their initial investment, your clients get:

- A business assessment prepared by a professional (you)
- A competitive analysis
- A prototype solution for their review
- A strategic and tactical proposal for justifying and implementing their solution for e-business

Over the course of the Executive Assessment, you determine who will be involved in the project, what they want to accomplish, when they plan to deploy, what plays a mission-critical role in their business, and how the project will be funded. Armed with this information, a competitive analysis, and a prototype solution, you will be able to justify their investment, build perceived value, present your recommendations in a way that is almost irresistible, and successfully close the contract.

Having the ability to recommend the correct course of action to your client has tremendous value. In a market where it is difficult for companies to find qualified Business Intelligence consultants, the Executive Assessment and resulting presentation give you a chance to prove conclusively that you have the right technology and the right people to do the job.

2.2.2 Medium-sized engagement

In each engagement, you must use your skills and previous experience as a guide to determine which steps are necessary.

But usually, the following steps are necessary in any engagement of this size:

- Gathering requirements
- Performing a demonstration or proof-of-concept
- Analyzing solution tasks
- Creating a contract, more commonly known as a *statement of work (SOW)*

Gathering requirements

Requirements gathering can take many different forms, depending on the technological knowledge of the client.

If the client is knowledgeable of identity management technologies, they might already have a list of requirements, which can be easily translated into a statement of work. A proof-of-concept is not usually needed in these cases.

Note: Be cautious about blindly accepting requirements from a client. No matter how technologically savvy, the technical requirements must be carefully reviewed against the actual real-life needs of the client, in order to give the client not just the best possible solution, but also the most cost-effective one.

In most cases, the client will rely on the consultant to propose a solution. In this case, instead of gathering requirements, the consultant must identify any problems that the client has with IT, but especially in the area of identity management, for example:

- Regulatory compliance

  SOX compliance, and so on.

- Overextended or expensive help desk

  The help desk might be flooded with requests for access, password reset requests, and so on, which can result in help desk response times being slow or help desk costs rising.

- Administrators performing help desk tasks

  Often, if the help desk becomes overtaxed, or in smaller companies where the administrators are the help desk, skilled system administrators might have to spend a significant portion of their time complying with help desk type requests. This situation can result in degradation of performance and availability of many critical systems.

- User pains:

  – Slow turnaround on helpdesk requests.
  – User names and passwords are different for each system.

In addition, the following information is needed:

- Organizational structure
- Estimated times when the system is likely to be in use:
  - If the system is in use 24/7, which might be the case in global businesses, redundancy must be built-in.
  - If the system is in use during the day only, creating a stand-alone system might prove to be a good way to save costs.
- Numbers of how many people are in the company and how many accounts exist in the various systems
- Estimates of what these numbers will be in the future
- Contacts:
  - Project sponsor.
  - Technical contacts, preferably at least one for each system involved in the project.
- Monetary issues

  In each project, you need to obtain a feel for the size and scale of the project to which the client is willing and able to commit.
- Requirement priorities

  If the scale of the requirements exceeds the client's budget, certain requirements might have to be postponed to a later phase. A list of priorities will help in this process.

> **Important:** If it becomes apparent that role-based provisioning will be needed, try to obtain a list of roles and their corresponding accesses from the client. If no such list exists, its creation must be a top priority of any project, with plenty of calendar time allotted for it.

Performing a demonstration or proof-of-concept

A demonstration system is typically set up in advance to show your clients the attributes of the solution. The demonstration system must be set up with a limited number of machines that are separate from the system that will be used in production.

Usually, you can set up Tivoli Identity Manager on a VMware[1] image that can be run on a notebook computer or in a client VMware environment, which is a quick and cost-effective way of demonstrating the capabilities of the software.

[1] To obtain more information about how to use VMware, visit: http://www.vmware.com/

However in certain cases, the client requirements might be too complex for a notebook VMware demonstration, in which case a real environment must be built. As a cost-saving method, this environment can later be used as a development environment.

If you choose to create a VMware environment for demonstration purposes, configure as many features as possible. However, practice has shown that, at a minimum, include the following features to avoid too much on-site customization:

- Organizational structure
- Different levels of access (Using Access Control Item (ACI) or pre-created groups)
- Password synchronization plug-in (the Active Directory one, for example)
- Password policies
- Identity policies
- HR feed
- Role-based, automated provisioning
- At least two back ends (Combining Active Directory and Tivoli Access Manager is a good idea if the demonstration is running on a Windows platform, because it minimizes the memory footprint)
- Self-service (might not be necessary if password synchronization and role-based provisioning are enabled)
- Recertification
- A “plot” for the demonstration. For example:
  - User is entered into an HR feed and appears in Identity Manager
  - Accounts are automatically created (using a set initial password, or randomizing one and sending it to the user’s manager)
  - User logs in and is forced to change the password in Active Directory (at which point the password synchronization plug-in intercepts the password and sends it to Identity Manager, which in turn sends it to all the other back ends).
  - User logs in with the new password into another back end
  - The user is recertified by the user’s manager after a simulated six months have passed
  - The user leaves the company, and the next HR feed suspends the user and all the user’s accounts

2.2.3 Smaller engagements

In theory, a small engagement is handled exactly the same as a larger engagement. However, in this section we discuss cost-saving methods that can be considered in smaller engagements. Note that the methods listed are not the best practice methods and only consider them as cost-saving compromises:

- Using a single environment for everything

  Instead of just building a proof-of-concept or demonstration environment and making that a development environment, turn the development environment into a production environment when it reaches "maturity."

- Rely on virtual environments

  Instead of using real hardware, use VMware to host multiple servers on a single machine, which is only done when the number of users is so low that the machines can function with limited resources.

- Build the" quick wins" first

  Instead of trying to complete the entire identity management project at one time, identify which functionality produces the greatest benefit and implement that functionality. Implement the rest of the functions later if needed.

2.2.4 Analyzing solution tasks

After the client agrees to use the solution in their environment, you next decide which effort you must perform to implement it. These estimates are then collected and implemented into a contract or *statement of work*. We discuss these tasks in detail in 2.3, "Defining solution tasks" on page 52.

The tasks that we list are a suggested list only, with a suggested order. You might complete the tasks in a different order or omit or add tasks depending on the environment on which you implement the solution. The overall success of the tasks and the required time to implement can be influenced by the amount of skill and experience that you or your team have on the solution.

For the detailed task breakdown, refer to 2.3, "Defining solution tasks" on page 52.

2.2.5 Creating a contract or statement of work

A contract or *statement of work* is a binding contractual agreement between your client and you that defines the service engagement that you must perform and the result that the client can expect from the engagement. The contract must leave nothing in doubt.

This section will give you help with putting the SOW together. You can refer to an example of a possible statement of work in Appendix E, “Statement of work” on page 269.

A statement of work must include the following information:

- Executive summary of the solution is typically a short (less than a page) summary of the solution and its benefit. The executive summary describes the goals and intentions of the work scoped. This executive summary can include a high-level overview of the project and the services necessary to meet the business requirements. Typically, the proof-of-concept as well as the production deployment are highlighted as deliverables in the executive summary. The executive summary is also a good place to introduce the methodologies that will be leveraged throughout the duration of the project. For instance, IBM Global Services Method (GS Method) is the center point in the IBM Global Service project development approach. Use of the GS Method allows for a formally structured engagement with defined tasks, work products, and deliverables.You must specify any major restriction of the implementation, such as:
  - The solution will not be highly available
  - The solution will be implemented in phases
- Project scope includes the major components and solution building blocks that will be implemented. It covers conceptual architecture of the solution and solution scope in general. This description is aimed for technical personnel to understand the implementation scope.
- Assumptions list all the assumptions that are used to prepare the contract and provide task estimation. Any deviation to the assumptions that are used will definitely impact the scope of engagement and must be managed using the change management procedure. Typical changes include cost changes or scope changes.
- IBM Business Partner responsibilities list all the responsibilities or major tasks that will be performed by you or your team to implement the solution.
- Client responsibilities list all the responsibilities or items that the client must provide for you or your team to perform the engagement. If you cannot obtain any item in the client responsibilities, a change management procedure can be invoked.
- Staffing estimates list the estimated personnel that must implement the solution.
- Project schedule and milestones show the major steps, schedule, and achievement calendar that can be used to check the project progress.
- Testing methodology lists the test cases to insure that the project implementation is successful.

- Deliverables provide tangible items that the client will get at the end of the service engagement, including:
  - Machine installation
  - Documentation
  - Training
- Completion criteria lists the items that when provided to the client indicate that the engagement is successfully completed. For most services engagements, this list is probably the most difficult to define. Completion criteria can be too general so that you will be tied up to provide the client ongoing support forever. Alternatively, an inadequate completion criteria is often rejected by the client, who fears that you might back away and leave the engagement in an incomplete state.

2.3 Defining solution tasks

The key to a profitable service engagement is to identify the tasks that you must perform correctly and to allocate the necessary time to perform them. This section guides you through the tasks that you might need to perform for a Tivoli Identity Manager solution implementation.

Your estimates for timing will not only depend on feature selection driven by the business requirements but also will largely depend on the following factors:

- Is the solution highly available?

  Tivoli Identity Manager installation can be stand-alone, which is quick to implement, or clustered, which is highly available but takes longer to implement.
- Will the deployment span multiple geographies?

  The complexity of developing a security solution greatly increases when defining cross-geographic flows, bandwidth requirements, failover requirements, networking requirements, and so forth.
- Is the hardware that is available up to the job?

  If the current hardware is not capable of handling the number of users in the system, configuration, development, and initial deployment might take longer than estimated.

The next section provides a description of the necessary tasks required for a Tivoli Identity Manager deployment. Before we describe the tasks, however, we make the following general assumptions:

- You have a dedicated customer engineer, who is available for the duration of the project.

- You have identified the pilot environment and defined the test criteria for the solution. In addition, the client has signed off on the pilot environment and test criteria.
- You have set up user IDs and physical access for consultants prior to the kickoff meeting.
- If role-based provisioning is used, a list of role-to-access entitlements is available.
- All supporting hardware and software are available (such as a mail server for notifications)
- Documentation for the solution will be created off-site.

2.3.1 Deployment tasks

This section lists the required tasks for a Tivoli Identity Manager deployment. You can use these tasks when creating a statement of work. Not all of the tasks are included in all projects:

- Identify the authoritative HR source.
- Interview the personnel responsible for the back-end systems.
- Interview help desk personnel.
- Detail requirements.
- Detail design of the Tivoli Identity Manager configuration, including:
  - Organizational structure
  - Services
  - Adoption policies
  - Identity policies
  - Password policies
  - Schema modifications
  - Form modifications
  - Notifications
  - Recertifications
  - Roles
  - Provisioning policies
  - Policy enforcement settings
  - Identity Manager group creation
  - Access Control Item creation and modification

  - Custom report creation
  - Reconciliation scheduling
- Determine backup scheduling.
- Design test plan and test cases.
- Manage deployment and communication.
- Document the project.
- Facilitate knowledge transfer and client acceptance testing.
- Set up optional, hands-on, administrative training.
- Set up optional, hands-on, help desk training.

2.4 Conclusion

In this chapter, we discussed a generic engagement. In the next part of the book, we discuss a more specific scenario.

Part 2

Client environment

In this part, we describe the company profile of Tamminen, Auramo, Mäkinen & Co and talk about their current IT challenges. Then, we discuss the necessary steps for deploying the Identity Manager-based solution into our existing real-world environment. We take you through a step-by-step guide of installing the individual components and show you how to configure all the details we discussed in the previous chapters.

Finally, we take you through important initial steps, such as automating the Human Resources (HR) feed process and reconciliations, after the deployment. We finish this part with touching on audit and reporting.

3

Company profile

Established in 1967, Tamminen, Auramo, Mäkinen & Co (TAMCO) is currently one of the leading producers of sauna equipment in the EU. During the first decades of its existence, the company operated solely in Finland with only occasional exports delivered to other countries.

However in 1995, when Finland joined the EU, the opening markets offered new possibilities for expansion that were quickly exploited by the current CEO, Tommi Mäkinen, who is the grandson of one of the founders of the company, Uolevi Mäkinen.

The company started branches in Germany (1995) and in the United Kingdom (U.K.) (1997). And as export figures soared, each of these branches started smaller sales offices in neighboring countries. Soon, sales representatives from Germany were delivering goods to Austria, Switzerland, France, Belgium, Holland, and the Czech republic. The U.K. office handled Ireland and the growing exports to Canada and Australia. The Finnish branches were responsible for the Nordic countries and Russia.

By 1999, the company had grown from a small warehouse firm, run by two carpenters and a smith, into a multinational company with revenue in the tens of millions of euros and hundreds of employees. But the growth had not come without problems. As Y2K neared, it became apparent that none of the branch offices had followed a standard when building up their IT departments. Sales systems were in several cases customized applications, in others, they were poorly secured Web applications. The same trend was apparent in other departments as well.

After all cost assessments were in from Y2K fixes and modifications, TAMCO decided that something needed to be done. In early 2000, Tommi Mäkinen's ***"We must have a unified system that provides customized services"*** was a phrase that started the largest IT project in the company's history. In the first phase, all the applications were moved to standardized application servers. The second phase brought in IBM WebSphere® Portal and IBM Tivoli Access Manager. Access Manager controlled access to the portal, and the portal offered content based on the users' group assignments.

Note: More information about the Access Manager deployment at TAMCO is available in the IBM Redbooks publication, *Deployment Guide Series: IBM Tivoli Access Manager for e-business V6.0*, SG24-7207.

This portal proved such a success that in 2005 TAMCO decided that all of the users in the company must have access to the portal. Granting access to customers also entered the discussion as a possibility. Also, as the portal and Web browser combination became a more important tool for the business, the leadership of TAMCO set strict requirements for any solution: It must be extendable in every direction, customers entering the portal, the company growing to new market areas and setting up new hub offices, or simply moving wholesale business entirely to the Web.

The head of the IT department, Mr. Perttilä, said *"while this is technically possible, the administration requirements for such numbers of people will extend beyond the resources at my department's disposal."* The IT department was advised to come up with a solution without hiring additional resources.

Two months later, a possible solution was presented, the IBM Tivoli Identity Manager, which is software designed to automate and centralize the process of user-management in various systems. A proper implementation grants all users access to the portal and to e-mail but still reduces the administrative load, especially among the overworked Active Directory® administrators. With automated processes and user self-care, most of the tasks that the administrators faced were entrusted to users.

Mr. Mäkinen accepted the proposal with the following conditions: "*Everyone of our employees, from executives to the people sweeping the factory floors, must have access to the company portal, and in the near future, our customers must be able to browse through inventory and place orders. Also, our coming expansion into the new countries joining the EU in 2004 must be taken into account.*"

Given his orders, Mr. Perttilä contacted IBM and gave them the business requirements laid down by the CEO.

This is where we enter the picture.

Note: All names and references for company and other business institutions used in this chapter are fictional. Any match with a real company or institution is coincidental.

3.1 Current architecture

The first action that we took was to analyze the current IT architecture and organizational structure, because these components are the building blocks for designing a proper identity management solution.

3.1.1 Organization

The major TAMCO offices are located in three countries: Finland, Germany, and the U.K. The structure of the company is organized into four departments:

- Sales
- Manufacturing
- Accounting
- IT

With the exception of sales, all departments are in Finland. The manufacturing department, where all sauna equipment is produced, operates in Finland only, as does IT management and accounting. Sales, however, must go where the customers are and therefore is the only department operating in other countries.

3.1.2 IT architecture

The current IT solution consists of four major components:

- A Lotus® Domino® mail system

  This system is centrally managed from Finland, but replicated to all countries:

  - Because TAMCO is an international company, the policy is for the Domino users to use English alphabet characters only in their names.
  - Access to the mail environment is implemented through the WebSphere portal using the iNotes™ portlet. This way, everybody can access their e-mail through a regular Web browser without needing a fat client.

- Three Tivoli Access Manager domains

  There is one domain for each “hub” country. The Access Manager environment controls access to the WebSphere Portal servers.

- Three WebSphere Portal servers and the application servers behind them.

  Of these three components, the WebSphere Portal servers and application servers do not require any administration from the user management point-of-view, because the Access Manager centrally controls them.

- Active Directory for managing the workstation users:

  - Centrally managed from Finland, but replicated to all countries

- Controls access to workstations

Figure 3-1 shows the IT system components in each country.

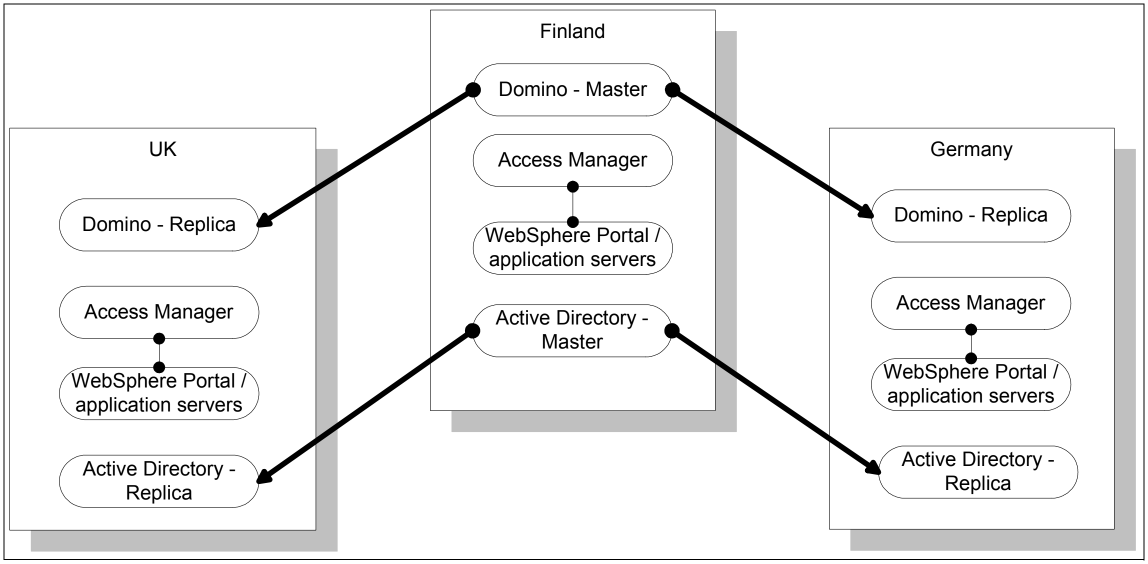

Finland
Domino - Master
Access Manager
WebSphere Portal / application servers
Active Directory - Master
UK
Domino - Replica
Access Manager
WebSphere Portal / application servers
Active Directory - Replica
Germany
Domino - Replica
Access Manager
WebSphere Portal / application servers
Active Directory - Replica

Figure 3-1 Components by country

All enterprise users are members of Access Manager groups. They are granted access to the various parts of the portal based on those user groups.

The following groups of people have unique types of access to the portal:

- Marketing
- Finance
- Sales

  Sales personnel have access to their own part of the portal and to the marketing part.
- Executives

  Executives from every department have access to the executive application in the portal.
- Employees

  All employees have basic access to read company news and to access their e-mail.

As discussed earlier, each of these access types is represented by an Access Manager group. The existing Access Manager groups are shown in Figure 3-2.

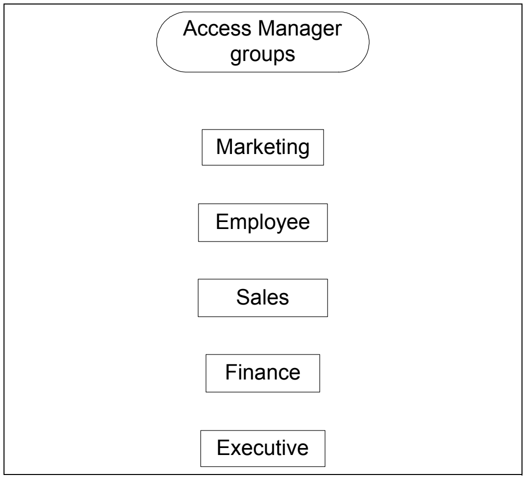


Figure 3-2 Existing Access Manager groups

Currently, the users are added to the groups manually by Access Manager administrators, based on requests from the user's manager. However, to reduce human errors and delays, TAMCO expressed a desire to have users assigned their access rights according to HR data.

Because all group-based information is stored in the portal, the Active Directory controlled workstation domain-only host users' home directories and certain public resource directories. Currently, there is no need to categorize Active Directory users by group. As with Access Manager and Notes, Active Directory users are currently being managed manually.

After we had a clear picture of the current architecture and the business requirements, we moved to the planning phase.

4

Solution design

This chapter deals with designing the best Identity Manager implementation to suit the organizational structure and requirements for Tamminen, Auramo, Mäkinen & Co (TAMCO).

4.1 Organizational structure

This section looks at the current TAMCO organizational structure, which is comprised of four departments:

- Sales
- Accounting
- IT
- Manufacturing

All departments, except Sales, exist in Finland only. The Sales department exists in Finland, Germany, and the U.K. This organizational structure is illustrated in Figure 4-1.

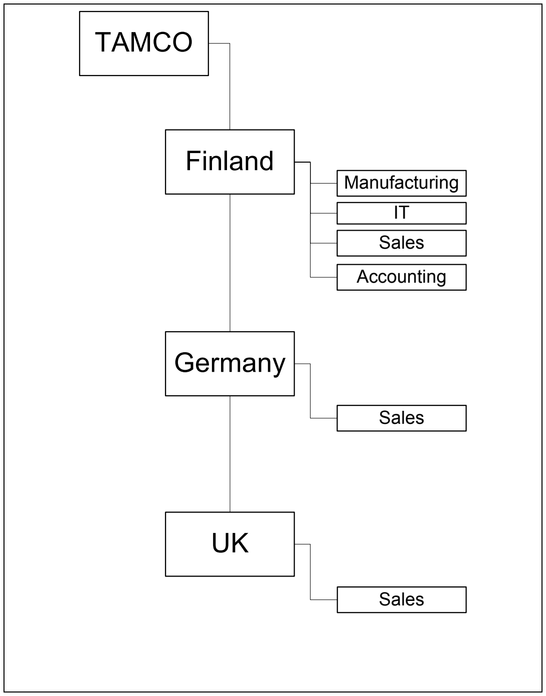


Figure 4-1 TAMCO organizational structure

Additionally, all departments have *executives* who have access to resources to which regular employees are not allowed, which is not shown on the organizational chart.

4.1.1 Identity Manager organizational tree

While TAMCO's organizational structure is not very diverse, creating a one-for-one representation of the structure into an organizational tree representation within Identity Manager requires a lot of unnecessary work, especially while maintaining the information in a running environment. Therefore, it is necessary to "prune the tree." The following best practices guideline will help.

Best practice: Keep the tree as *shallow and simple* as possible. It is not meant to be browsed.

We decided to design the tree by locations only, which effectively reduces the number of entries in the organizational tree.

Because TAMCO has major branches in only three countries, we decided to represent the organization with locations (one for each country) instead of using departments. The following three locations are created beneath the top level TAMCO entry:

- Finland
- Germany
- U.K.

The resulting Identity Manager organizational structure is illustrated in Figure 4-2.

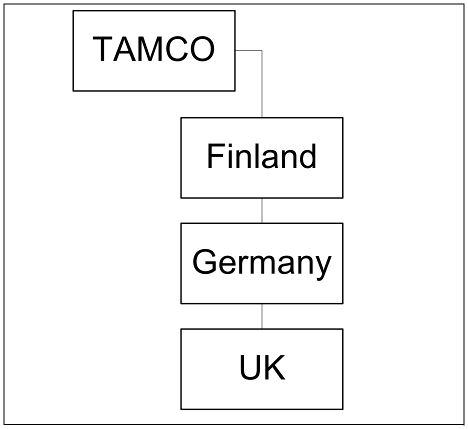


Figure 4-2 TAMCO organizational tree in Identity Manager

As new market areas open, new countries can be added to the tree.

In order to represent departments and other functional affiliation information, we use Identity Manager organizational roles. We discuss these roles further in section 4.1.2, "Organizational roles" on page 66.

For a more detailed discussion about organizational structure in Tivoli Identity Manager, refer to *Organization Chart Design for IBM Tivoli Identity Manager*, REDP-3920.

4.1.2 Organizational roles

Because the decision was made to create the organizational tree using locations instead of departments, we decided that it was best to represent the departments by roles.

There are two kinds of roles in Identity Manager:

- Static roles

  Users are added to these roles manually.

- Dynamic roles

  Users are automatically added to dynamic roles based on their attributes (Lightweight Directory Access Protocol (LDAP) search filters). You cannot manually add users. In this engagement, we will be using dynamic roles.

The parts of the original organizational structure are:

- Accounting
- Sales
- Manufacturing
- IT

In addition, each department has executives who are entitled to access specific executive resources.

Additionally, the IT department has requested that help desk users receive limited administration access to their own country in addition to the IT department's administrative access. Identity Manager provides a group definition to allow customized access rights. This group is used to address the help desk users.

We created the following Identity Manager roles:

- Executives

  All executives, regardless of department, belong to this role. It provisions access to the executive resources in Access Manager and Active Directory.

- Sales

  Only Sales people belong to this role. It provisions access to the Sales group in Access Manager and Active Directory.

- Accounting

  Only Accounting people belong to this role. It provisions access to the group in Access Manager and Active Directory.

- Manufacturing

  Only Manufacturing people belong to this role. It provisions access to the Manufacturing group in Access Manager and Active Directory.

- IT

  Only IT people belong to this role. It provisions access to the IT group in Access Manager and Active Directory. Additionally, people in this Role are provisioned into a Helpdesk group in Identity Manager.

All the roles are placed on the highest level of the organizational tree, as shown in Figure 4-3.

Best practice: In general, it is a best practice to place as many components as possible (scripts, polices, roles, and so on) at the top level of the organizational tree, which simplifies maintenance and scalability.

The applicable components use a *scope* setting, which in our examples is set to *subtree*, so that the applicable components apply to the whole organizational tree.

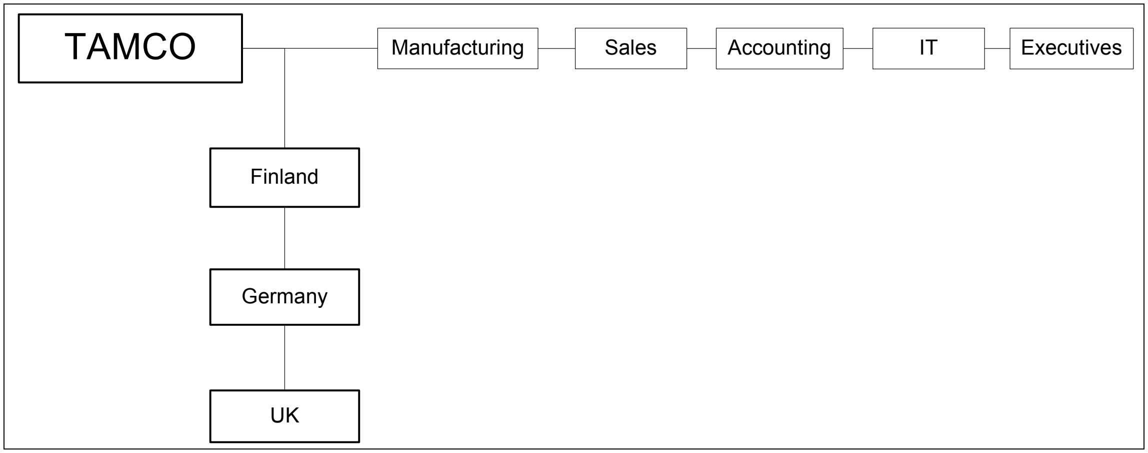


Figure 4-3 Roles and organizational tree

Now that the organizational tree and roles are defined, let us take a closer look at the managed resources, which are discussed in 4.2, “Managed resources” on page 68.

Best practice: This setup automatically assigns roles, but in certain cases, it might be necessary to be able to add role memberships manually. For example, an accounting person might need access to sales data.

If you want to prepare for these cases, create a static role for each dynamic role. Give the static roles distinctive names, such as Manual-Marketing, Manual-Sales, and so on. Next, add them to the applicable provisioning policies, just like their dynamic counterparts. We discuss provisioning policies in 4.3.1, “Provisioning policies” on page 69.

4.2 Managed resources

Managed resources are the IT components that are managed by Identity Manager. Account information is centrally provisioned to these resources, including the creation, ongoing maintenance, and suspension or deletion of accounts, so that manual administration can be eliminated. The managed resources in our TAMCO environment consist of the following components:

- Active Directory domain

  This domain is centrally managed through the domain controller in Finland.

- Access Manager secure domain

  It is not necessary to explicitly define any WebSphere Portal resources, because all access to WebSphere Portal is managed by Access Manager. All user accounts are maintained within an LDAP directory that is primarily owned by Access Manager and shared with WebSphere Portal.

- Whitepages:

  – An LDAP repository, which contains contact information for all employees of TAMCO.

  – Because this resource is new in TAMCO, its user base is populated entirely by Identity Manager, unlike Active Directory and Access Manager, which both have an existing user base.

Tivoli Identity Manager provides an adapter for LDAP, which is the repository for Whitepages, and an installable adapter for both Active Directory and Tivoli Access Manager; therefore, we created the following managed resources:

- Active Directory
- Access Manager
- Whitepages

In Identity Manager, these resources are also known as *services*. We discuss how users get assigned to services and receive appropriate access rights in 4.3, "Policies" on page 69.

4.3 Policies

Identity Manager policies can define many components: user IDs, passwords, group memberships, and so on. This section discusses the policies that are needed to implement the solution.

4.3.1 Provisioning policies

Provisioning policies define how a user gets provisioned to a service. Multiple provisioning policies must be created, because the requirements state that different groups get different access to services.

Identity Manager default policy

The provisioning policy for Identity Manager is a default policy that grants every user access to the Identity Manager environment, which is important in order for everyone to be able to maintain their personal information or reset their account passwords. The actions that an individuals can perform depend on the individuals' roles. Refer to 4.7, "Administration" on page 73.

Active Directory default policy

The default provisioning policy for Active Directory sets the provisioning options for name and contact details, for example. It does not grant any specific group memberships, which will be granted by provisioning policies linked to specific roles.

Access Manager default policy

The default provisioning policy for Access Manager sets the provisioning options for name and contact details, for example. It does not grant any specific group memberships, these will be granted by provisioning policies linked to specific roles.

Role-based provisioning policies

Because most of the roles require a unique type of access to the portal, they must have a unique provisioning policy.

This is a list of the policies that we defined, to whom they apply, and the rights granted by them:

- Sales policy:
  - Everyone belonging to the *Sales* role is provisioned using this policy and the default policy.
  - This policy adds the user to the Sales group in Access Manager and Active Directory.
  - The access rights granted by both policies are joined to form a super-set.
- Accounting policy:
  - Everyone belonging to the *Accounting* role is provisioned using this policy and the default policy.
  - This policy adds the user to the Accounting group in Access Manager and Active Directory.
  - The access rights granted by both policies are joined to form a super-set.
- Manufacturing policy
  - Everyone belonging to the *Manufacturing* role is provisioned using this policy and the Employee policy.
  - This policy adds the user to the Manufacturing group in Access Manager and Active Directory.
  - The access rights granted by both policies are joined to form a super-set.
- Executive policy
  - Everyone belonging to the *Executive* role is provisioned using this policy, the policy of their department (if they are Manufacturing, Sales, or IT executives), and the default policy.
  - This policy adds the user to the Executive group in Access Manager and Active Directory.
  - The access rights granted by all policies are joined to form a super-set.

Figure 4-4 on page 71 is illustrates the connections between roles and Access Manager groups.

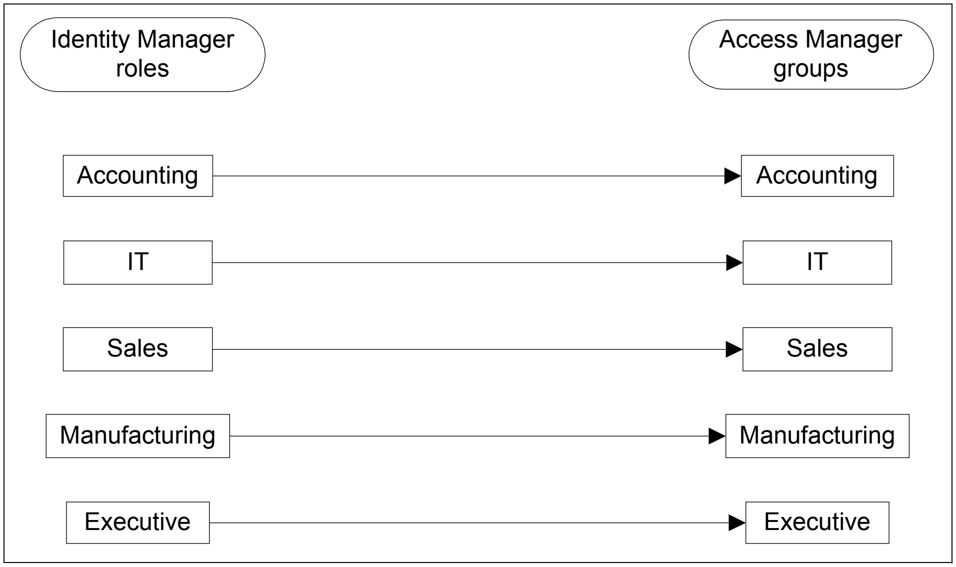


Figure 4-4 Role to group mappings

In addition to role to group mappings, there are two Active Directory groups to which no role grants access: Orders and Customer Data. To gain access to these groups, access must be requested and specifically granted by the service owner. To implement this requirement, a featured called Access Entitlements is used. We discuss this feature in the next section.

4.3.2 Access Entitlements

When dealing with groups to which no one has automatic access, we decided to implement them as *accesses*, which are resources that have an approval workflow attached to them. There are two Active Directory groups that are implemented as accesses:

- Orders
- Customer Data

The users can then request the accesses themselves, but these requests have to be approved by the service owner of the Active Directory service as specified by the AD Access Requests workflow that we created. This workflow will ask the Active Directory service owner to approved or reject the request. If it is not answered in seven days, the request will be escalated to a system administrator.

4.3.3 Recertification policies

In addition to having to request access to Orders and Customer Data, each user who has either access has to have that access recertified every six months.

We created a *recertification policy*, which asks the Active Directory service owner to recertify the user. If this recertification is not done in 14 days, the access will be deprovisioned automatically.

4.3.4 Password policies

Identity Manager allows you to set a large range of restrictions on passwords and even to create your own password if you do not find suitable passwords in the default options. Base the password policy on a corporate policy. Not only will you then have a unified policy, but if you implement the existing policy in Identity Manager, there will not be an adjustment period for users.

In this case, the specifications stated that the password must be at least eight characters long and contain at least one number and one alphabetic character, and it cannot contain the user's name or login ID. In our case, a single password policy must be created and applied to all services.

4.3.5 Identity policies

An *identity policy* defines how a user ID gets generated by Identity Manager when provisioned to the respective services.

As with password policies, identity policies must be based on existing corporate policy whenever possible. TAMCO corporate policy for user IDs states that the user's first name and last name, separated by a period, form the login ID. If a duplicate is found, a consecutive number needs to be added to the end.

4.4 Human Resources feed

The company requires that their HR application remain the authoritative data source for any employee information, which requires that we synchronize Identity Manager with HR data and keep it up-to-date.

The HR administrators are unwilling to grant outside access to their application, but they will export the personnel data nightly into a comma-separated value (CSV) text file that we can use to import the information into Identity Manager. This file contains the pertinent data about the employee, for example: name, title, department, phone, e-mail, and so on.

This data must be fed to Identity Manager and used to place the employee into the Identity Manager organizational tree and appropriate roles. Also, the contact data for the employee must be populated from the file.

A placement rule is used to put people into the correct locations, while their departmental information and title (in the case of executives) is used to place them into the correct roles.

4.5 Reconciliation

In a perfect world, we can create all the users according to our own identity and provisioning policies. But in this case, as in many other cases, a user population already exists on the back-end systems. When creating Identity Manager users, new accounts must not be created for each new person. Instead, people are created in Identity Manager, and any existing accounts on managed resources are assigned to them. Only then is the account creation be turned on for new people.

This approach is accomplished by creating the provisioning policies disabled and enabling them after existing accounts have been reconciled with an adoption rule in place.

4.6 Adoption rule

When reconciling, an *adoption rule* will look at the account data and try to match it to a user according to the specifications given in the rule. Our rule will take the first name and last name of each person, separated by a period (for example, john.doe) and compare that with the account login ID.

This method will usually cover most of the users, but if there are users that have not been created using the corporate identity policy, these users will be left as *orphans* and will have to be manually assigned owners.

4.7 Administration

In this section, we discuss how the delegation of administration tasks is handled in the Identity Manager implementation. We explain the difference between system administrators and help desk personnel, and we talk about user account self-care.

4.7.1 Delegation

In addition to the system administrators, whose role is built into the system, there are also help desk personnel. A help desk group is created in Tivoli Identity Manager during installation, as well as suitable access rights for it. Every person belonging to the IT department will have this group assigned to them.

The group allows viewing user data in all locations and resetting users' passwords. In case of a forgotten password, the administrators do not need to be bothered; instead, the matter is handled entirely at the help desk level.

4.7.2 Self-care

The basic requirements state that you remove as much workload as possible from the help desk personnel.

Much of the help desk workload is caused by password resets and accounts locked out by expired passwords.

Identity Manager provides a self-care GUI, which allows users to log in and perform changes on their profile, such as requesting additional access and changing passwords.

We also discussed the ability to reset forgotten passwords, but decided, because of the challenge and the response that it required, to implement this feature in the next phase of the project, which helps to keep the project as small and manageable as possible. It is always a wise concept to keep the initial project small, or failing that, break it into smaller pieces.

4.8 Existing installation

We discuss the current architecture and design choices for the new architecture in this section.

4.8.1 Current architecture

Currently, the TAMCO portal architecture consists of a server called TAMCO that contains the following server software:

- Access Manager Policy Server V6.0
- Active Directory (Windows Server 2003)
- WebSphere Portal V6.0
- IBM Directory Server V6.0
- IBM DB2® V9.1

It is flanked by two demilitarized zones (DMZs) on which two Access Manager WebSEAL servers control and authenticate incoming Web-based traffic from the Internet and from the intranet. Authentication to the Internet WebSEAL is done with a smartcard, while authentication to the intranet WebSEAL is done with the employee ID badge.

Figure 4-5 depicts the current architecture.

Note: Our demonstration environment is completely configured onto a single system. Be aware that this configuration is not suitable and can hardly be found anywhere for a real-life deployment. But this image is a suitable way of describing our Identity Manager installation. For a more detailed infrastructure discussion, refer to *Identity Management Design Guide with IBM Tivoli Identity Manager*, SG24-6996, and *Identity Management Advanced Design for IBM Tivoli Identity Manager*, SG24-7242.

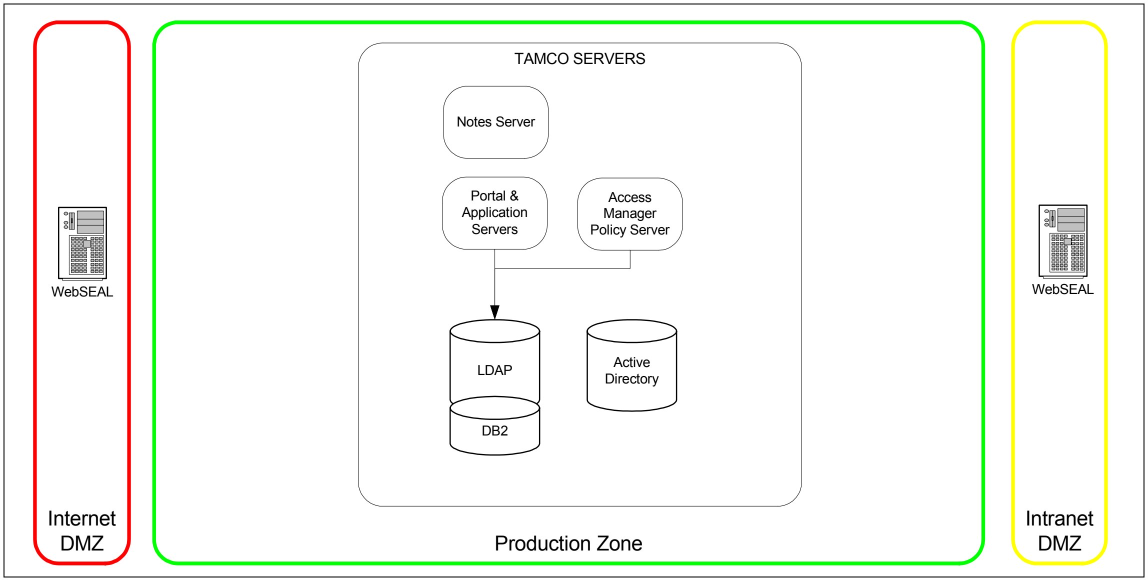


Figure 4-5 Current architecture of TAMCO

The production zone contains many other machines, but they are not shown because they are not related to the portal architecture.

4.8.2 Planning

In order to plan the integration of Identity Manager into the TAMCO environment, we must first decide which of the existing components can be used and which components need to be installed.

Our minimum component requirements are:

- LDAP (for example, an IBM Directory Server 6.1)
- Database (for example, IBM DB2 9.1 Fix Pack 2 or later)
- Application Server (for example, WebSphere Application Server)

Of these components, several exist in the TAMCO environment, but they are not of the required level. Therefore, it was decided to install dedicated servers for Tivoli Identity Manager use.

When you install a small Identity Manager environment with the ability to expand as a future option, the smart course is to place unique components onto separate servers, which allows you to implement the components that might need to be duplicated onto another server. In TAMCO's case, we placed the database and LDAP on one server and installed Identity Manager on another server.

Figure 4-6 on page 77 shows the new TAMCO portal architecture.

Note: While we used a single machine for all components for the hands-on demonstration, the installation instructions are not different (except for the host names) if you place components on other machines, even if they are running on other operating systems.

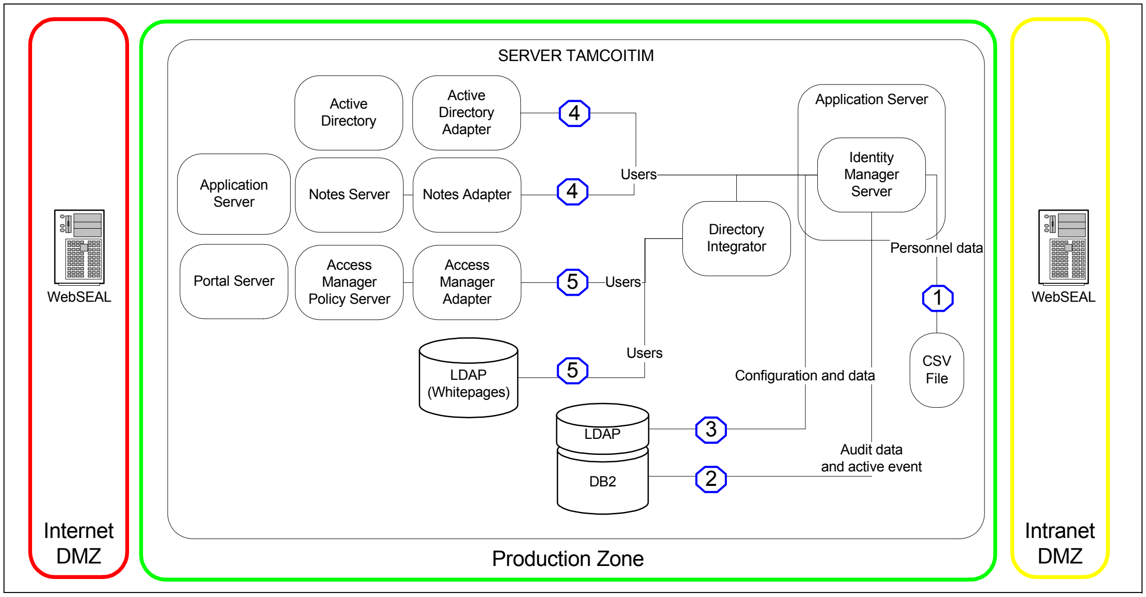


Figure 4-6 New TAMCO portal architecture

Figure 4-6 shows the new architecture and the data flows of Identity Manager. Short explanations for the four different data flows are (the numbers correspond to the numbers in Figure 4-6):

1. The CSV HR Feed comes from HR as an exported CSV file. It creates people in Identity Manager.
2. All new Identity Manager processes are created in DB2, maintained while open, and stored for auditing when completed.
3. All person, account, and Identity Manager configuration data is stored in LDAP.
4. Active Directory and Domino users go from Tivoli Identity Manager server to their respective adapters, which, in turn, create the users.
5. Active Directory and LDAP/Whitepages users are created when Tivoli Identity Manager invokes a Remote Method Invocation (RMI)-based adapter on Tivoli Directory Integrator, which, in turn, creates the users.

5

Installing the components

In this chapter, we demonstrate the installation and configuration of required components in the TAMCO environment. In addition to the existing servers, we install a server called *TAMCOITIM*, which contains the Tivoli Identity Manager components. As stated in the previous chapter, installing all components on a single server is not the best practice and is done for the purpose of this hands-on demonstration only. However, the installation instructions shown here do not need to be altered, except for host names, when installing the components onto more than one server.

5.1 Identity Manager server installation

On the Identity Manager server, we install and configure the following components:

- Windows 2003 Server R2 as the operating system
- IBM DB2 client V9.1 Fix Pack 2
- IBM WebSphere Application Server Base V6.1 and Cumulative Fix 13
- IBM Directory Server 6.1
- IBM Tivoli Identity Manager v5
- Tivoli Directory Integrator 6.1

  With the Tivoli Access Manager Combo Adapter and the other Remote Method Invocation (RMI)-based adapters (which are also known as *Agentless Adapters*) that come with Tivoli Identity Manager installation
- IBM Common Install Engine for WebSphere Software (which is also known as *Update Installer*) V6.1.0.13

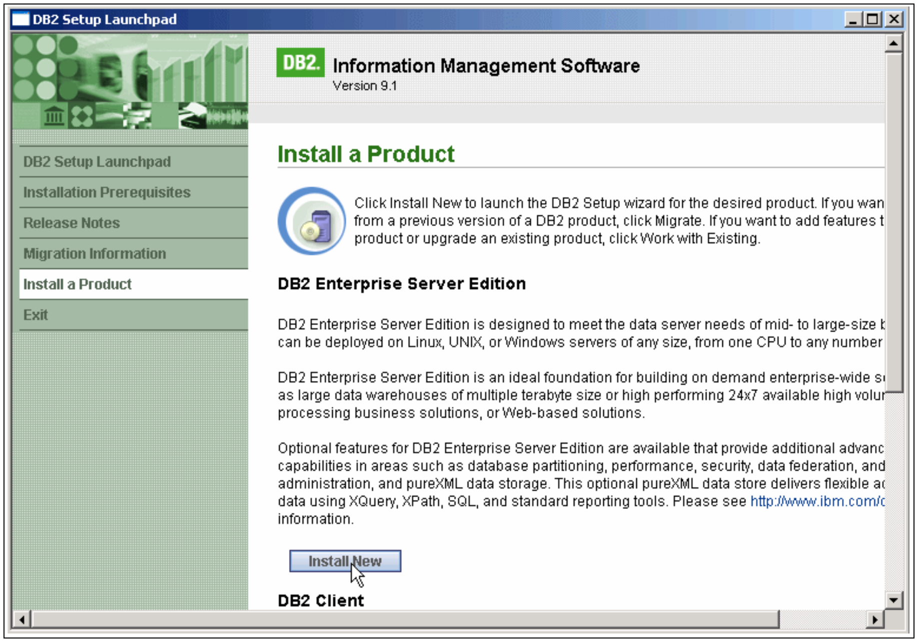
We recommend that you perform the installations in the order shown in this book, because changing the order of the installation can affect the installation instructions.

First, we install the DB2 server.

5.1.1 Installing DB2

In this section, we describe the necessary steps for installing DB2:

1. Begin the installation by starting the DB2 Setup Launchpad (**`setup.exe`**).
2. Select **Install a Product** in the first window.
3. In the DB2 Enterprise Server Edition section, click **Install New** as shown in Figure 5-1.



Information Management Software
Version 9.1

Install a Product

Click Install New to launch the DB2 Setup wizard for the desired product. If you wan from a previous version of a DB2 product, click Migrate. If you want to add features t product or upgrade an existing product, click Work with Existing.

DB2 Enterprise Server Edition

DB2 Enterprise Server Edition is designed to meet the data server needs of mid- to large-size b can be deployed on Linux, UNIX, or Windows servers of any size, from one CPU to any number

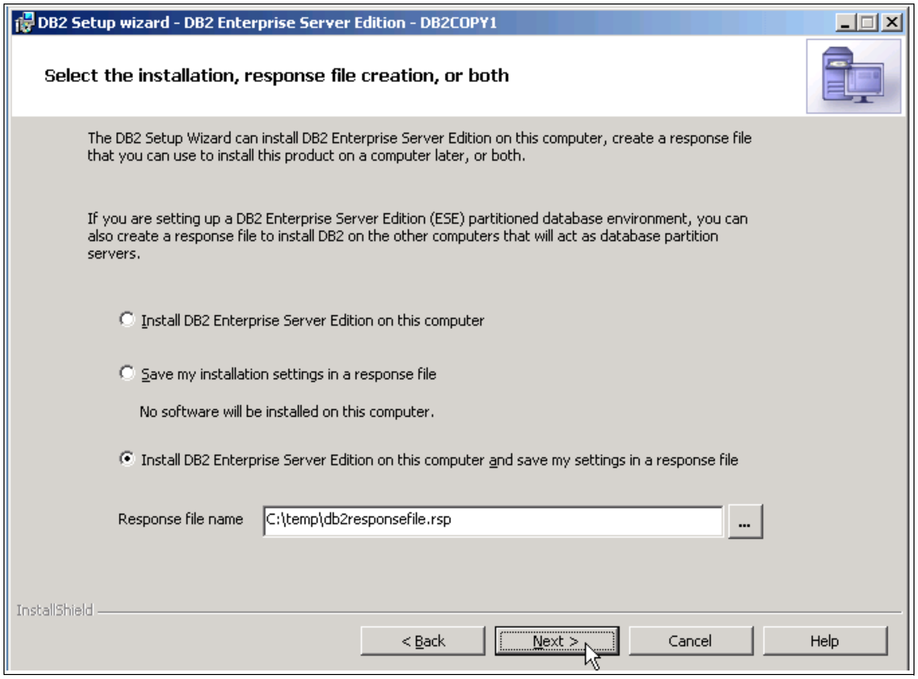
DB2 Enterprise Server Edition is an ideal foundation for building on demand enterprise-wide s as large data warehouses of multiple terabyte size or high performing 24x7 available high volur processing business solutions, or Web-based solutions.

Optional features for DB2 Enterprise Server Edition are available that provide additional advanc capabilities in areas such as database partitioning, performance, security, data federation, and administration, and pureXML data storage. This optional pureXML data store delivers flexible ac data using XQuery, XPath, SQL, and standard reporting tools. Please see http://www.ibm.com/c information.

DB2 Client

Figure 5-1 DB2 Setup Launchpad

4. In the Welcome window, click **Next**.
5. In the License Agreement window, accept the terms in the license agreement, and click **Next.**
6. Select **Typical** as the installation type, and click **Next**.
7. In the response file creation window, select **Install DB2 Enterprise Server Edition on this computer and save my settings in a response file** and enter the response file path and name. We used `c:\temp\db2responsefile.rsp` as shown in Figure 5-2. You are not required to a create a response file, but it can prove helpful in the future. Continue by clicking **Next**.


DB2 Setup wizard - DB2 Enterprise Server Edition - DB2COPY1

Select the installation, response file creation, or both

The DB2 Setup Wizard can install DB2 Enterprise Server Edition on this computer, create a response file that you can use to install this product on a computer later, or both.

If you are setting up a DB2 Enterprise Server Edition (ESE) partitioned database environment, you can also create a response file to install DB2 on the other computers that will act as database partition servers.

○ Install DB2 Enterprise Server Edition on this computer

○ Save my installation settings in a response file

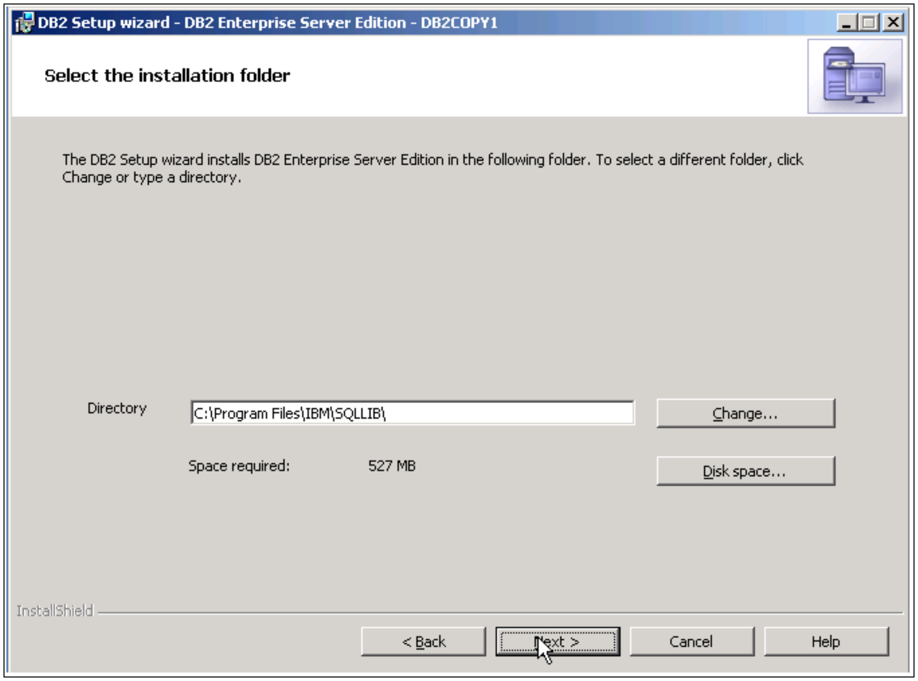
No software will be installed on this computer.

● Install DB2 Enterprise Server Edition on this computer and save my settings in a response file

Response file name: C:\temp\db2responsefile.rsp

Figure 5-2 How to set the installation response file

8. In the installation folder window, you select the folder in which DB2 will be installed (we used the default of `c:\program files\ibm\sqllib\`) and click **Next**, as shown in Figure 5-3 on page 83.



DB2 Setup wizard - DB2 Enterprise Server Edition - DB2COPY1

Select the installation folder

The DB2 Setup wizard installs DB2 Enterprise Server Edition in the following folder. To select a different folder, click Change or type a directory.

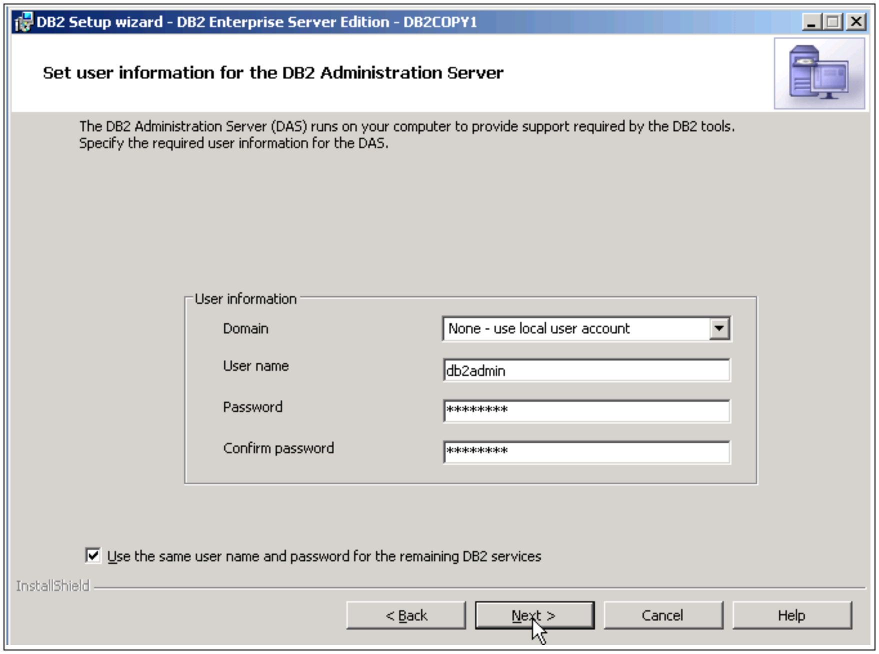
Directory: C:\Program Files\IBM\SQLLIB\

Space required: 527 MB

Figure 5-3 Select the installation folder

9. In the next window, enter the information for the DB2 administrative user. As depicted in Figure 5-4 on page 84, we used:
   - Domain: `None - use local user account`
   - User name: `db2admin`
   - Password: `passw0rd`
   - Confirm password: `passw0rd`

   Check **Use the same user name and password for the remaining DB2 services**, and click **Next**.



DB2 Setup wizard - DB2 Enterprise Server Edition - DB2COPY1

Set user information for the DB2 Administration Server

The DB2 Administration Server (DAS) runs on your computer to provide support required by the DB2 tools. Specify the required user information for the DAS.

User information

Domain: None - use local user account

User name: db2admin

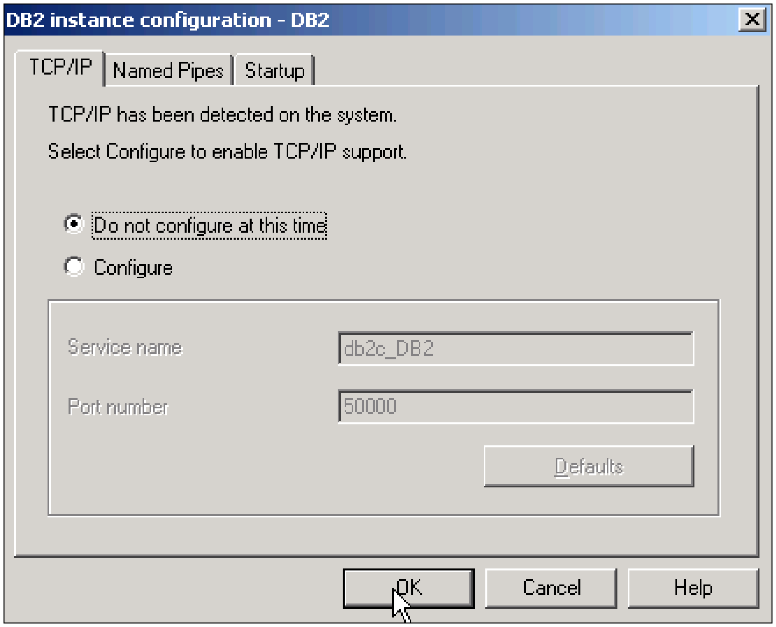
Password: ********

Confirm password: ********

☑ Use the same user name and password for the remaining DB2 services

Figure 5-4 Set user information for the DB2 Administration Server

10. In the Configure DB2 instances window, click **Configure**.
11. This action brings up the DB2 instance configuration window. Select the **TCP/IP** tab.
12. On the TCP/IP tab, select **Do not Configure at this time** and click **OK**, as shown in Figure 5-5 on page 85.



TCP/IP has been detected on the system.

Select Configure to enable TCP/IP support.

● Do not configure at this time

○ Configure

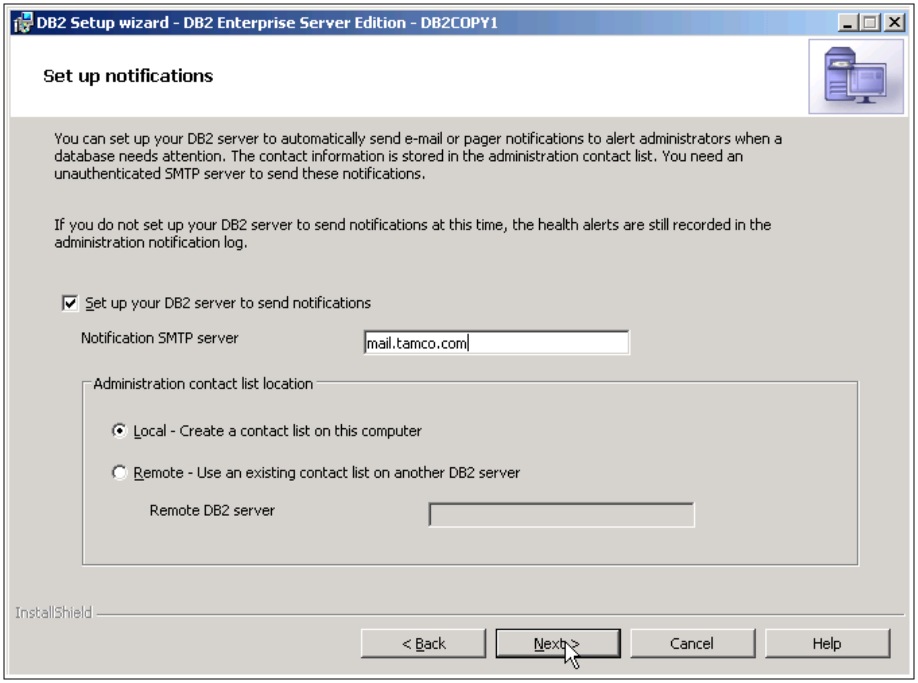
Service name: db2c_DB2

Port number: 50000

Figure 5-5 DB2 instance configuration window

13. This action returns you to the Configure DB2 instances window, where you click **Next** to proceed.
14. In the DB2 catalog window, do not set any catalogs (default), and click **Next**.
15. As shown in Figure 5-6 on page 86, check **Set up your DB2 to send notifications** and enter the Simple Mail Transfer Protocol (SMTP) server. If you do not have an SMTP server available that accepts anonymous messages, clear this box.

    We used `mail.tamco.com` as our SMTP server. Under the Administration Contact list location heading, select **Local - Create a contact list on this computer**, and click **Next**.



You can set up your DB2 server to automatically send e-mail or pager notifications to alert administrators when a database needs attention. The contact information is stored in the administration contact list. You need an unauthenticated SMTP server to send these notifications.

If you do not set up your DB2 server to send notifications at this time, the health alerts are still recorded in the administration notification log.

☑ Set up your DB2 server to send notifications

Notification SMTP server: mail.tamco.com

Administration contact list location

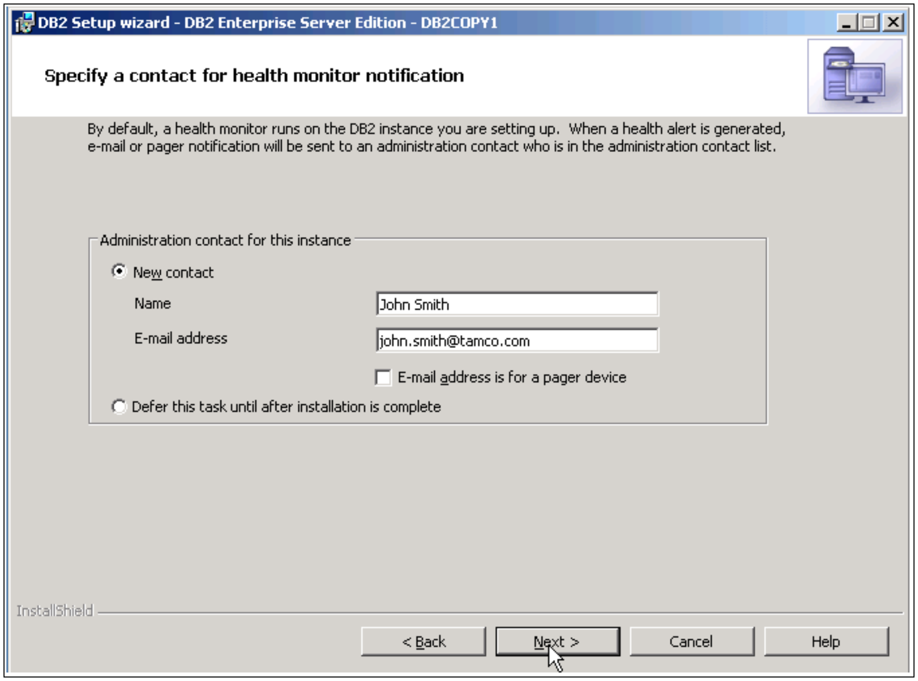
● Local - Create a contact list on this computer

○ Remote - Use an existing contact list on another DB2 server

Remote DB2 server:

Figure 5-6 Set up notifications

16. Set the name and e-mail address of a DB2 administrator, as shown in Figure 5-7 on page 87. If you did not specify an SMTP server in the previous window, select **Defer this task until installation is complete**. Then, click **Next**.



DB2 Setup wizard - DB2 Enterprise Server Edition - DB2COPY1

Specify a contact for health monitor notification

By default, a health monitor runs on the DB2 instance you are setting up. When a health alert is generated, e-mail or pager notification will be sent to an administration contact who is in the administration contact list.

Administration contact for this instance

● New contact

Name: John Smith

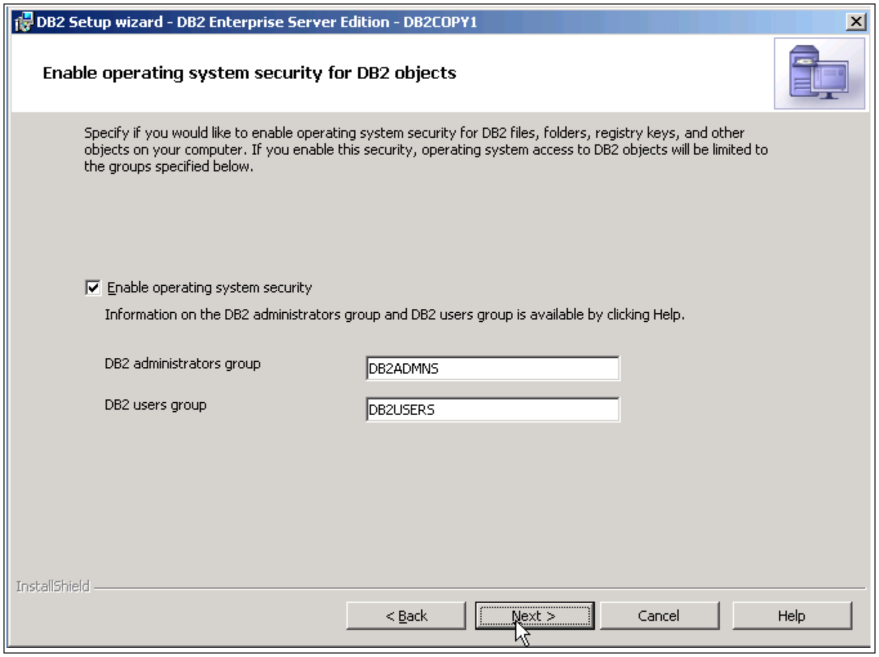
E-mail address: john.smith@tamco.com

□ E-mail address is for a pager device

○ Defer this task until after installation is complete

Figure 5-7 Specify a contact for health monitor notification

17. As shown in Figure 5-8 on page 88, select **Enable operating system security** and set the DB2 groups as specified and click **Next**:
    - DB2 Administrators Group: `DB2ADMNS`
    - DB2 Users groups: `DB2USERS`


DB2 Setup wizard - DB2 Enterprise Server Edition - DB2COPY1

Enable operating system security for DB2 objects

Specify if you would like to enable operating system security for DB2 files, folders, registry keys, and other objects on your computer. If you enable this security, operating system access to DB2 objects will be limited to the groups specified below.

☑ Enable operating system security

Information on the DB2 administrators group and DB2 users group is available by clicking Help.

DB2 administrators group: DB2ADMNS

DB2 users group: DB2USERS

Figure 5-8 Enable operating system security for DB2 objects

18. Check that your settings are correct in the review window and click **Finish**.
19. After the installation, click **Finish** in the Setup is complete window.

The DB2 Enterprise Server Edition is now installed.

The next step for our DB2 installation is to install a proper license. Run the following command:

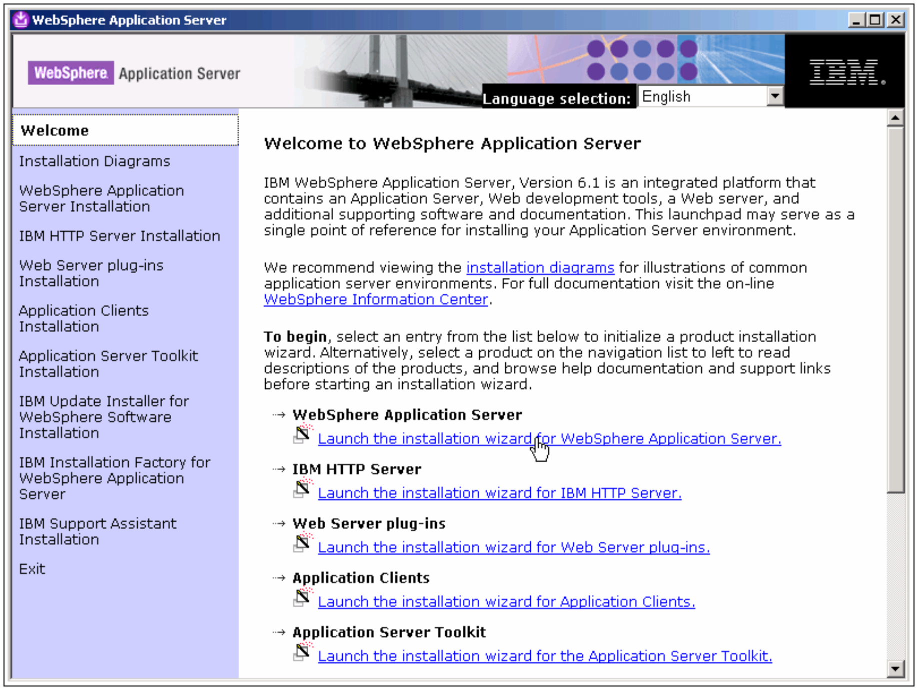
```
db2licm -a %DB2_Install_Media%\ESE\DB2\license\db2ese.lic
```

Note: The license file name might be different, but it will always have a .lic suffix.

5.1.2 Installing WebSphere Application Server

In this section, we describe the steps necessary to install the WebSphere Application Server:

1. Start the installation by executing `launchpad.exe`.
2. In the first window, which is shown in Figure 5-9 on page 89, select **Launch the installation wizard for WebSphere Application Server**.


WebSphere Application Server
WebSphere Application Server
Language selection: English
IBM
Welcome
Installation Diagrams
WebSphere Application Server Installation
IBM HTTP Server Installation
Web Server plug-ins Installation
Application Clients Installation
Application Server Toolkit Installation
IBM Update Installer for WebSphere Software Installation
IBM Installation Factory for WebSphere Application Server
IBM Support Assistant Installation
Exit

Welcome to WebSphere Application Server

IBM WebSphere Application Server, Version 6.1 is an integrated platform that contains an Application Server, Web development tools, a Web server, and additional supporting software and documentation. This launchpad may serve as a single point of reference for installing your Application Server environment.

We recommend viewing the installation diagrams for illustrations of common application server environments. For full documentation visit the on-line WebSphere Information Center.

To begin, select an entry from the list below to initialize a product installation wizard. Alternatively, select a product on the navigation list to left to read descriptions of the products, and browse help documentation and support links before starting an installation wizard.

→ **WebSphere Application Server**
Launch the installation wizard for WebSphere Application Server.

→ **IBM HTTP Server**
Launch the installation wizard for IBM HTTP Server.

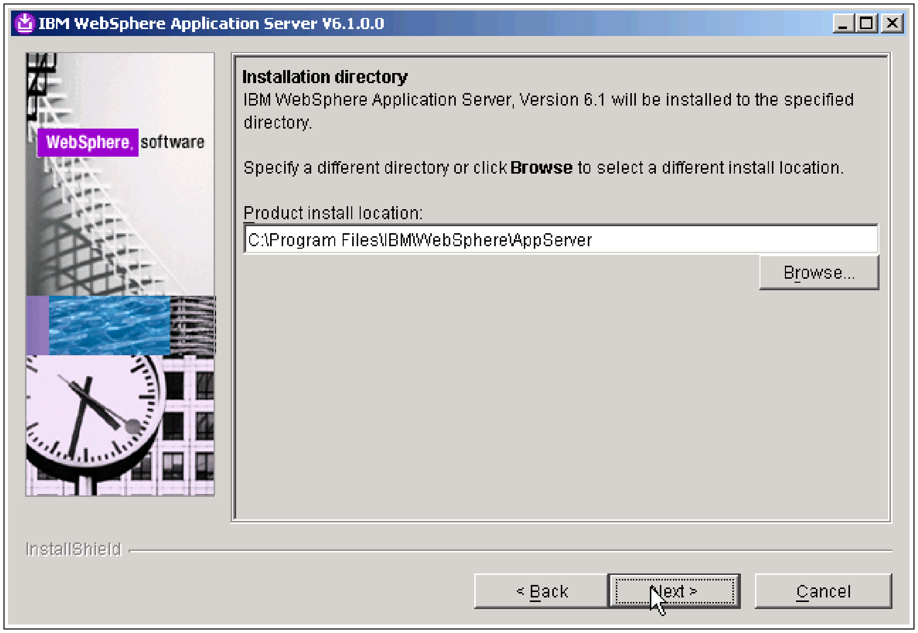
→ **Web Server plug-ins**
Launch the installation wizard for Web Server plug-ins.

→ **Application Clients**
Launch the installation wizard for Application Clients.

→ **Application Server Toolkit**
Launch the installation wizard for the Application Server Toolkit.

Figure 5-9 WebSphere Application Server install launchpad

3. In the installation Welcome window, click **Next**.
4. In the License agreement window, accept the license, and click **Next**.
5. Click **Next** at the prerequisites check window (unless the window states that you do not meet the prerequisites, in which case, select **Cancel** to end the installation, and fulfill the prerequisites before starting again).
6. In the Install Sample applications window, leave the “Install the sample applications” box unchecked (default), and click **Next**.
7. In the Installation directory window, enter the desired directory (we used the default `C:\Program Files\IBM\WebSphere\AppServer`) as shown in Figure 5-10 on page 90, and click **Next**.


IBM WebSphere Application Server V6.1.0.0

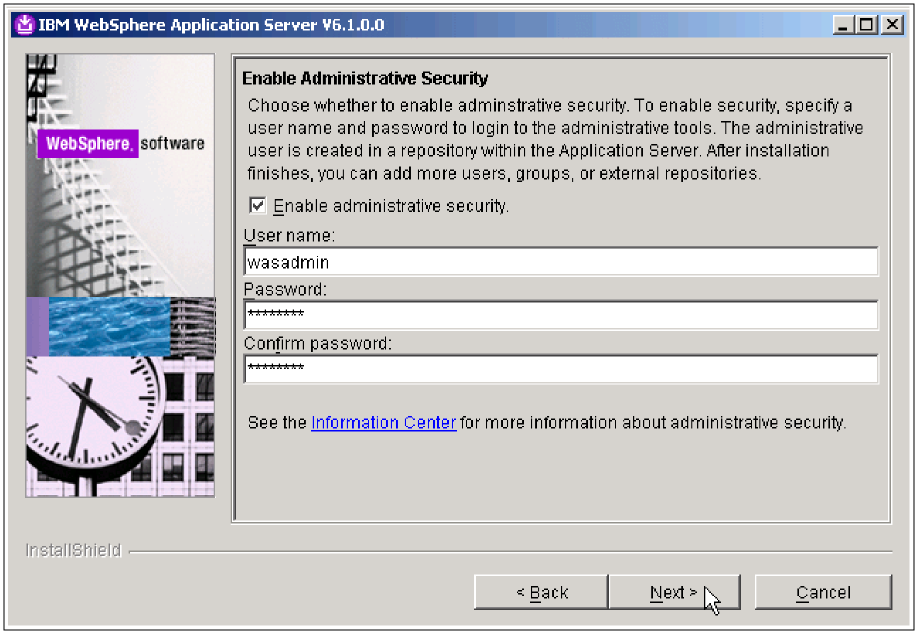
Installation directory
IBM WebSphere Application Server, Version 6.1 will be installed to the specified directory.

Specify a different directory or click **Browse** to select a different install location.

Product install location:
C:\Program Files\IBM\WebSphere\AppServer

Figure 5-10 Specifying the Installation Directory

8. In the Enable Administrative Security window, enter a user name and password (we used `wasadmin/passw0rd`, as shown in Figure 5-11 on page 91), and click **Next**.



Enable Administrative Security

Choose whether to enable adminstrative security. To enable security, specify a user name and password to login to the administrative tools. The administrative user is created in a repository within the Application Server. After installation finishes, you can add more users, groups, or external repositories.

☑ Enable administrative security.

User name: wasadmin

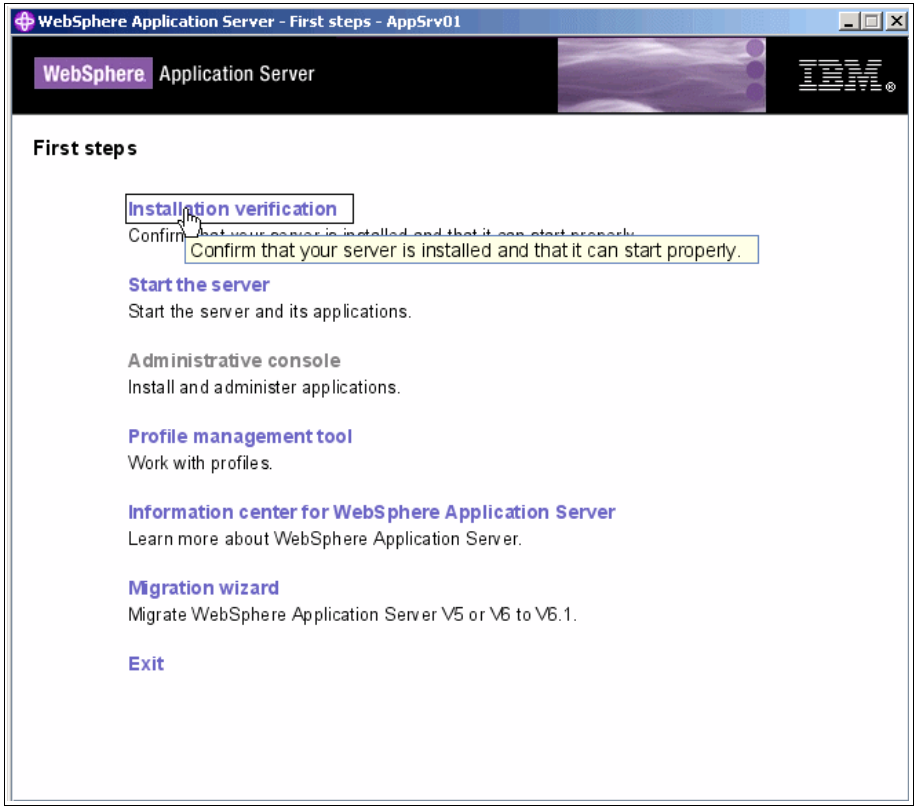
Password: ********

Confirm password: ********

See the Information Center for more information about administrative security.

Figure 5-11 Enable Administrative Security window

9. Click **Next** at the Installation Summary window to begin the installation.
10. Click **Finish** at the Installation Results window.
11. Next, the First steps window opens. While not required, it is a good practice to test that the installation was successful by clicking **Installation verification** as shown in Figure 5-12 on page 92, which displays the status of your installation.


WebSphere Application Server - First steps - AppSrv01

WebSphere Application Server

First steps

Installation verification
Confirm that your server is installed and that it can start properly.

Start the server
Start the server and its applications.

Administrative console
Install and administer applications.

Profile management tool
Work with profiles.

Information center for WebSphere Application Server
Learn more about WebSphere Application Server.

Migration wizard
Migrate WebSphere Application Server V5 or V6 to V6.1.

Exit

Figure 5-12 First steps window

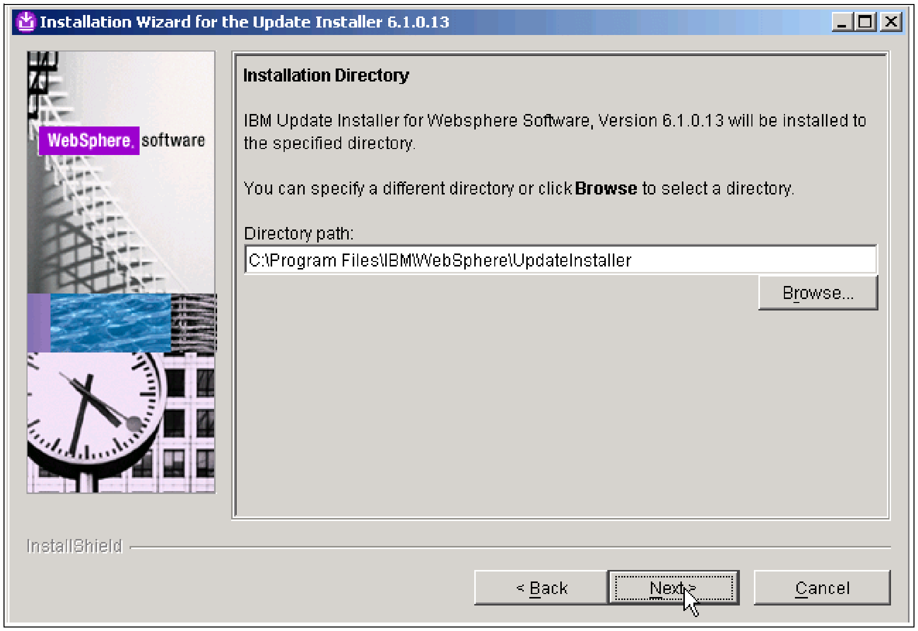
In the next phase, we install the WebSphere Update Installer, which is necessary to process any product updates.

5.1.3 Installing the WebSphere Update Installer

This section describes the steps needed to install the WebSphere Update Installer, which can be used to update both WebSphere and Identity Manager:

1. Start the installation by executing `%mediaroot%\install.exe`.
2. In the first window, click **Next** to continue.
3. In the License agreement window, accept the license, and click **Next**.
4. Click **Next** at the prerequisites check window (unless the window states that you do not meet the prerequisites, in which case, **Cancel** out of the installation and fulfill the prerequisites before starting again).

5. In the Installation Directory window, enter the desired directory path (we used the default `C:\Program Files\IBM\WebSphere\UpdateInstaller`), as shown in Figure 5-13, and click **Next**.



Installation Directory

IBM Update Installer for Websphere Software, Version 6.1.0.13 will be installed to the specified directory.

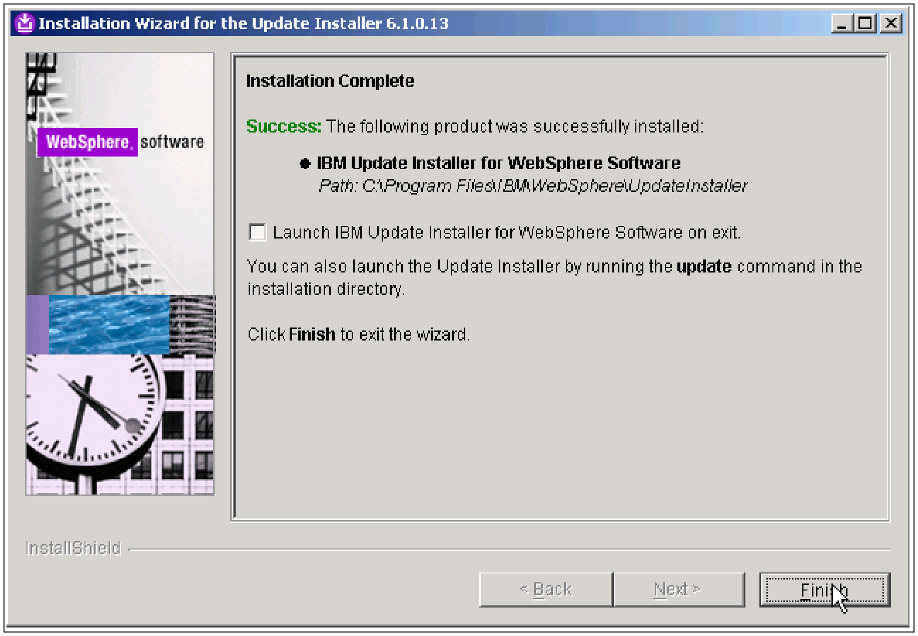
You can specify a different directory or click **Browse** to select a directory.

Directory path:
C:\Program Files\IBM\WebSphere\UpdateInstaller

Figure 5-13 Installation Directory window

6. Click **Next** at the Installation Summary window to begin the installation.

7. At the Installation Complete window, clear the **Launch IBM Update Installer for WebSphere Software on exit** box, as shown in Figure 5-14 on page 94, and click **Finish**.


Installation Wizard for the Update Installer 6.1.0.13

Installation Complete

Success: The following product was successfully installed:

- **IBM Update Installer for WebSphere Software**
  Path: C:\Program Files\IBM\WebSphere\UpdateInstaller

□ Launch IBM Update Installer for WebSphere Software on exit.

You can also launch the Update Installer by running the **update** command in the installation directory.

Click **Finish** to exit the wizard.

Figure 5-14 Installation Complete window

In the following section, we put the Update Installer into action by applying a WebSphere Application Server fix pack.

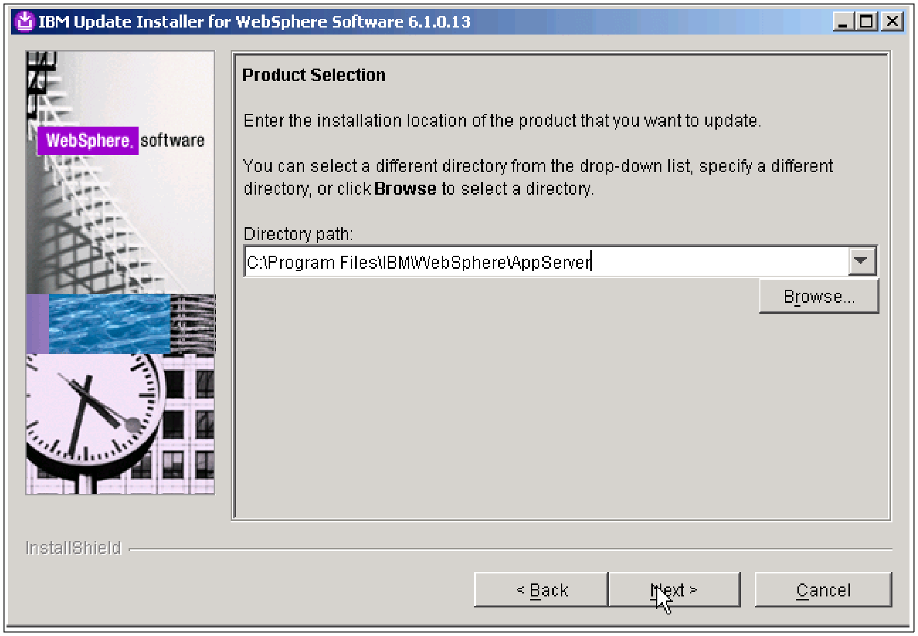
Updating WebSphere Application Server

This section describes the necessary steps to update WebSphere Application Server with a fix pack.

> **Note:** On Windows platforms, it is important to insure that all WebSphere-related programs are shut down before proceeding with the update. You can read more information about this task in Chapter 9, “Installing maintenance packages”, of the *WebSphere Application Server for Distributed Platforms, Version 6.1 Installing your application serving environment* manual, which you can get from:
>
> ftp://ftp.software.ibm.com/software/webserver/appserv/library/v61/wasv610base_gs.pdf
>
> A best practices approach to accomplish this step is by using the operating system’s Services console to set the IBM WebSphere Application Server V6.1 - tamcoitim1Node01 service to Manual and rebooting the machine. This action ensures that no WebSphere Application Server-related services are running before you install your fix pack.

To update WebSphere Application Server with a fix pack:

1. Start the update from **Start** → **All Programs** → **IBM WebSphere** → **Update Installer for WebSphere V6.1 Software** → **Update Installer**.
2. In the Welcome window, click **Next**.
3. In the Product Selection window, select the directory path of your WebSphere Application Server installation (we used `C:\Program Files\IBM\WebSphere\AppServer`), as shown in Figure 5-15, and click **Next**.



IBM Update Installer for WebSphere Software 6.1.0.13

Product Selection

Enter the installation location of the product that you want to update.

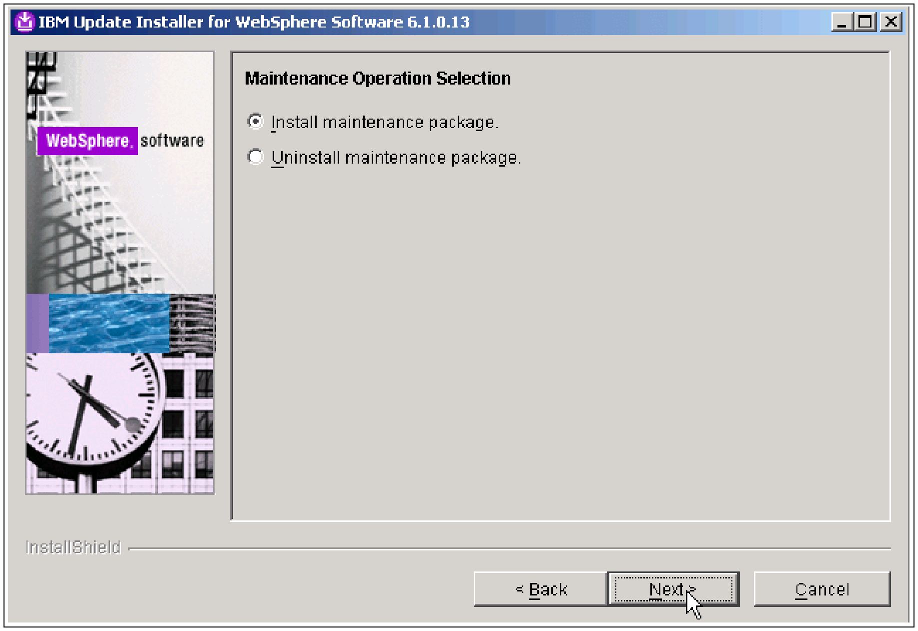
You can select a different directory from the drop-down list, specify a different directory, or click **Browse** to select a directory.

Directory path:

C:\Program Files\IBM\WebSphere\AppServer

Figure 5-15 Product Selection window

4. In the Maintenance Operation Selection window, select **Install maintenance package** and click **Next**, as shown in Figure 5-16 on page 96.



IBM Update Installer for WebSphere Software 6.1.0.13

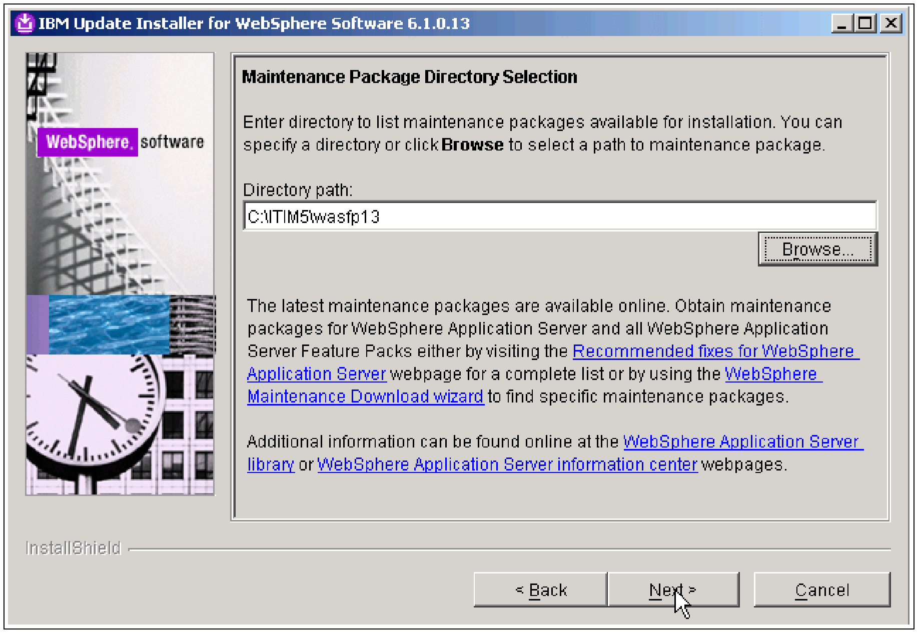
Maintenance Operation Selection

● Install maintenance package.

○ Uninstall maintenance package.

Figure 5-16   Maintenance Operation Selection window

5. In the Maintenance Package Directory Selection window, select the directory path where your WebSphere fix pack is stored (we used `c:\itim5\wasfp13`) and click **Next**, as shown in Figure 5-17 on page 97.



IBM Update Installer for WebSphere Software 6.1.0.13

Maintenance Package Directory Selection

Enter directory to list maintenance packages available for installation. You can specify a directory or click **Browse** to select a path to maintenance package.

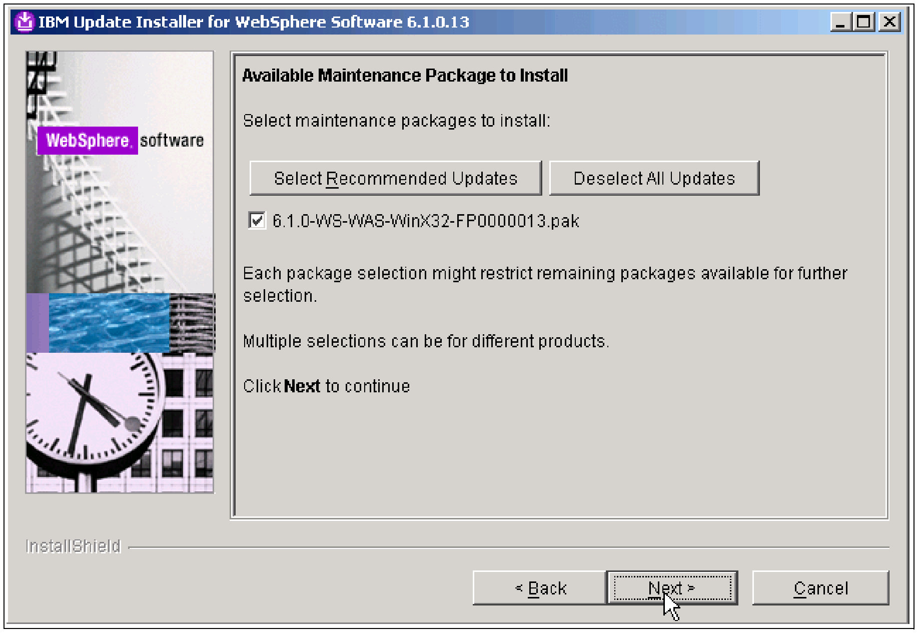
Directory path: C:\ITIM5\wasfp13

The latest maintenance packages are available online. Obtain maintenance packages for WebSphere Application Server and all WebSphere Application Server Feature Packs either by visiting the Recommended fixes for WebSphere Application Server webpage for a complete list or by using the WebSphere Maintenance Download wizard to find specific maintenance packages.

Additional information can be found online at the WebSphere Application Server library or WebSphere Application Server information center webpages.

Figure 5-17 Maintenance Package Directory Selection window

6. In the Available Maintenance Package to Install window, leave the WebSphere fix pack selected, deselect others (if any), and click **Next**, as shown in Figure 5-18 on page 98.



IBM Update Installer for WebSphere Software 6.1.0.13

Available Maintenance Package to Install

Select maintenance packages to install:

☑ 6.1.0-WS-WAS-WinX32-FP0000013.pak

Each package selection might restrict remaining packages available for further selection.

Multiple selections can be for different products.

Click **Next** to continue

Figure 5-18 Available Maintenance Package to Install window

a. Click **Next** at the Installation summary.

7. After the installation has completed, click **Finish**.

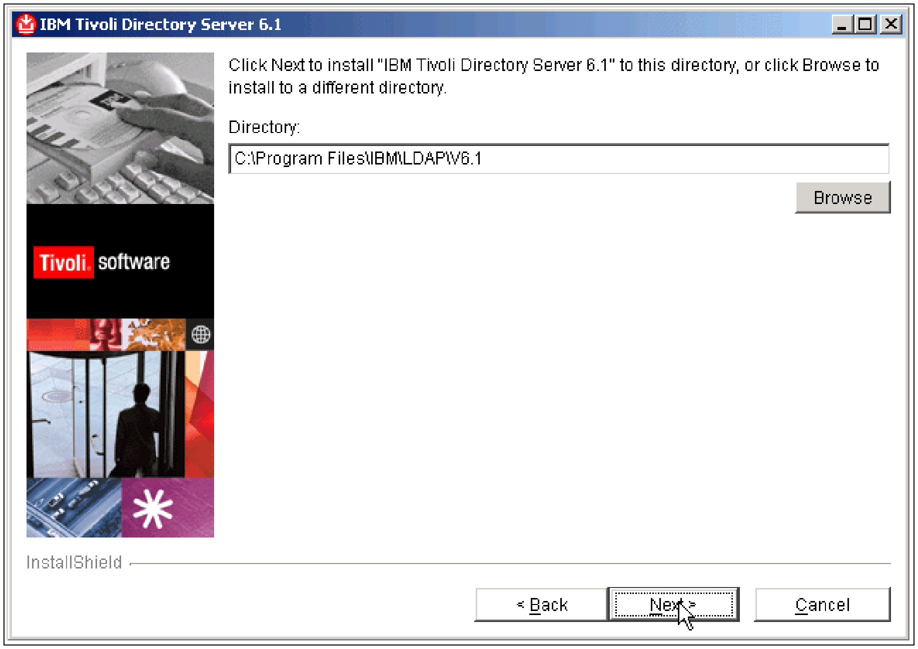
At this point, our application server installation is completed. In the next section, we install our directory server.

5.1.4 Installing Tivoli Directory Server

In this section, we describe the necessary steps to install Tivoli Directory Server:

1. To install Tivoli Directory Server, start the installation with **`<tds-media-path>\TDSV6.1\tds\install_tds.bat`**.
2. In the language selection, select your preferred installation language and click **OK**. We used the default (`English`).
3. In the Installer Welcome window, click **Next**.
4. In the License Agreement window, accept the license, and click **Next**.
5. The next window shows the applications that are already installed on your system. Click **Next** in this window.

6. In the installation directory selection window, type the directory in which you want Tivoli Directory Server to be installed (we used the default of `C:\Program Files\IBM\LDAP\V6.1`) and click **Next**, as shown in Figure 5-19.



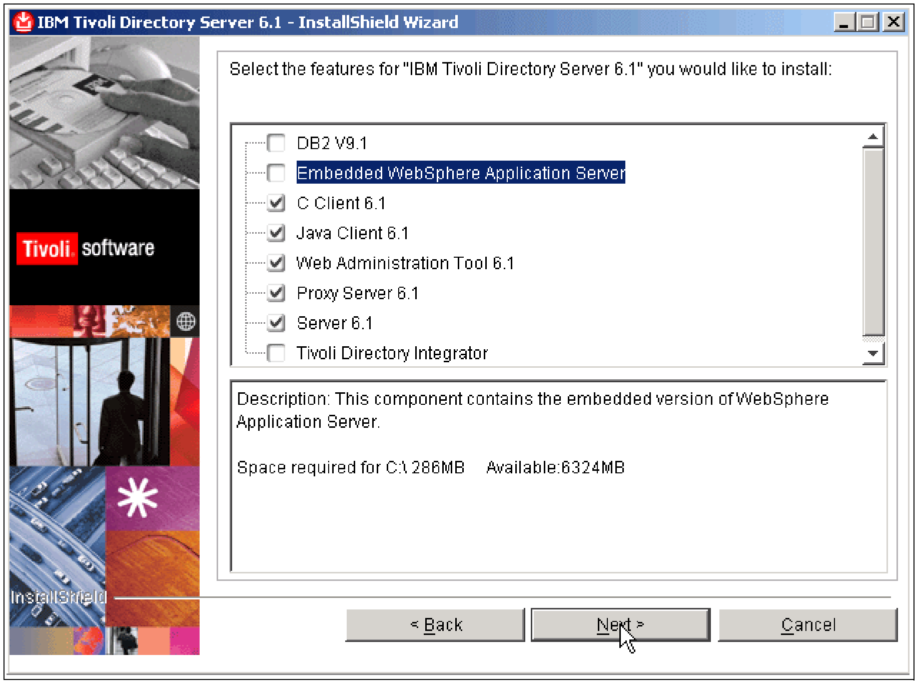
Click Next to install "IBM Tivoli Directory Server 6.1" to this directory, or click Browse to install to a different directory.

Directory: C:\Program Files\IBM\LDAP\V6.1

Figure 5-19 Specify the Tivoli Directory Server installation path

7. In the next window, select **Custom** as the installation type, and click **Next**.

8. In the next window, deselect **DB2**, **Embedded WebSphere Application Server**, and **Tivoli Directory Integrator**, and click **Next**, as shown in Figure 5-20 on page 100.



Select the features for "IBM Tivoli Directory Server 6.1" you would like to install:

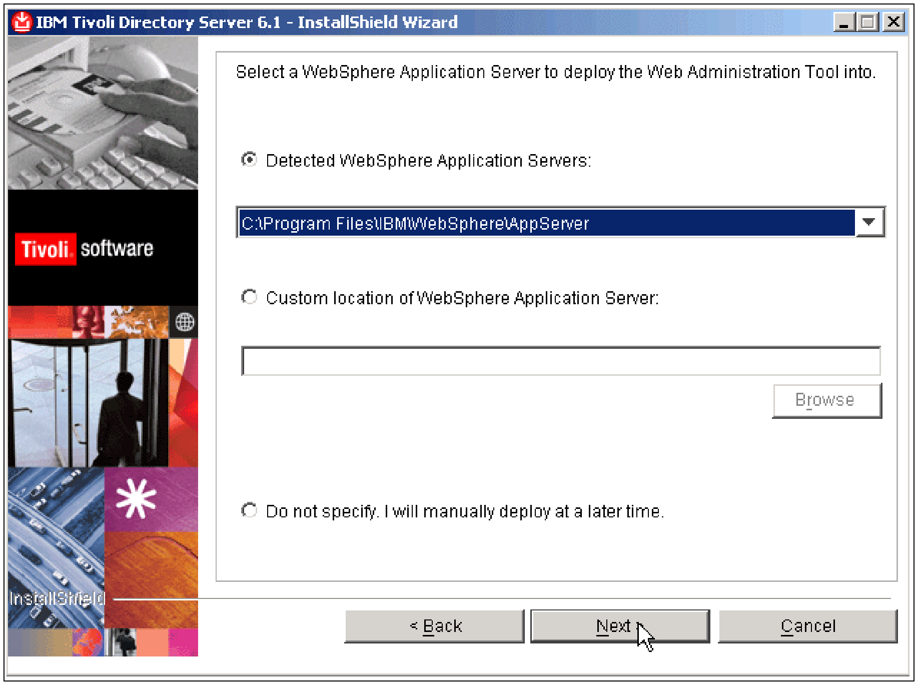
- □ DB2 V9.1
- □ Embedded WebSphere Application Server
- ☑ C Client 6.1
- ☑ Java Client 6.1
- ☑ Web Administration Tool 6.1
- ☑ Proxy Server 6.1
- ☑ Server 6.1
- □ Tivoli Directory Integrator

Description: This component contains the embedded version of WebSphere Application Server.

Space required for C:\ 286MB   Available:6324MB

Figure 5-20   Specify the Tivoli Directory Server components to install

9. Next, specify the WebSphere Application Server instance where the Web Administration Tool (the Web-based Tivoli Directory Server GUI) is to be deployed. Select the default detected instance and click **Next**, as shown in Figure 5-21 on page 101.



IBM Tivoli Directory Server 6.1 - InstallShield Wizard

Select a WebSphere Application Server to deploy the Web Administration Tool into.

● Detected WebSphere Application Servers:

C:\Program Files\IBM\WebSphere\AppServer

○ Custom location of WebSphere Application Server:

○ Do not specify. I will manually deploy at a later time.

Figure 5-21 Selecting where to deploy the Web Administration Tool

10. In the summary window, click **Install**.
11. When the installation completes, the Instance Administration Tool opens. Do not create an instance yet, just click **Close** → **Yes** to exit the tool and then click **Finish** to close the installation wizard.

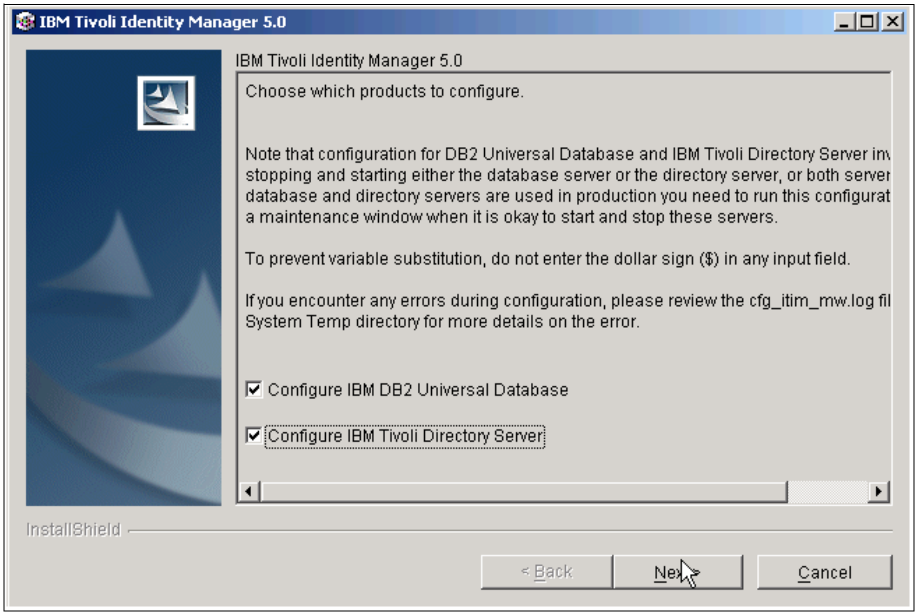
The Tivoli Directory Server is now installed. In the next section, we configure our middleware stack for the coming Tivoli Identity Manager installation.

5.1.5 Configuring middleware

In this section, we describe how to utilize the Identity Manager Middleware Configuration Wizard to configure your Database and Lightweight Directory Access Protocol (LDAP). You can also configure the components manually if you want (for performance tuning and so on), but the Middleware Configuration Wizard is faster and easier and suits most installations:

1. Start the configuration wizard by executing **`%mediaroot%\cfg_itim_mw.exe`**.
2. Select the language (we used the default, which is `English`) and click **OK**.

3. Next, select both **Configure IBM DB2 Universal Database** and **Configure IBM Tivoli Directory Server**, and click **Next**, as shown in Figure 5-22 on page 102.



IBM Tivoli Identity Manager 5.0

IBM Tivoli Identity Manager 5.0

Choose which products to configure.

Note that configuration for DB2 Universal Database and IBM Tivoli Directory Server inv
stopping and starting either the database server or the directory server, or both server
database and directory servers are used in production you need to run this configurat
a maintenance window when it is okay to start and stop these servers.

To prevent variable substitution, do not enter the dollar sign ($) in any input field.

If you encounter any errors during configuration, please review the cfg_itim_mw.log fil
System Temp directory for more details on the error.

☑ Configure IBM DB2 Universal Database

☑ Configure IBM Tivoli Directory Server

Figure 5-22 Choosing which products to configure

4. In the Database configuration options window, which is shown in Figure 5-23 on page 103, enter the following settings, and click **Next**:

   – DB2 Administrator ID: `db2admin`

   – Password: `passw0rd`

   – Password confirmation: `passw0rd`

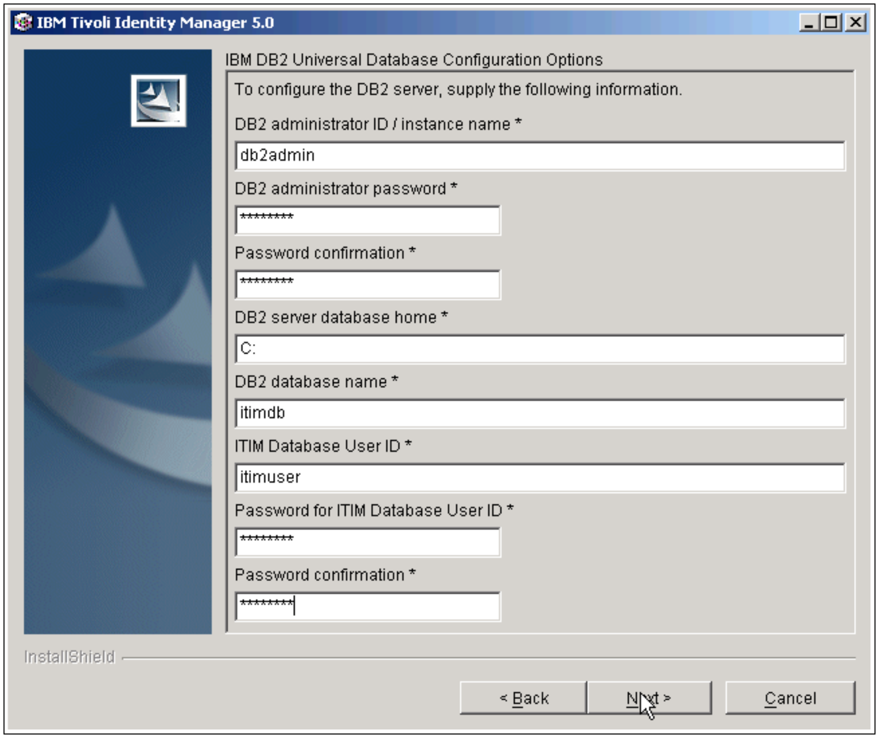
   – DB2 server database home: `c:`

   – DB2 database name: `itimdb`

   – ITIM Database User ID: `itimuser`

   – Password for ITIM Database User ID: `passw0rd`

   – Password confirmation: `passw0rd`



IBM DB2 Universal Database Configuration Options

To configure the DB2 server, supply the following information.

DB2 administrator ID / instance name * db2admin

DB2 administrator password * ********

Password confirmation * ********

DB2 server database home * C:

DB2 database name * itimdb

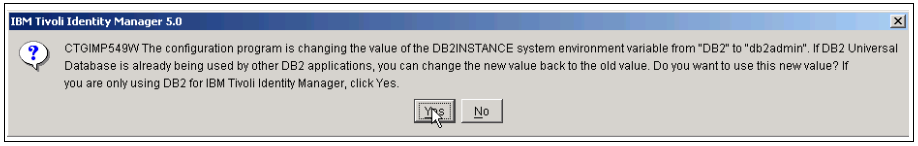
ITIM Database User ID * itimuser

Password for ITIM Database User ID * ********

Password confirmation * ********

Figure 5-23 DB2 Configuration Options

5. You will get a warning about the DB2INSTANCE system environment variable changing. Accept this warning by clicking **Yes**, as shown in Figure 5-24.

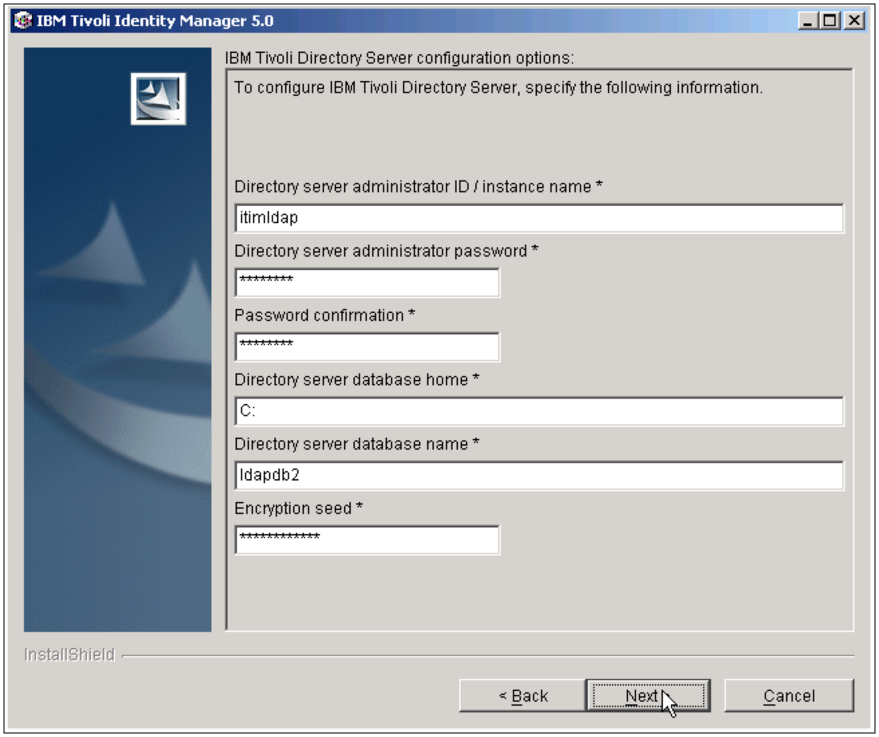


CTGIMP549W The configuration program is changing the value of the DB2INSTANCE system environment variable from "DB2" to "db2admin". If DB2 Universal Database is already being used by other DB2 applications, you can change the new value back to the old value. Do you want to use this new value? If you are only using DB2 for IBM Tivoli Identity Manager, click Yes.

Figure 5-24 Instance name change warning

6. In the Tivoli Directory Server configuration options, enter the following settings, as shown in Figure 5-25 on page 104, and click **Next**:
   - Directory Server administration ID / instance name: `itimldap`
   - Directory server administrator password: `passw0rd`
   - Password confirmation: `passw0rd`
   - Directory server database home: `c:`
   - Directory server database name: `itimdb`

– Encryption seed: `q1w2e3r4t5y6`



IBM Tivoli Identity Manager 5.0

IBM Tivoli Directory Server configuration options:

To configure IBM Tivoli Directory Server, specify the following information.

Directory server administrator ID / instance name *
itimldap

Directory server administrator password *
****

Password confirmation *
****

Directory server database home *
C:

Directory server database name *
ldapdb2

Encryption seed *
****

Figure 5-25 Tivoli Directory Server configuration options

7. In the next window, which is shown in Figure 5-26 on page 105, you have to provide more Tivoli Directory Server configuration options. Enter the following settings, and click **Next**:

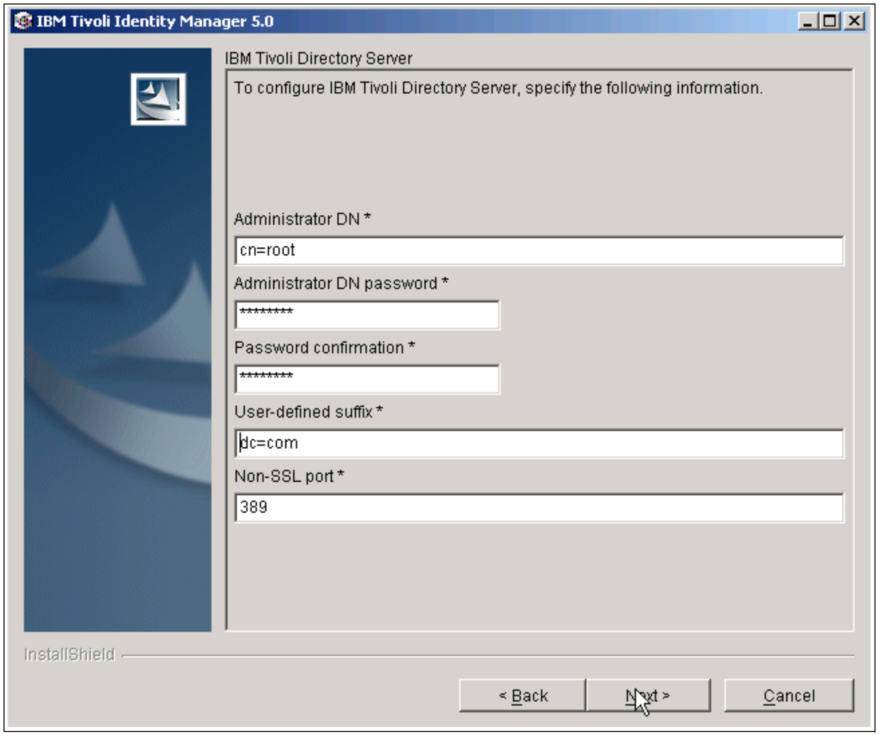
   – Administrator DN: `cn=root`

   – Administrator DN password: `passw0rd`

   – Password confirmation: `passw0rd`

   – User defined suffix: `dc=com`

   – Non-Secure Sockets Layer (SSL) port: `389`



To configure IBM Tivoli Directory Server, specify the following information.

Administrator DN *
cn=root

Administrator DN password *
****

Password confirmation *
****

User-defined suffix *
dc=com

Non-SSL port *
389

Figure 5-26 Tivoli Directory Server Configuration options, continued

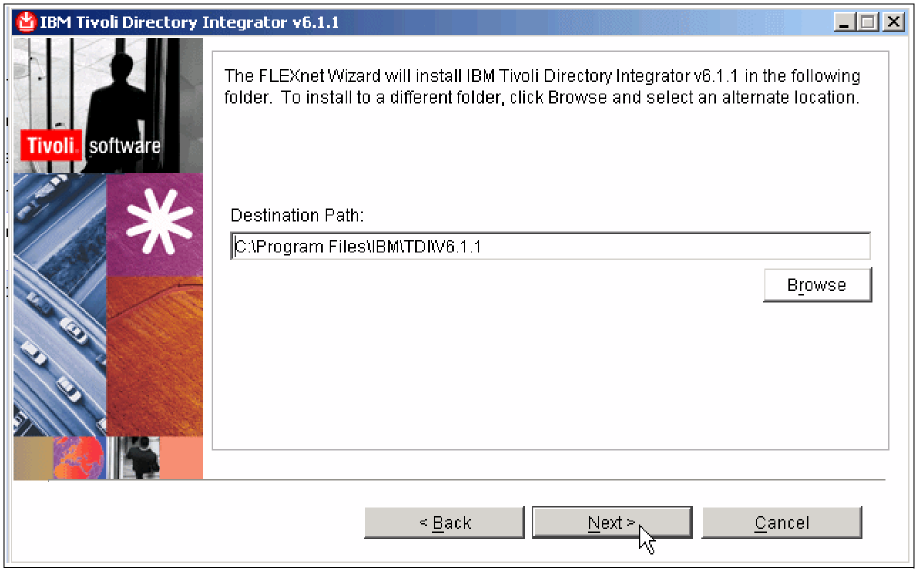
8. In the summary window, click **Next**.
9. After the configuration has completed, click **Finish** to exit the wizard.

Now, we are ready to install Tivoli Directory Integrator.

5.1.6 IBM Tivoli Directory Integrator Installation

In this section, we describe the installation of IBM Tivoli Directory Integrator:

1. Start the installation by executing **`%mediaroot%\launchpad.exe`**.
2. In the Launchpad, select **Install IBM Tivoli Directory Integrator** → **IBM Tivoli Directory Integrator 6.1.1 Installer**.
3. In the Welcome window, click **Next**.
4. In the License agreement window, accept the license, and click **Next**.
5. In the next window, select **Typical** as installation type, and click **Next**.
6. Then, set the installation destination path (we used the default, `c:\program files\ibm\tdi\v6.1.1`) and click **Next**, as shown in Figure 5-27 on page 106.



IBM Tivoli Directory Integrator v6.1.1

The FLEXnet Wizard will install IBM Tivoli Directory Integrator v6.1.1 in the following folder. To install to a different folder, click Browse and select an alternate location.

Destination Path: C:\Program Files\IBM\TDI\V6.1.1

Figure 5-27 Setting the ITDI Installation path

7. Enter the directory path in which Directory Integrator solution files will be stored by selecting **Use Install Directory** (though for the purposes of this installation, it does not matter which directory you select), and click **Next**.
8. In the summary window, click **Install**.
9. After the installation is complete, click **Finish** and close the Launchpad.

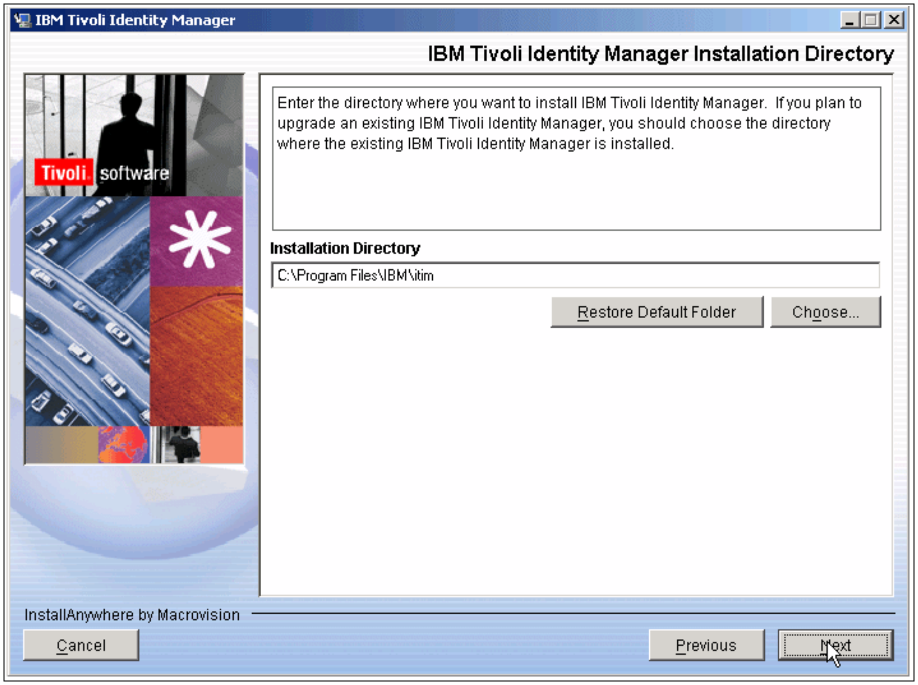
At this time, we are ready to install Tivoli Identity Manager (finally).

5.1.7 IBM Tivoli Identity Manager installation

In this section, we describe the necessary steps to install Identity Manager:

1. First, make sure that you have started all the required middleware applications: DB2 - DB2ADMIN instance, LDAP (Tivoli Directory Server), and WebSphere Application Server.
2. Start the Identity Manager installation by executing **`%mediaroot%\instwin.exe`**.
3. In the language selection window, select your preferred language for the installation (we used `English`) and click **OK**.
4. In the Software License Agreement window, accept the license, and click **Next**.

5. In the Installation Directory window, enter the installation directory path (we used the default of `c:\program files\ibm\itim`) and click **Next**, as shown in Figure 5-28.



IBM Tivoli Identity Manager Installation Directory

Enter the directory where you want to install IBM Tivoli Identity Manager. If you plan to upgrade an existing IBM Tivoli Identity Manager, you should choose the directory where the existing IBM Tivoli Identity Manager is installed.

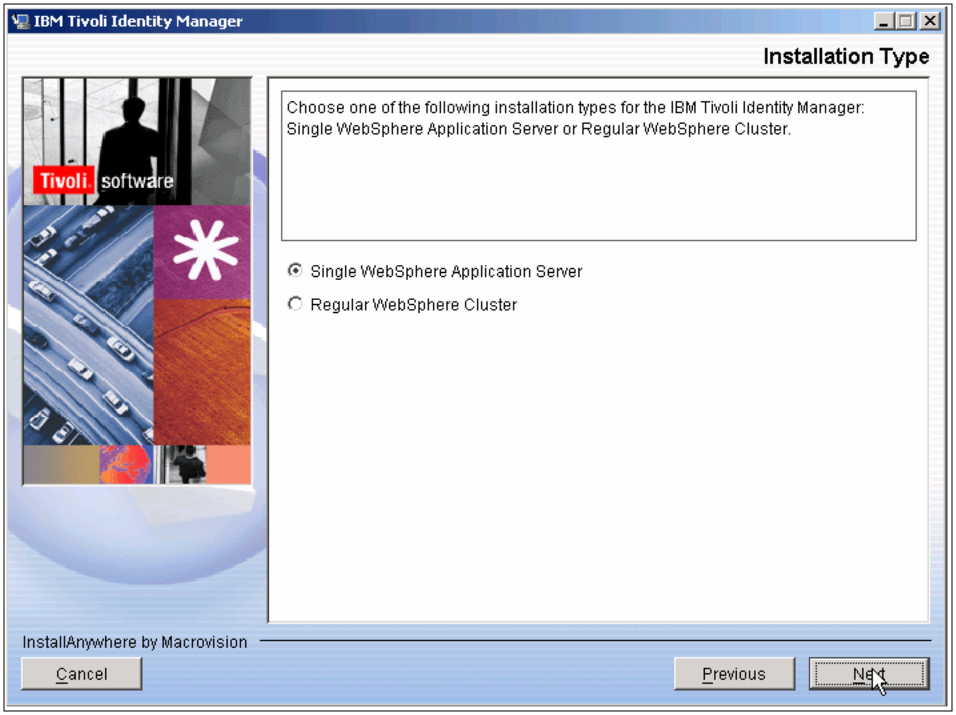
Installation Directory

C:\Program Files\IBM\itim

Restore Default Folder | Choose...

Figure 5-28 IBM Tivoli Identity Manager Installation Directory window

6. In the Installation Type window, select **Single WebSphere Application Server** and click **Next**, as shown in Figure 5-29 on page 108.



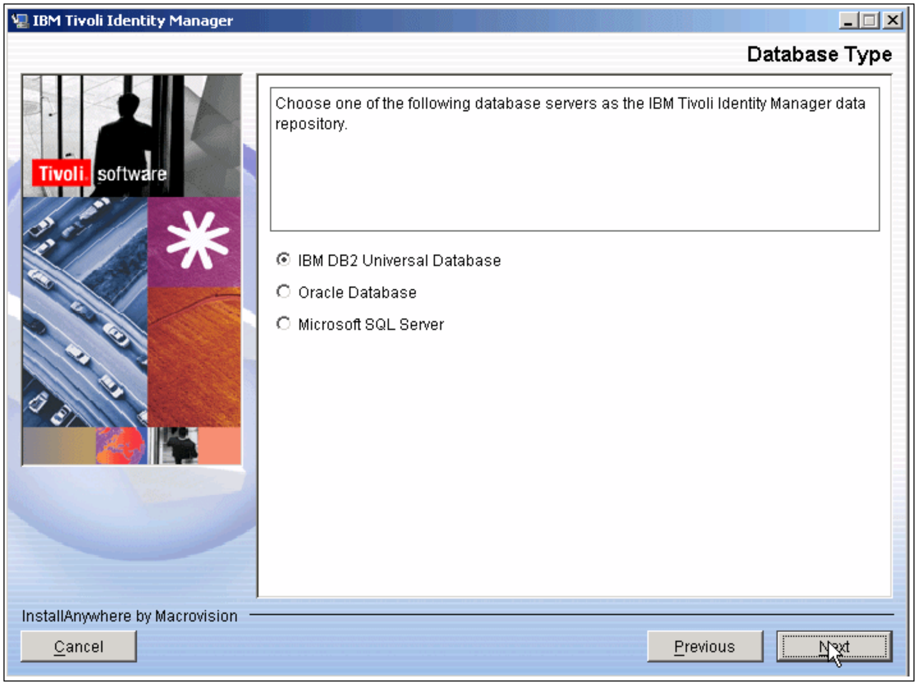
Choose one of the following installation types for the IBM Tivoli Identity Manager: Single WebSphere Application Server or Regular WebSphere Cluster.

● Single WebSphere Application Server

○ Regular WebSphere Cluster

Figure 5-29 Installation Type window

7. In the Database Type window, select **IBM DB2 Universal Database** and click **Next**, as shown in Figure 5-30 on page 109.



Choose one of the following database servers as the IBM Tivoli Identity Manager data repository.

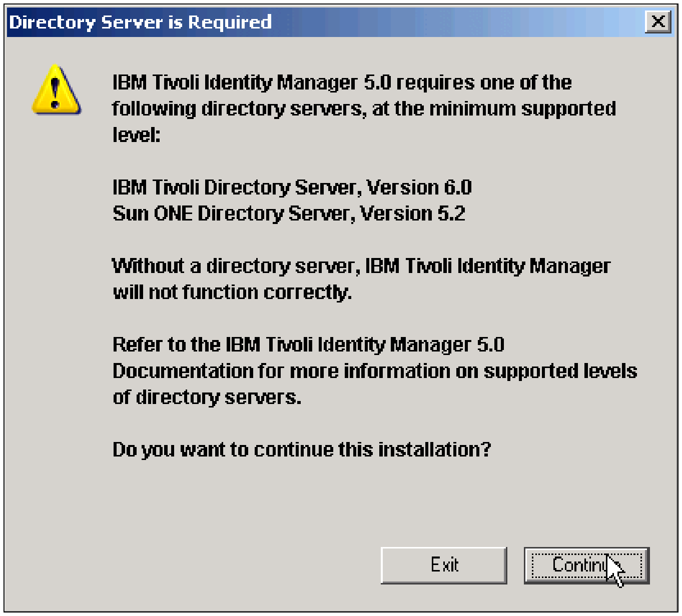
● IBM DB2 Universal Database

○ Oracle Database

○ Microsoft SQL Server

Figure 5-30 Database Type window

8. You might encounter a warning about supported Directory Server versions, as shown in Figure 5-31 on page 110. You can ignore it and click **Continue**.


Directory Server is Required

IBM Tivoli Identity Manager 5.0 requires one of the following directory servers, at the minimum supported level:

IBM Tivoli Directory Server, Version 6.0
Sun ONE Directory Server, Version 5.2

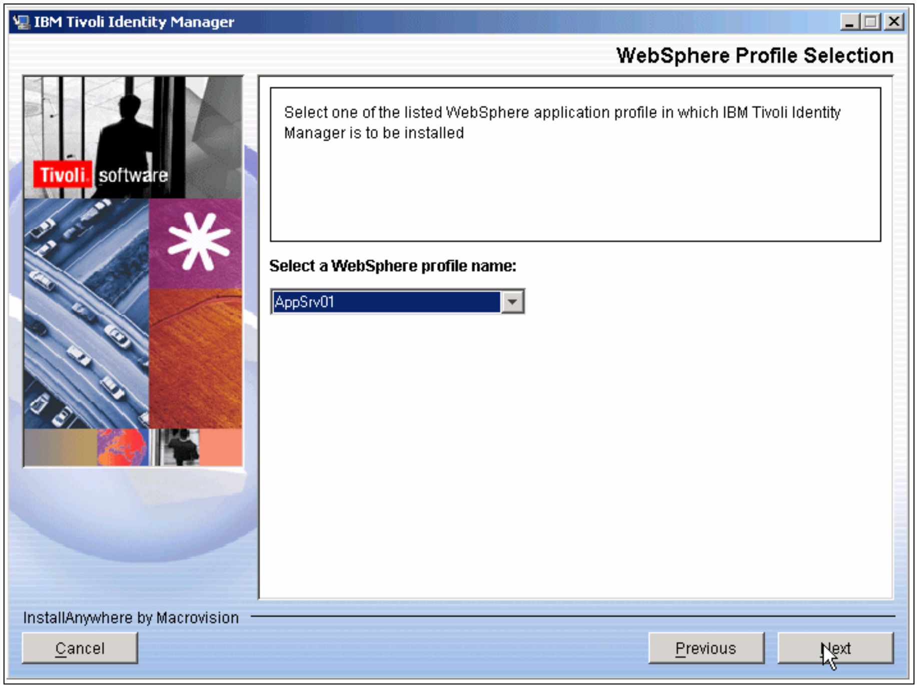
Without a directory server, IBM Tivoli Identity Manager will not function correctly.

Refer to the IBM Tivoli Identity Manager 5.0 Documentation for more information on supported levels of directory servers.

Do you want to continue this installation?

Figure 5-31 Directory Server type warning window

9. In the Installation Directory of WebSphere Application Server window, set the path to your WebSphere installation path (we used the default of `c:\program files\ibm\websphere\appserver`), and click **Next**.
10. In the WebSphere Profile Selection window, set the WebSphere profile name to the default of `AppSrv01`, and click **Next**, as shown in Figure 5-32 on page 111.


IBM Tivoli Identity Manager
WebSphere Profile Selection
Tivoli software

Select one of the listed WebSphere application profile in which IBM Tivoli Identity Manager is to be installed

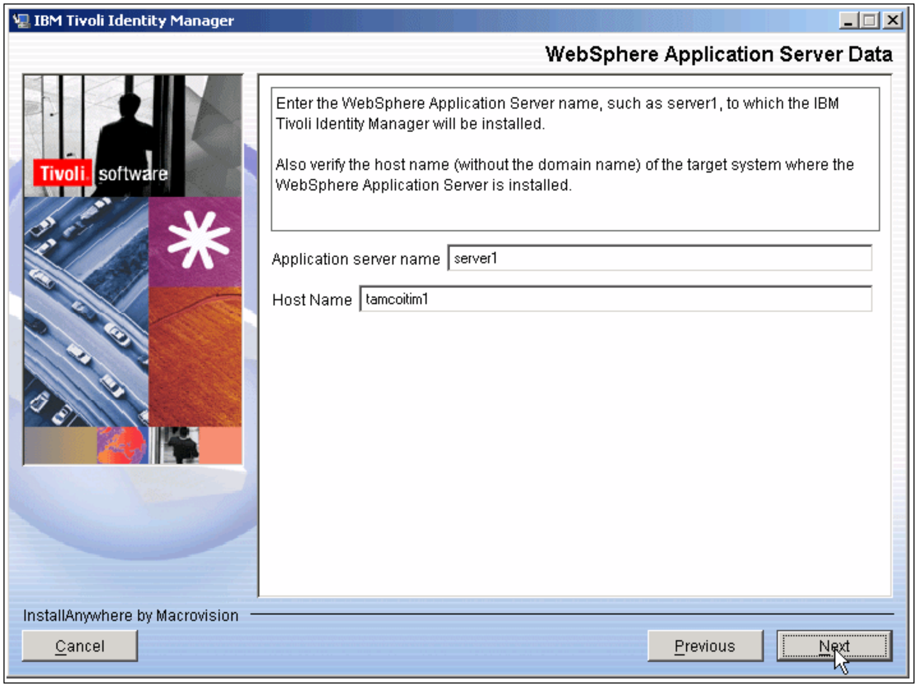
Select a WebSphere profile name: AppSrv01

InstallAnywhere by Macrovision
Cancel
Previous
Next

Figure 5-32 WebSphere Profile Selection window

11. In the WebSphere Application Server Data window, enter:
    - Application Server name: `server1`
    - Host Name: `tamcoitim1`

    Then, click **Next**, as shown in Figure 5-33 on page 112.



WebSphere Application Server Data

Enter the WebSphere Application Server name, such as server1, to which the IBM Tivoli Identity Manager will be installed.

Also verify the host name (without the domain name) of the target system where the WebSphere Application Server is installed.

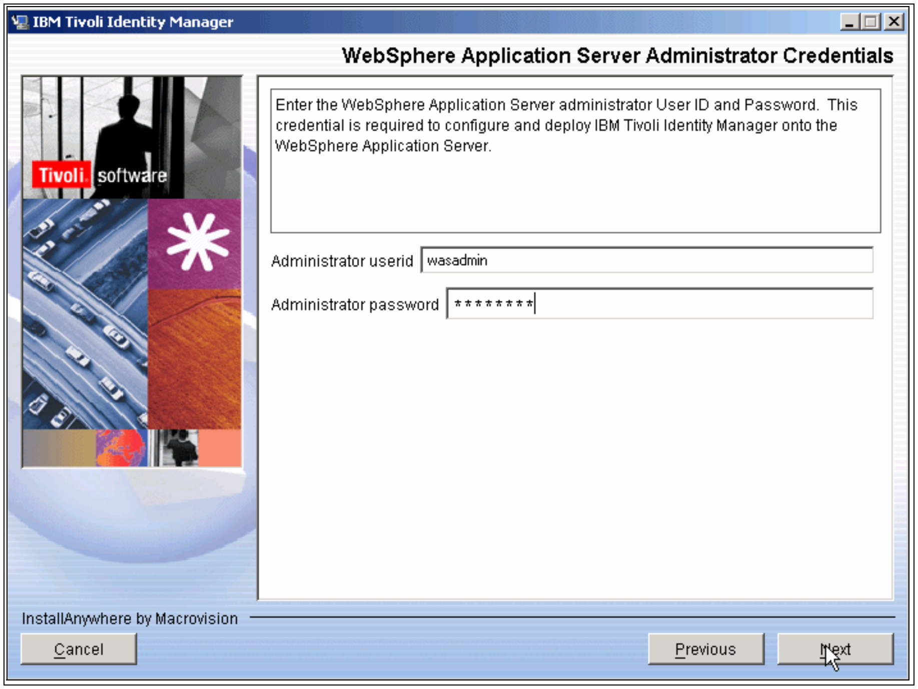
Application server name: server1

Host Name: tamcoitim1

Figure 5-33 WebSphere Application Server Data window

12. In the WebSphere Application Server Administrator Credentials window, enter:
    - Administrator userid: `wasadmin`
    - Administrator password: `passw0rd`

    Then, click **Next**, as shown in Figure 5-34 on page 113.



WebSphere Application Server Administrator Credentials

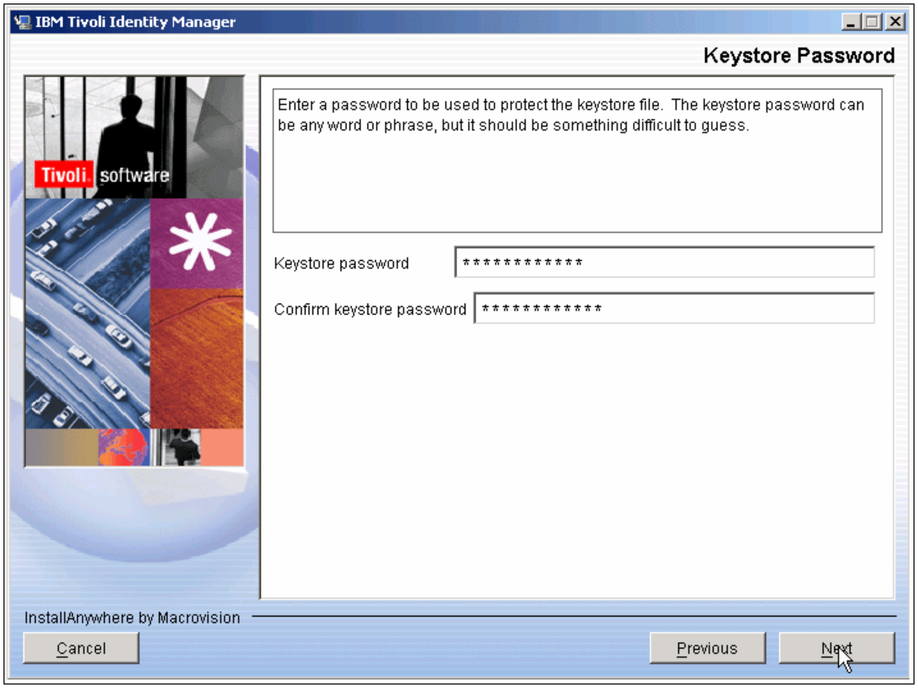
Enter the WebSphere Application Server administrator User ID and Password. This credential is required to configure and deploy IBM Tivoli Identity Manager onto the WebSphere Application Server.

Administrator userid: wasadmin

Administrator password: ********

Figure 5-34 WebSphere Application Server Administrator Credentials window

13. In the Keystore Password window, enter a keystore password (we used `q1w2e3r4t5y6`), and click **Next**, as shown in Figure 5-35 on page 114.



Enter a password to be used to protect the keystore file. The keystore password can be any word or phrase, but it should be something difficult to guess.

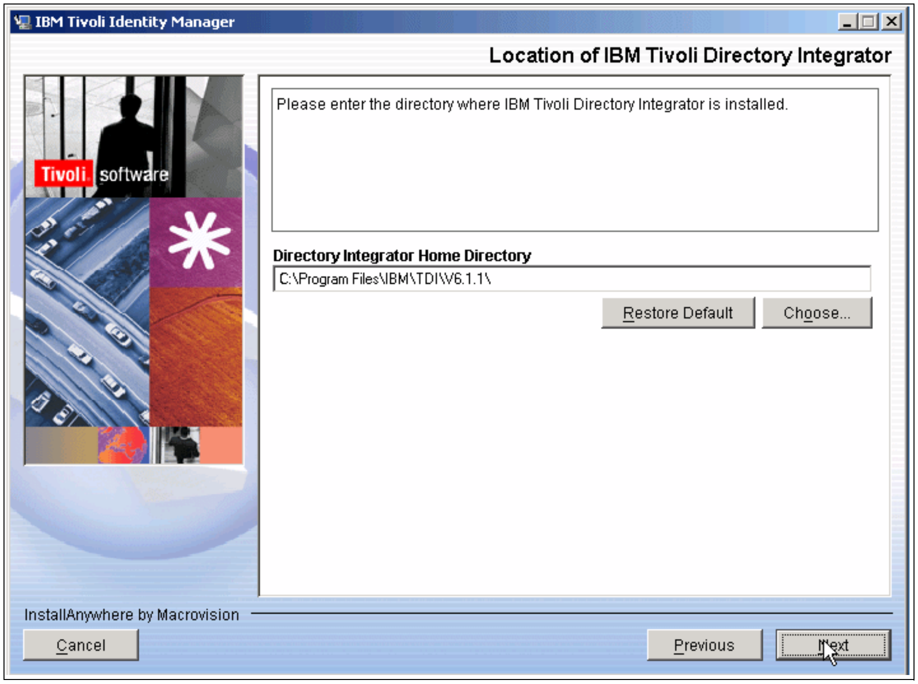
Keystore password ************

Confirm keystore password ************

Figure 5-35 Keystore Password window

14. In the next window, select **Install Agentless Adapters on IBM Tivoli Directory Integrator**, and click **Next**.

15. In the Location of IBM Tivoli Directory Integrator window, set the path where Tivoli Directory Integrator was installed (with the default, `C:\Program Files\IBM\TDI\V6.1.1\`), and click **Next**, as shown in Figure 5-36 on page 115.


IBM Tivoli Identity Manager
Location of IBM Tivoli Directory Integrator
Tivoli software

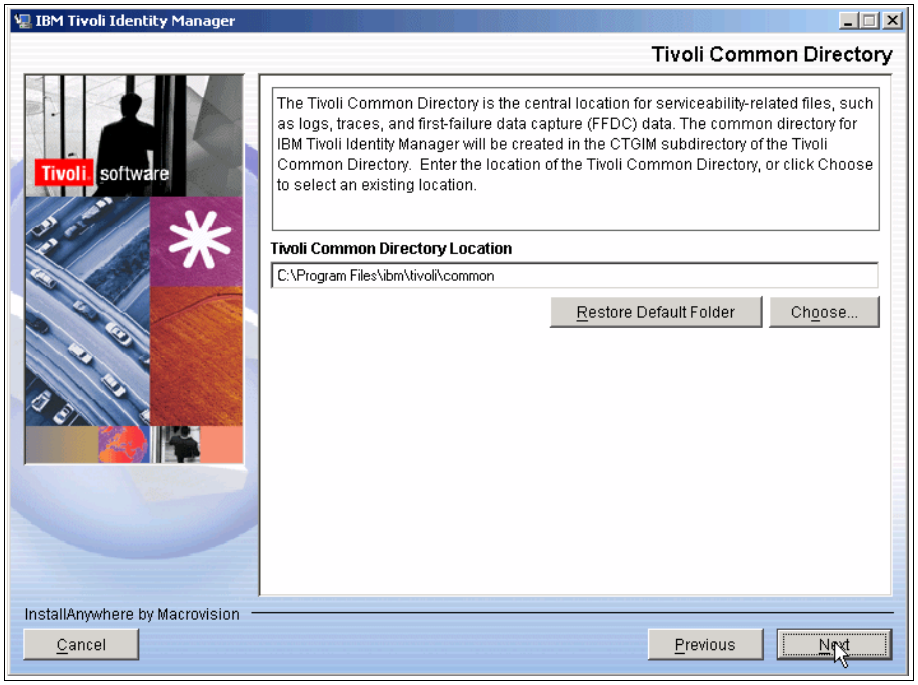
Please enter the directory where IBM Tivoli Directory Integrator is installed.

Directory Integrator Home Directory: C:\Program Files\IBM\TDI\V6.1.1\

Restore Default
Choose...
InstallAnywhere by Macrovision
Cancel
Previous
Next

Figure 5-36 Location of IBM Tivoli Directory Integrator

16. In the Tivoli Common Directory window, set the path to the default of `C:\Program Files\ibm\tivoli\common` and click **Next**, as shown in Figure 5-37 on page 116.



The Tivoli Common Directory is the central location for serviceability-related files, such as logs, traces, and first-failure data capture (FFDC) data. The common directory for IBM Tivoli Identity Manager will be created in the CTGIM subdirectory of the Tivoli Common Directory. Enter the location of the Tivoli Common Directory, or click Choose to select an existing location.

Tivoli Common Directory Location: C:\Program Files\ibm\tivoli\common

Figure 5-37 Tivoli Common Directory

17. In the Summary window, click **Install**.

18. In the IBM Tivoli Identity Manager Database Configuration window, enter the following information:

    – Host Name: `tamcoitim1`

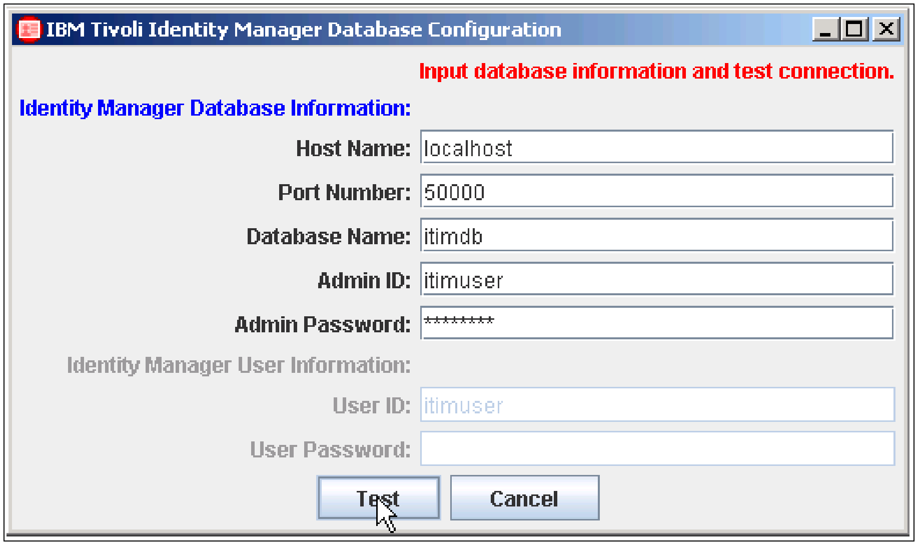
    – Port number: `50000`

    – Database name: `itimdb`

    – Admin ID: `itimuser`

    – Admin Password: `passw0rd`

    Click **Test**, as shown in Figure 5-38 on page 117.



IBM Tivoli Identity Manager Database Configuration

Input database information and test connection.

Identity Manager Database Information:

Host Name: localhost

Port Number: 50000

Database Name: itimdb

Admin ID: itimuser

Admin Password: ********

Identity Manager User Information:

User ID: itimuser

User Password:

Figure 5-38 IBM Tivoli Identity Manager Database Configuration window

If all of the information has been entered correctly, you get a pop-up window to that effect. Exit it by clicking **OK**.

19. Still in the Database Configuration window, under the Identity Manager User Information heading, set the user information as follows:

    – User ID: `itimuser`

    – User Password: `passw0rd`

    Click **Continue**.

20. In the IBM Tivoli Identity Manager Directory Configuration window, enter:

    – Principal DN: `cn=root`

    – Password: `passw0rd`

    – Host name: `tamcoitim1`

    – Port: `389`

    Click **Test**.

    If all of the information has been entered correctly, you get a pop-up window to that effect. Exit it by clicking **OK**.

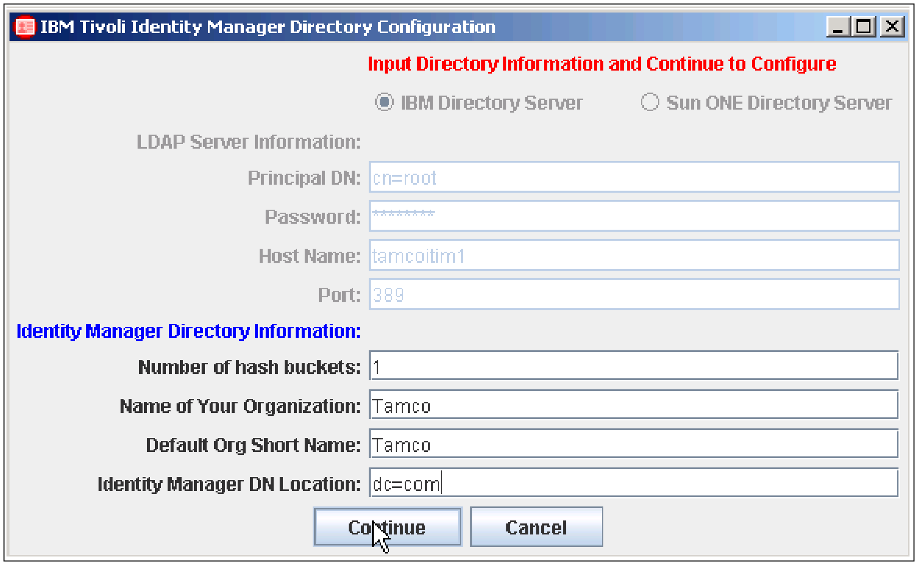
21. Still in the Directory Configuration window, under the Identity Manager Directory Information heading, enter:

    – Number of hash buckets: `1`

    – Name of your Organization: `Tamco`

- Default Org Short Name: `Tamco`
- Identity Manager DN location: `cn=root`

Click **Continue**, as shown in Figure 5-39.



IBM Tivoli Identity Manager Directory Configuration

Input Directory Information and Continue to Configure

● IBM Directory Server ○ Sun ONE Directory Server

LDAP Server Information:

Principal DN: cn=root

Password: ********

Host Name: tamcoitim1

Port: 389

Identity Manager Directory Information:

Number of hash buckets: 1

Name of Your Organization: Tamco

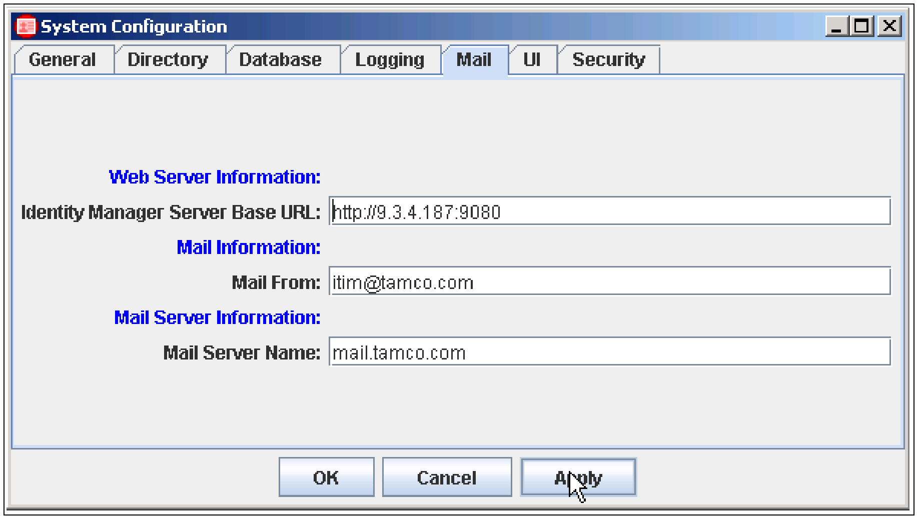
Default Org Short Name: Tamco

Identity Manager DN Location: dc=com

Figure 5-39 IBM Tivoli Identity Manager Directory Configuration window

22. Next, in the System Configuration window, in the Mail tab, enter:
    - Identity Manager Server Base URL: `http://<ipaddr/host name>:9080`
    - Mail from: `itim@tamco.com`
    - Mail Server Name: `mail.tamco.com`

    This window is shown in Figure 5-40 on page 119.



Web Server Information:

Identity Manager Server Base URL: http://9.3.4.187:9080

Mail Information:

Mail From: itim@tamco.com

Mail Server Information:

Mail Server Name: mail.tamco.com

Figure 5-40 System Configuration window

Now, click **Apply**, wait for the process to finish (this process is indicated by the mouse cursor being an hourglass, and it might take more than 10 minutes), then click **OK**.

> **Note:** If you do not have a Simple Mail Transfer Protocol (SMTP) server capable of receiving and sending anonymous SMTP messages, do not configure the mail server name, or use a placeholder, such as `null@null.com`. The latter option allows you to create configurations in Identity Manager that send out e-mail, then check the Identity Manager logs to see it is indeed trying to send them, because the e-mail send error message mentions the server name.

23. After the installer is finished, click **Done.**

IBM Tivoli Identity Manager is now installed.

5.1.8 Identity Manager initial login

To log in to Identify Manager:

1. Open a browser on the Identity Manager server, and enter in the address field:

   ```
   http://localhost/enrole
   ```

   If this action does not work, restart the IBM HTTP Server service.

2. Log in with the username/password: `itim manager/secret`.

   After the first login, you are notified that your password is expired and must be changed.

3. Enter the old password (the default after a fresh installation is always secret), and enter the new password twice.

4. Click **Submit**.

5. A pop-up window appears saying that you have successfully changed the password. Click **OK** to acknowledge this message.

5.2 Identity Manager Adapter installation

You are required to install the following components in order to support provisioning to Active Directory and Domino:

- Identity Manager Adapter for Active Directory
- Identity Manager Access Manager Combo Adapter
- Identity Manager Adapter for Domino

5.2.1 Installing the Active Directory Adapter

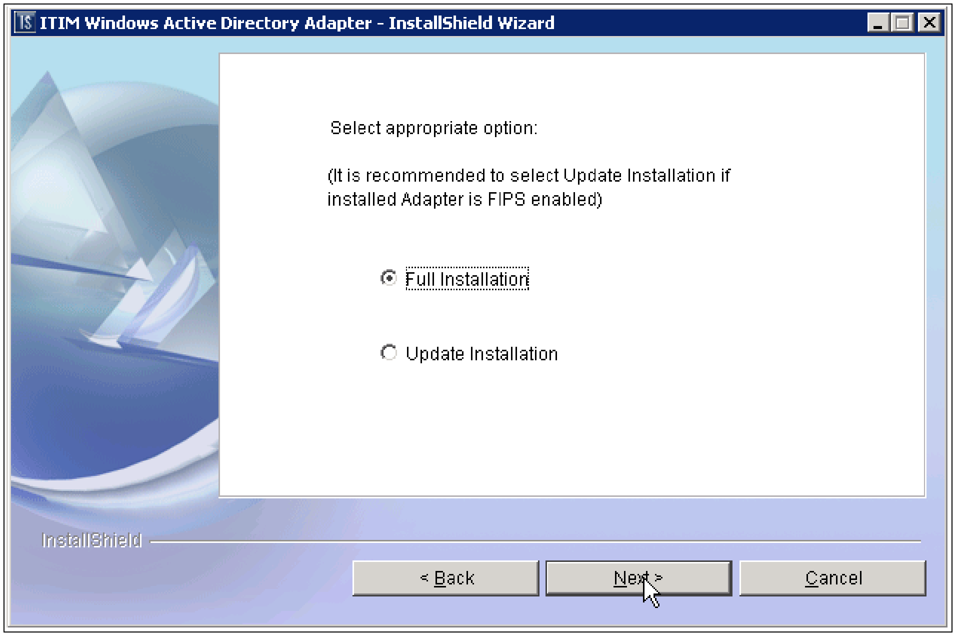
The steps needed to install the Active Directory Adapter are:

1. Start the installation by executing **`%mediaroot%\setup.exe`**.

2. In the Welcome window, click **Next**.

3. In the License agreement window, accept the license, and click **Next**.

4. In the next window, when asked to specify installation type, select **Full Installation**, and click **Next**, as shown in Figure 5-41 on page 121.


ITIM Windows Active Directory Adapter - InstallShield Wizard

Select appropriate option:

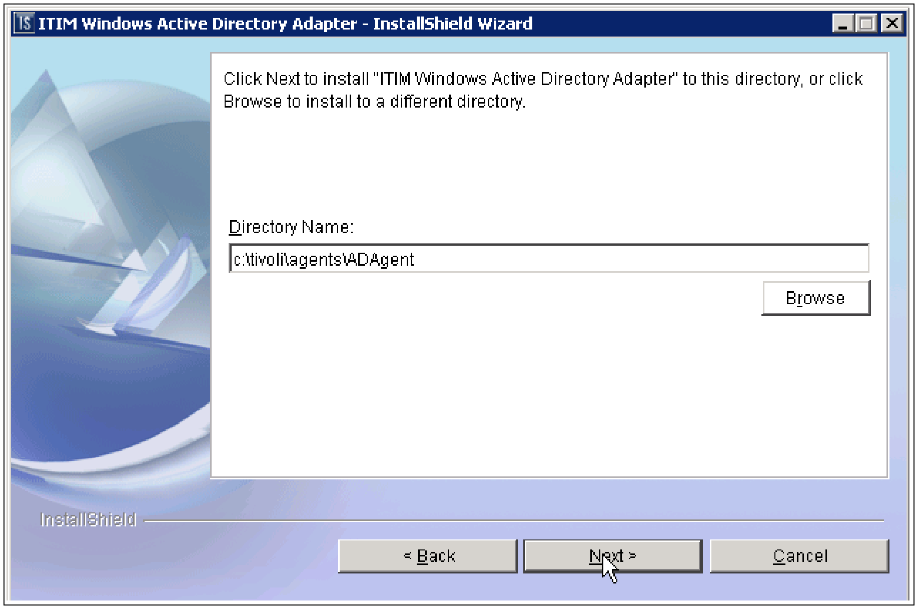
(It is recommended to select Update Installation if installed Adapter is FIPS enabled)

● Full Installation

○ Update Installation

Figure 5-41 Selecting the installation type

5. When asked for an installation path, leave the default of `c:\tivoli\agents\ADAgent` and click **Next,** as shown in Figure 5-42 on page 122.


ITIM Windows Active Directory Adapter - InstallShield Wizard

Click Next to install "ITIM Windows Active Directory Adapter" to this directory, or click Browse to install to a different directory.

Directory Name: c:\tivoli\agents\ADAgent

Browse
InstallShield
< Back
Next >
Cancel

Figure 5-42 Specifying the installation path

6. In the summary window, click **Install**.
7. After installation is complete, click **Finish**.

The Active Directory Adapter installation is now complete.

Changing the Adapter connection password

The adapter uses a username/password combination to verify the authenticity of incoming requests. The defaults are `agent/agent`, but you must change these defaults. Here, we describe how to change the password.

Open a command line window and perform the following steps:

1. Enter the command: **`cd \tivoli\agents\ADAgent\bin`**.
2. Enter the command: **`agentcfg -agent adagent`**.
3. When prompted for a password, enter `agent`.
4. This action will open a menu. Select **B** to start Protocol Configuration.
5. Then, select **C** to Configure Protocol and **A** to specify DAML as the protocol to configure.
6. In the DAML Protocol Properties menu, select **B** to change the password. We used the value `passw0rd`.

7. Exit the configuration program by pressing the **X** key until you are back in the command prompt.
8. Go to the operating system's Services console and restart the Tivoli Active Directory Agent service.

Next, we install the Tivoli Access Manager Adapter.

5.2.2 Installing the Tivoli Access Manager Combo Adapter

The Access Manager Combo Adapter is a Directory Integrator-based Remote Method Invocation (RMI) adapter, so instead of being installed on the target system, it is installed on the Tivoli Directory Integrator server, which we installed in 5.1.6, "IBM Tivoli Directory Integrator Installation" on page 105. These installation instructions assume that Access Manager 6.0 is being used.

The installation consists of four stages:

- Install the Java 1.42 Runtime.
- Install the Access Manager Java Runtime.
- Configure the Access Manager Java Runtime.
- Install the Dispatcher.

In this section, we show the steps that are required to install the Tivoli Access Manager Combo Adapter.

Installing Java 1.42 Runtime

Before the Access Manager Java Runtime can be installed, Java 1.42 must be installed on the system, if it does not already exist. These are the steps needed:

1. Start the Java installation by running the command **`%mediaroot%\windows\JDK\ibm-java2-sdk-142.exe`** from the Tivoli Access Manager installation media.

   Note: Use the Tivoli Access Manager Base media, not the Adapter media.

2. In the language selection window, select the preferred language (we used `English`), and click **OK**.
3. In the Welcome window, click **Next**.
4. In the License agreement window. click **Yes** to accept the license terms and proceed.
5. In the Choose Destination Location window, set the installation target path (we used the default of `c:\program file\ibm\java142`), and click **Next.**

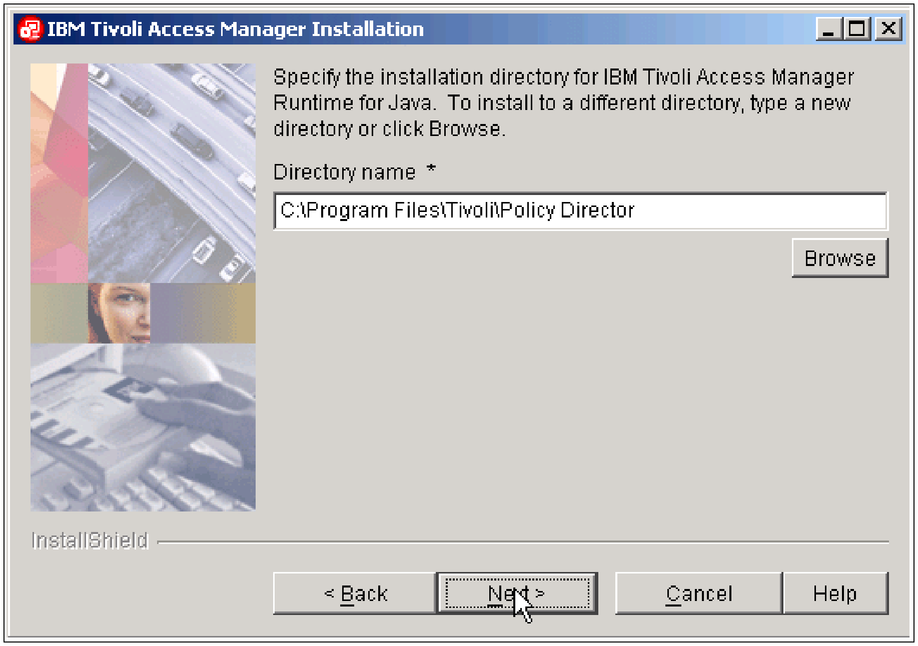
6. In the Setup Type window, select **Typical** as the setup type, and click **Next.**
7. Next, a pop-up menu will ask if you want to install this Java Runtime Environment as the System JVM. Select **No** to proceed.
8. In the summary window, click **Next**.
9. After the installation completes, click **Finish**.

Java 1.42 Runtime is now installed. Next, we install the Tivoli Access Manager Java Runtime.

Installing the Access Manager Java Runtime

Complete the following steps to install the Runtime:

1. Start the Access Manager Java Runtime installation with the command **`%mediaroot%\am_jrte_setup.exe`**.
2. In the language selection window, select the preferred language (we used `English`) and click **OK**.
3. In the Welcome window, click **Next**.
4. In the License agreement window, accept the license terms, and click **Next**.
5. In the next window, specify the installation directory for the Runtime (we used the default of `c:\program files\tivoli\policy director`) and click **Next**, as shown in Figure 5-43 on page 125.



IBM Tivoli Access Manager Installation

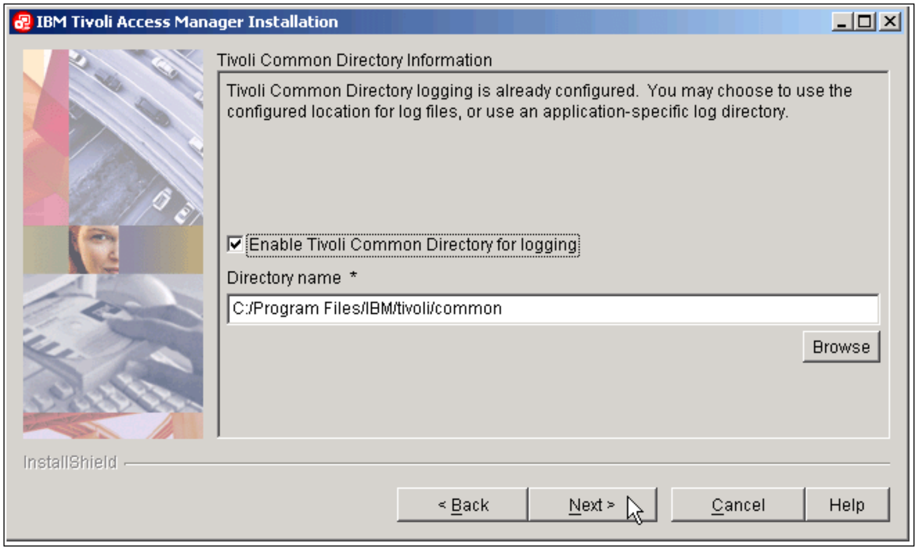
Specify the installation directory for IBM Tivoli Access Manager Runtime for Java. To install to a different directory, type a new directory or click Browse.

Directory name *

C:\Program Files\Tivoli\Policy Director

Figure 5-43 Specifying the Runtime installation path

6. In the Tivoli Common Directory Information window, select **Enable Tivoli Common Directory for logging** and specify the path for the common directory (we used the default of `c:/program files/ibm/tivoli/common`), as shown in Figure 5-44 on page 126. Then, click **Next**.


IBM Tivoli Access Manager Installation

Tivoli Common Directory Information

Tivoli Common Directory logging is already configured. You may choose to use the configured location for log files, or use an application-specific log directory.

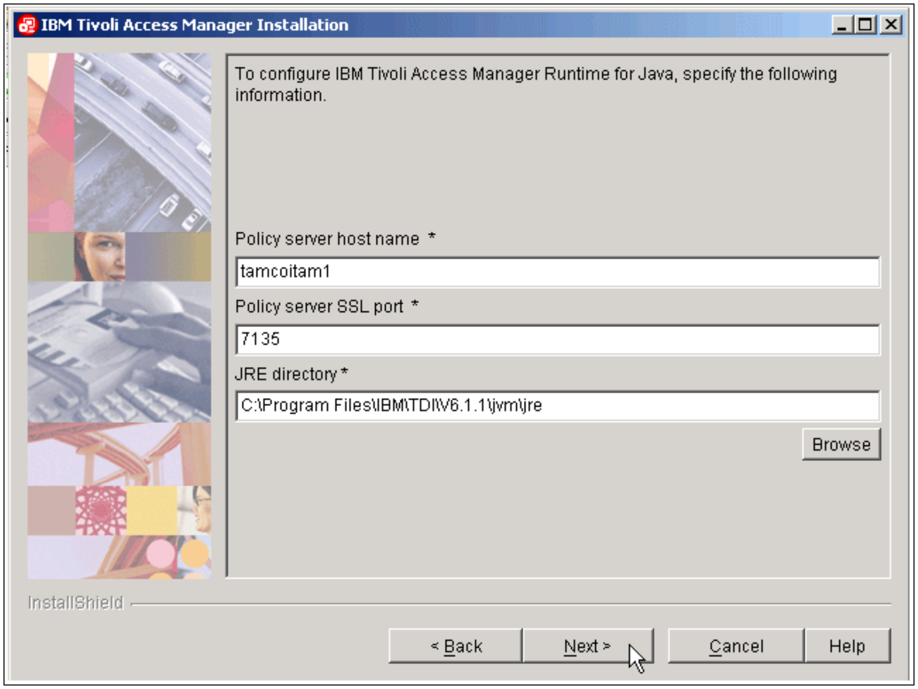
☑ Enable Tivoli Common Directory for logging

Directory name *

C:/Program Files/IBM/tivoli/common

Figure 5-44 Tivoli Common Directory Information window

7. In the next window, specify the Runtime configuration information:
   - Policy server host name: `tamcoitam1`
   - Policy server SSL port: `7135`
   - Java Runtime Environment (JRE) directory: `C:\Program Files\IBM\TDI\V6.1.1\jvm\jre`
8. Then, click **Next** to proceed, as shown in Figure 5-45 on page 127.



To configure IBM Tivoli Access Manager Runtime for Java, specify the following information.

Policy server host name * tamcoitam1

Policy server SSL port * 7135

JRE directory * C:\Program Files\IBM\TDI\V6.1.1\jvm\jre

Figure 5-45 Specifying Runtime configuration information

9. In the diskspace check window, verify that you have enough diskspace for the installation, and click **Next**.
10. In the summary window, click **Next**.
11. When the installation is complete, click **Finish**.

The Tivoli Access Manager Java Runtime is now installed. Next, we configure it.

Configuring the Access Manager Java Runtime

Before the Tivoli Directory Integrator can talk to the Tivoli Access Manager secure domain, the Java Runtime must configured and an application must be created inside the Tivoli Access Manager domain.

To configure the Tivoli Directory Integrator Application into the Access Manager domain, run the following command, which is shown in Example 5-1 on page 128.

Example 5-1 Command to configure the Tivoli Directory Integrator Application

```
C:\progra~1\IBM\TDI\V6.1.1\jvm\jre\bin\java -cp
C:\progra~1\tivoli\policy~1\java\export\pdjrte\PD.jar
com.tivoli.pd.jcfg.SvrSslCfg -action config -admin_id sec_master -admin_pwd
passw0rd -appsvr_id itdi_tam -port 1234 -mode remote -policysvr
tamcoitam1:7135:1 -authzsvr tamcoitam1:7136:1 -cfg_file
C:\progra~1\IBM\TDI\V6.1.1\timsol\PDCfgFile.conf -key_file
C:\progra~1\IBM\TDI\V6.1.1\timsol\PDKeyFile.ks
```

> **Note:** The previous command is based on the default settings that were used in this installation. For explanations of each of the switches, refer to the *IBM Tivoli Identity Manager Tivoli Access Manager Combo Adapter Installation and Configuration Guide Version 5.0*, GC23-8805.

The Access Manager Java Runtime is now configured. Next, we install the Dispatcher.

Installing the Dispatcher

If you did not install the Agentless Adapters during Identity Manager installation, you must now install a Remote Method Invocation (RMI) Dispatcher. However, even if you did install the Agentless Adapters, it is a good idea to run the Dispatcher installation, because it will perform upgrades, if needed.

Perform the following steps to install the Dispatcher:

1. Start the installation with the command **`%mediaroot%\DispatcherInstall_win.exe`**.
2. In the Welcome window, click **Next.**
3. In the License agreement window. accept the license terms, and click **Next**.
4. The next window notifies you of any upgrades that will be performed. Click **Next**.
5. In the Summary window, click **Install**.
6. After the installation, click **Finish**.

The Dispatcher is now installed and, if necessary, updated.

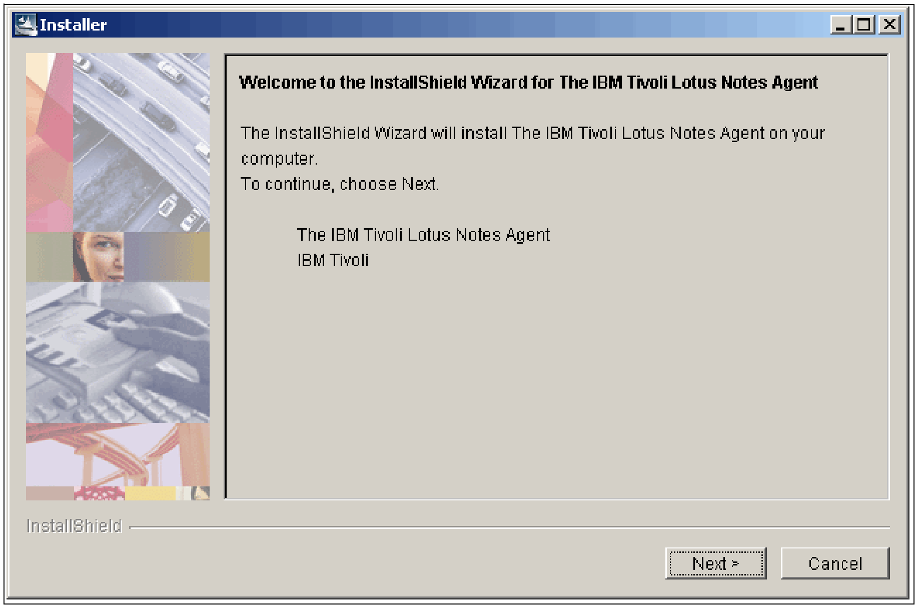
5.2.3 Installing the Identity Manager Domino Adapter

In this section, we show the Identity Manager Adapter for Lotus Domino installation step-by-step.

The Identity Manager Domino Adapter needs to be installed on a system where a Notes Client is available.

The steps to install the Identity Manager Domino Adapter are:

1. Locate the **`setup.exe`** for the Lotus Domino Adapter installation and execute it.
2. Proceed by selecting **Next** on the Welcome window.



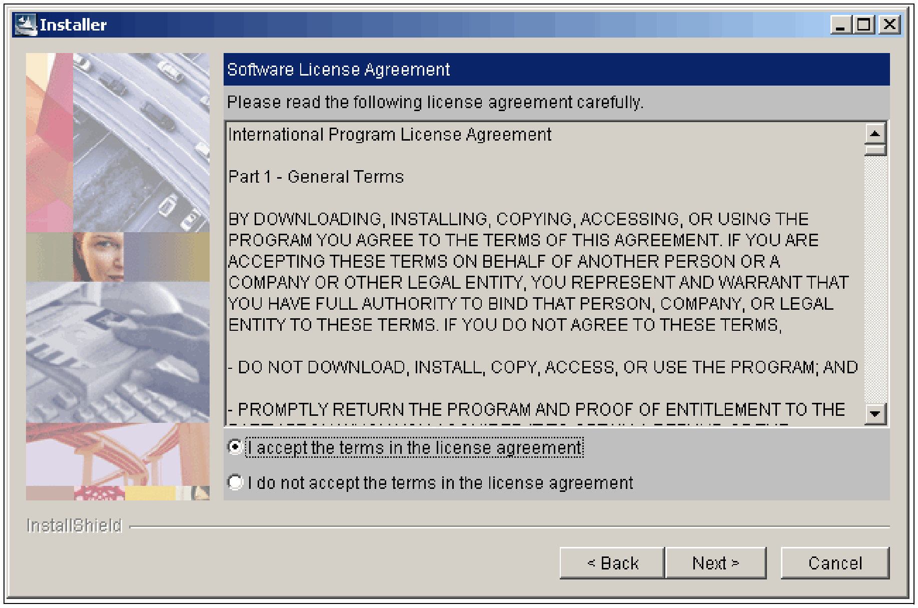
Welcome to the InstallShield Wizard for The IBM Tivoli Lotus Notes Agent

The InstallShield Wizard will install The IBM Tivoli Lotus Notes Agent on your computer.
To continue, choose Next.

The IBM Tivoli Lotus Notes Agent
IBM Tivoli

Figure 5-46 Welcome window

3. Accept the Software License Agreement terms, and select **Next**.



Software License Agreement

Please read the following license agreement carefully.

International Program License Agreement

Part 1 - General Terms

BY DOWNLOADING, INSTALLING, COPYING, ACCESSING, OR USING THE PROGRAM YOU AGREE TO THE TERMS OF THIS AGREEMENT. IF YOU ARE ACCEPTING THESE TERMS ON BEHALF OF ANOTHER PERSON OR A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT AND WARRANT THAT YOU HAVE FULL AUTHORITY TO BIND THAT PERSON, COMPANY, OR LEGAL ENTITY TO THESE TERMS. IF YOU DO NOT AGREE TO THESE TERMS,

- DO NOT DOWNLOAD, INSTALL, COPY, ACCESS, OR USE THE PROGRAM; AND

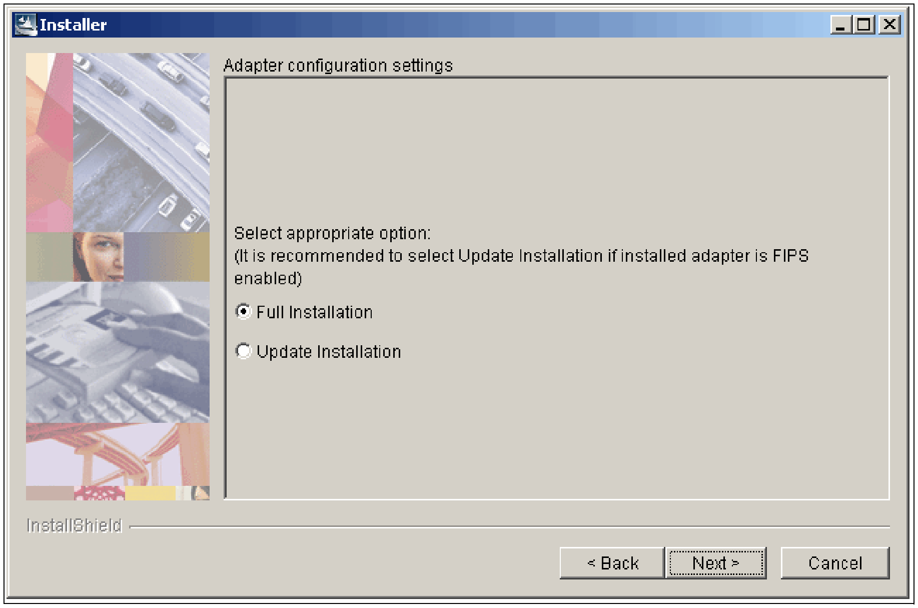
- PROMPTLY RETURN THE PROGRAM AND PROOF OF ENTITLEMENT TO THE

● I accept the terms in the license agreement

○ I do not accept the terms in the license agreement

Figure 5-47 IBM Software License Agreement

4. In the next window, choose **Full Installation**. Or, if you already have a Lotus Domino Adapter installed and want to update it, select **Update Installation**. Click **Next** to proceed.



Adapter configuration settings

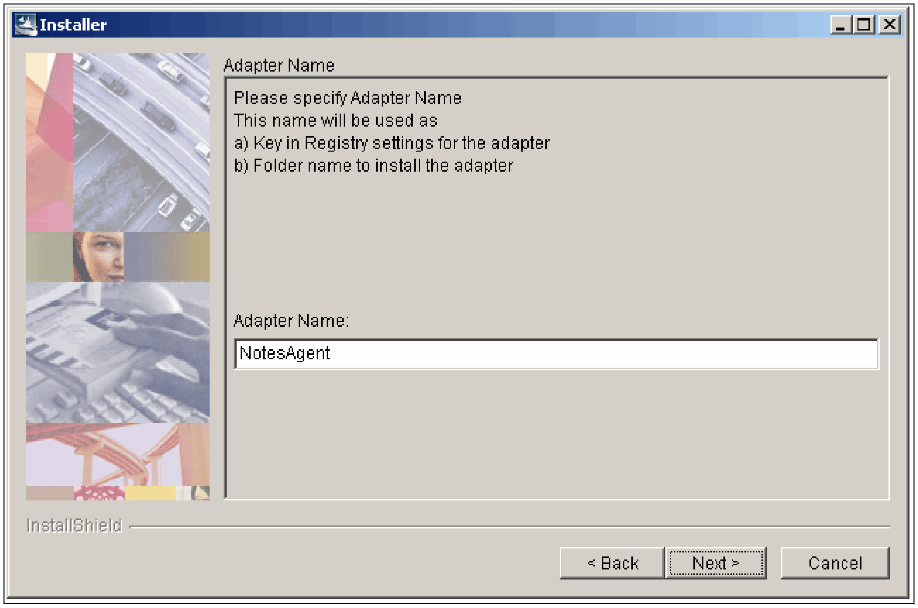
Select appropriate option:
(It is recommended to select Update Installation if installed adapter is FIPS enabled)

● Full Installation

○ Update Installation

Figure 5-48 Select installation type

5. Next, define a unique adapter name to be used for the Lotus Domino adapter that represents the Lotus Domino server to be managed as shown in Figure 5-49 on page 132. Click **Next**.



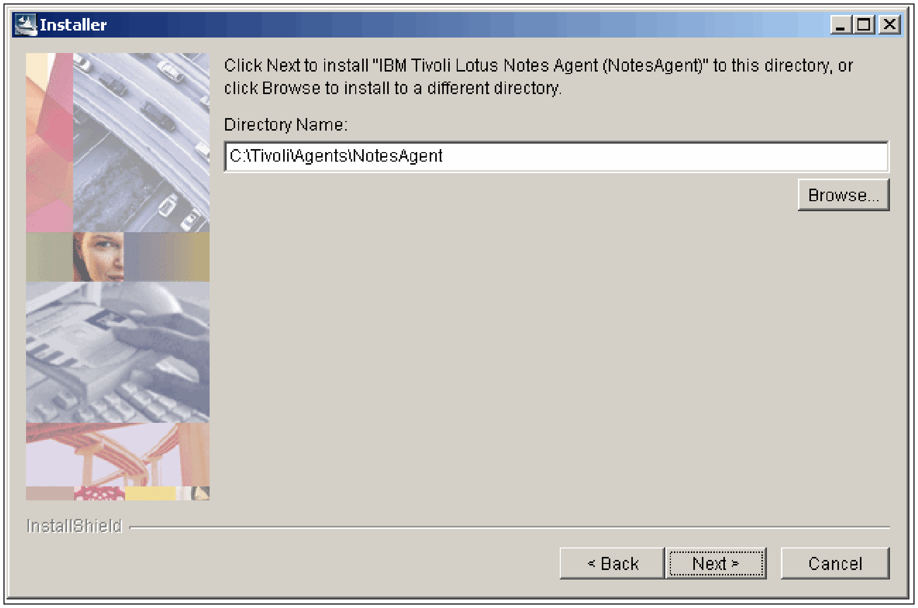
Adapter Name

Please specify Adapter Name
This name will be used as
a) Key in Registry settings for the adapter
b) Folder name to install the adapter

Adapter Name: NotesAgent

Figure 5-49 Define the name of the Lotus Domino adapter

6. If necessary, change the adapter installation path (directory name) in the next window (Figure 5-50), and choose **Next**.

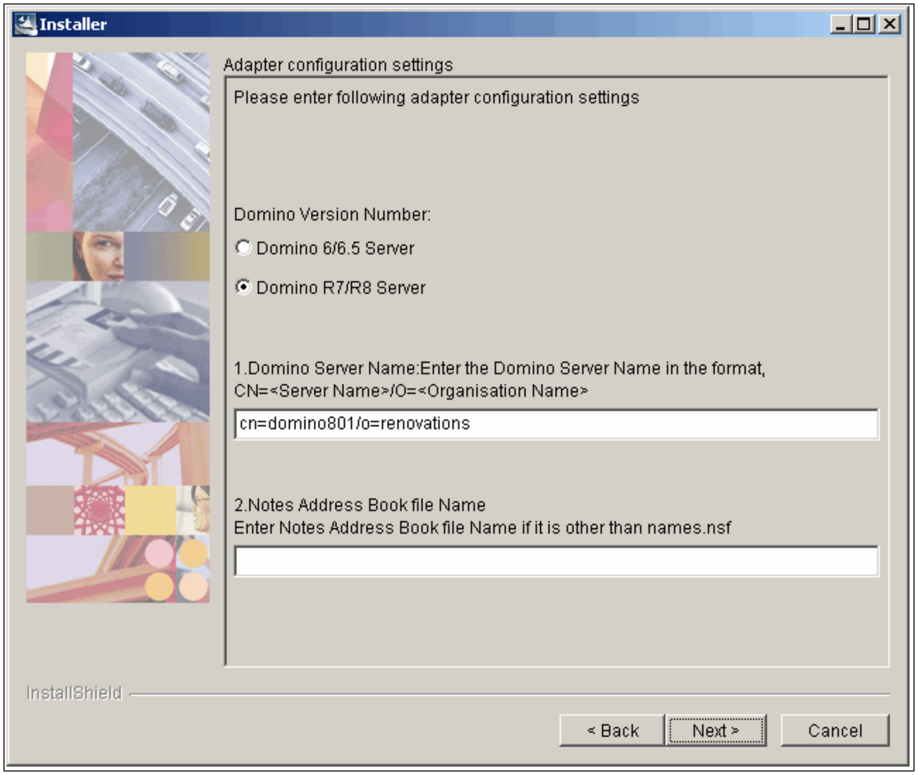


Click Next to install "IBM Tivoli Lotus Notes Agent (NotesAgent)" to this directory, or click Browse to install to a different directory.

Directory Name: C:\Tivoli\Agents\NotesAgent

Figure 5-50 Define the installation path of the Lotus Domino adapter

7. In the next window, which is depicted in Figure 5-51, select the Lotus Domino server version and define the Lotus Domino server name. The format is *<cn=server name>/<o=organisation name>*. If the Lotus Domino server's address book file name is different than the default (names.nsf), type it also.



Installer

Adapter configuration settings

Please enter following adapter configuration settings

Domino Version Number:

○ Domino 6/6.5 Server

● Domino R7/R8 Server

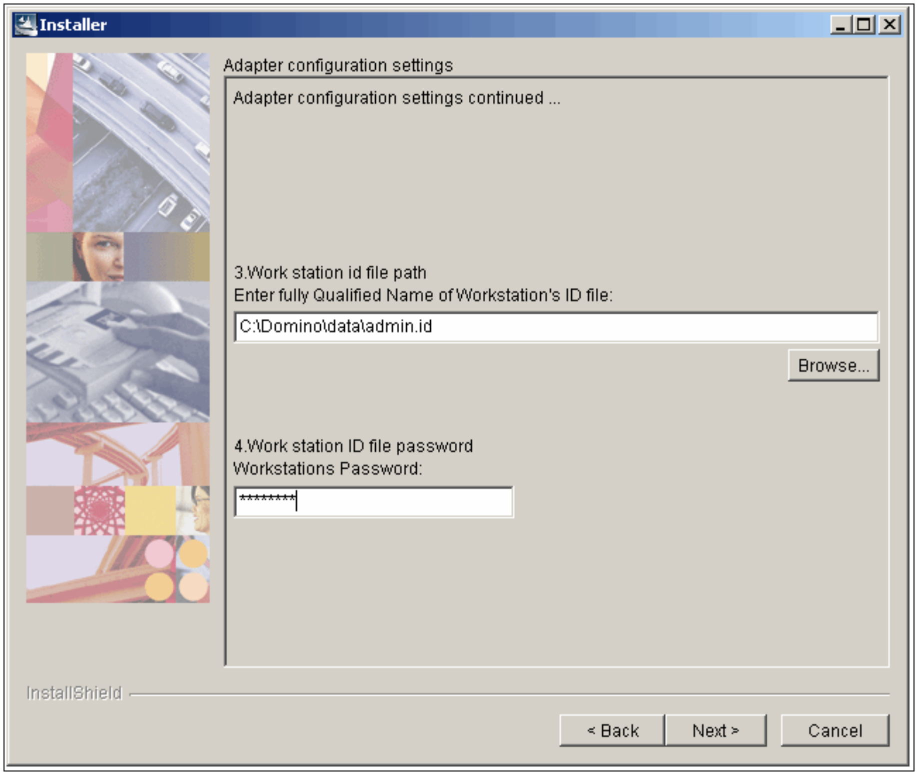
1.Domino Server Name:Enter the Domino Server Name in the format, CN=<Server Name>/O=<Organisation Name>

cn=domino801/o=renovations

2.Notes Address Book file Name
Enter Notes Address Book file Name if it is other than names.nsf

Figure 5-51 Adapter configuration settings for Domino version, server name, and book file name

8. Define the ID file and password for the Domino administrator with which the Identity Manager Adapter will log in as shown in Figure 5-52 on page 134. Click **Next** when done.


Installer

Adapter configuration settings

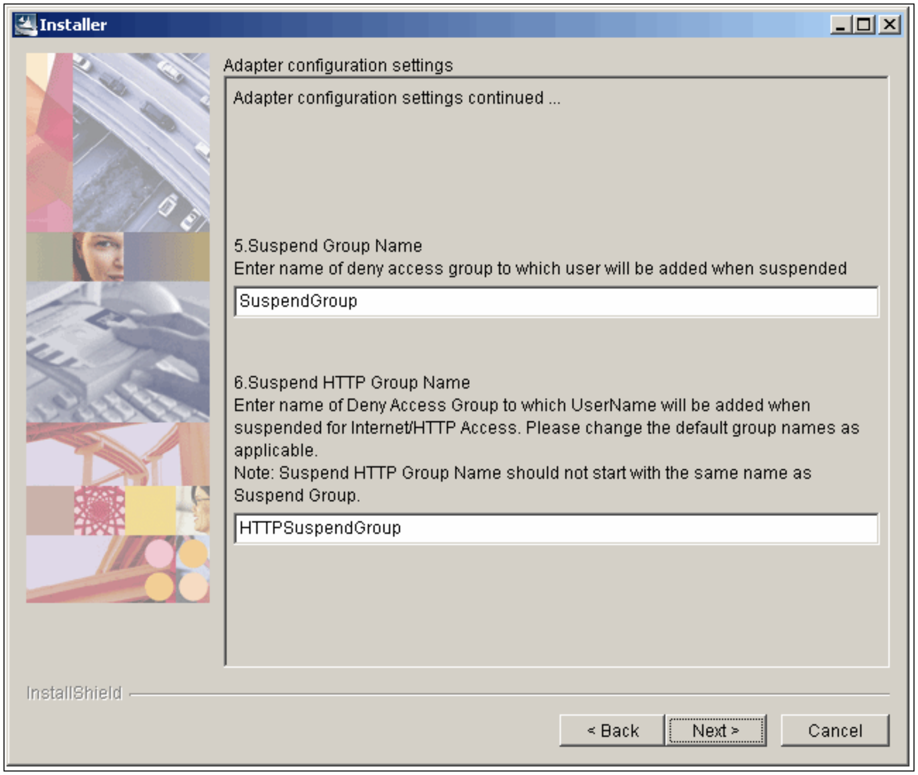
Adapter configuration settings continued ...

3.Work station id file path
Enter fully Qualified Name of Workstation's ID file:
C:\Domino\data\admin.id

4.Work station ID file password
Workstations Password:
****

Figure 5-52 Adapter configuration for Workstation ID file and password

9. In the next window (Figure 5-53 on page 135), define the name of the group to which suspended users will be added. The default value is `SuspendGroup`. Also, type the name of the group to which suspended users will be added for HTTP access. The default value is `HTTPSuspendGroup`. Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

5.Suspend Group Name
Enter name of deny access group to which user will be added when suspended

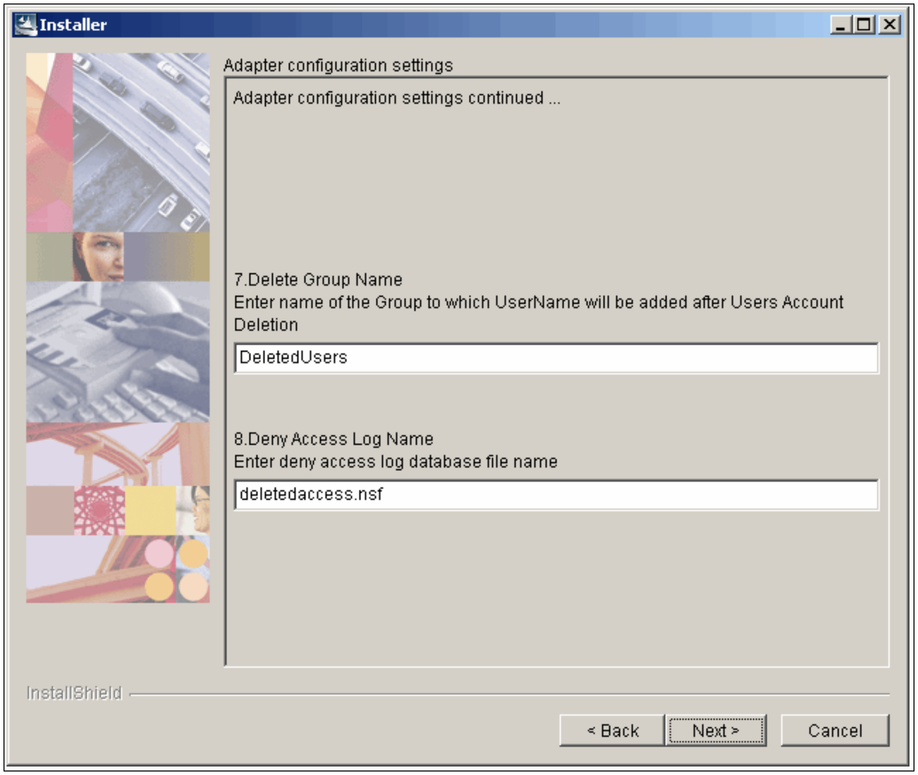
SuspendGroup

6.Suspend HTTP Group Name
Enter name of Deny Access Group to which UserName will be added when suspended for Internet/HTTP Access. Please change the default group names as applicable.
Note: Suspend HTTP Group Name should not start with the same name as Suspend Group.

HTTPSuspendGroup

Figure 5-53 Adapter configuration for suspended users and denied Internet/HTTP access

10. Type the name for the Delete User group as shown in Figure 5-54 on page 136. When users are deleted, they are added to this group. Next, define the name of the Deny Access Log database. The database holds the documents of deleted or suspended users. Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

7.Delete Group Name
Enter name of the Group to which UserName will be added after Users Account Deletion

DeletedUsers

8.Deny Access Log Name
Enter deny access log database file name

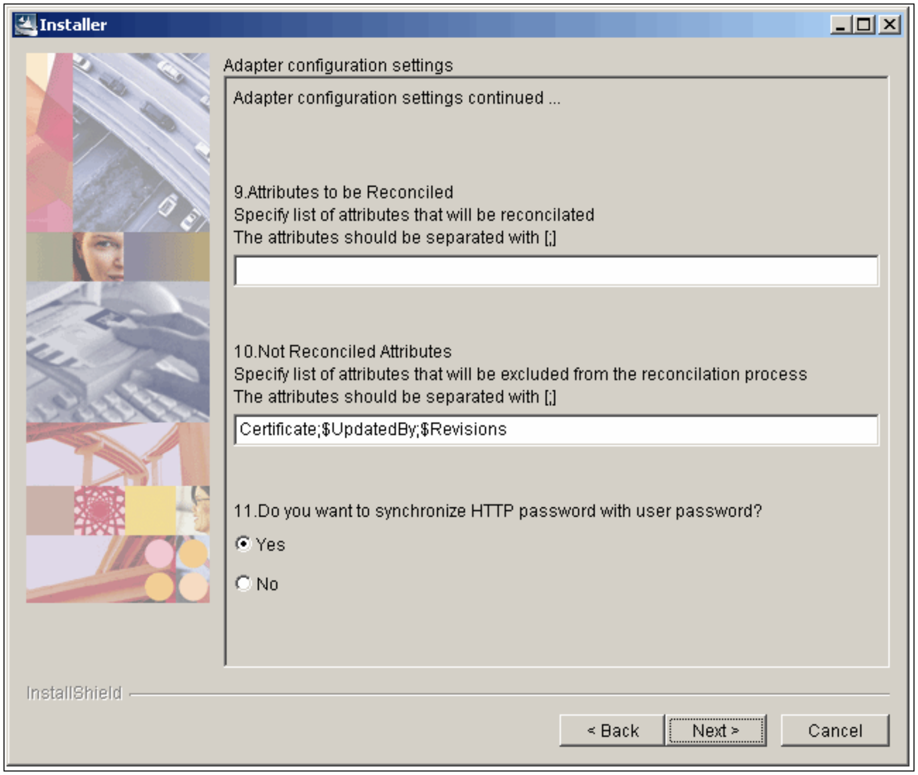
deletedaccess.nsf

Figure 5-54 Adapter configuration of Delete Group Name and Deny Access Log Name

11.In the Attribute to be Reconciled field, which is shown in Figure 5-55 on page 137, specify a list of attributes to include in the reconciliation process. Separate the attributes with a semi-colon if you list more than one attribute, for example, `Certificate;$UpdatedBy;$Revisions`. If you leave the Attribute to be Reconciled field blank, all attributes except the ones specified in the Not Reconciled Attributes field will be returned during reconciliation.

With the Not Reconciled Attributes field, specify a list of attributes to exclude from the reconciliation process. Separate the attributes with a semi-colon if you list more than one attribute, for example, `Certificate;$UpdatedBy;$Revisions`.

If the HTTP password will be synchronized with the user password, select **Yes**. Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

9.Attributes to be Reconciled
Specify list of attributes that will be reconcilated
The attributes should be separated with [;]

10.Not Reconciled Attributes
Specify list of attributes that will be excluded from the reconcilation process
The attributes should be separated with [;]

Certificate;$UpdatedBy;$Revisions

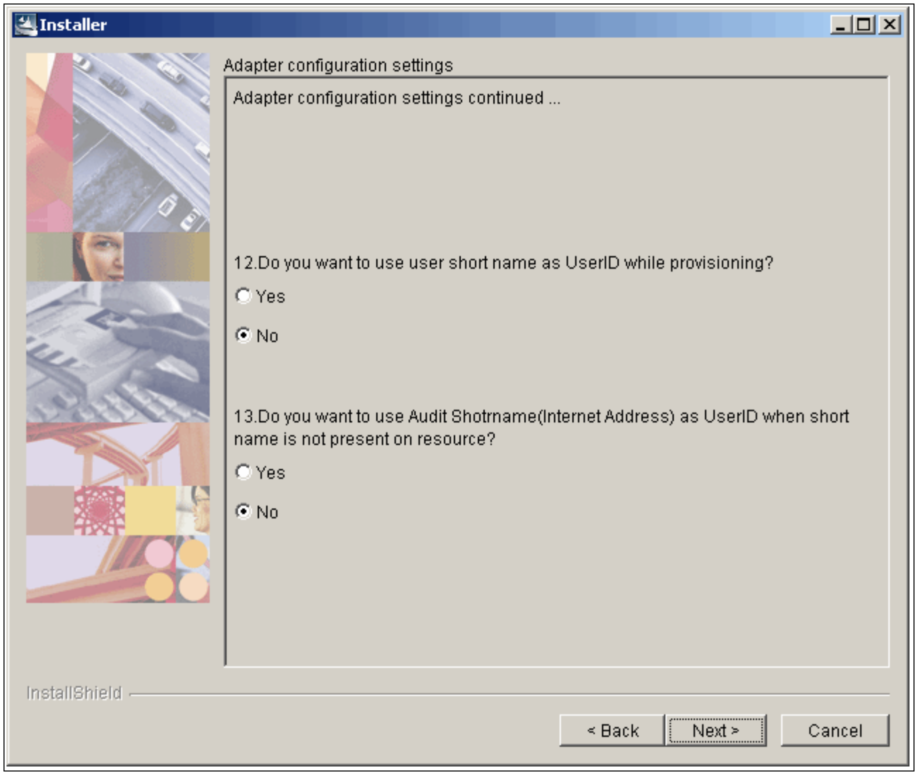
11.Do you want to synchronize HTTP password with user password?

● Yes

○ No

Figure 5-55 Adapter configuration of reconciliation information

12. Next, choose whether to use short names for the UserID and addresses, which is shown in Figure 5-56 on page 138. The default settings are `No`. Click **Next** when done.


Installer

Adapter configuration settings

Adapter configuration settings continued ...

12.Do you want to use user short name as UserID while provisioning?

○ Yes

● No

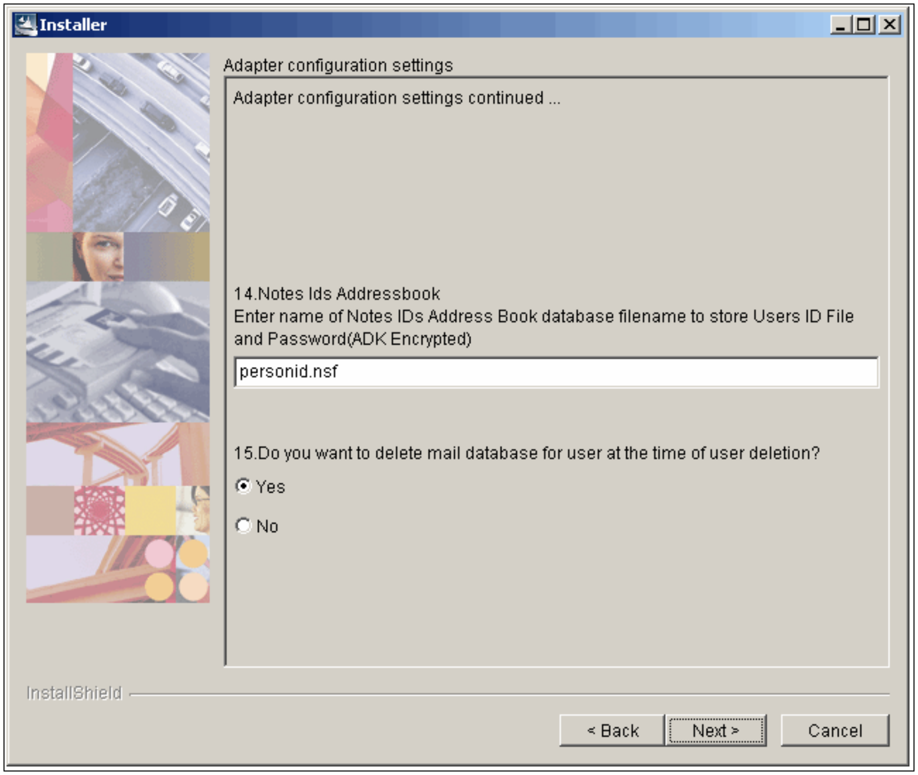
13.Do you want to use Audit Shotrname(Internet Address) as UserID when short name is not present on resource?

○ Yes

● No

Figure 5-56 Adapter configuration short names for UserID and Internet address

13. In the next window, which is shown in Figure 5-57 on page 139, define the name of the database file used to store the ID file and the password information for newly created users in Tivoli Identity Manager, for example, `NoteIDsAddressBook.nsf`. Also, choose whether the mail database file of a deleted user account will be deleted. The default setting is `Yes`. Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

14.Notes Ids Addressbook
Enter name of Notes IDs Address Book database filename to store Users ID File and Password(ADK Encrypted)

personid.nsf

15.Do you want to delete mail database for user at the time of user deletion?

● Yes

○ No

Figure 5-57 Adapter configuration Notes IDs Address book and account deletion

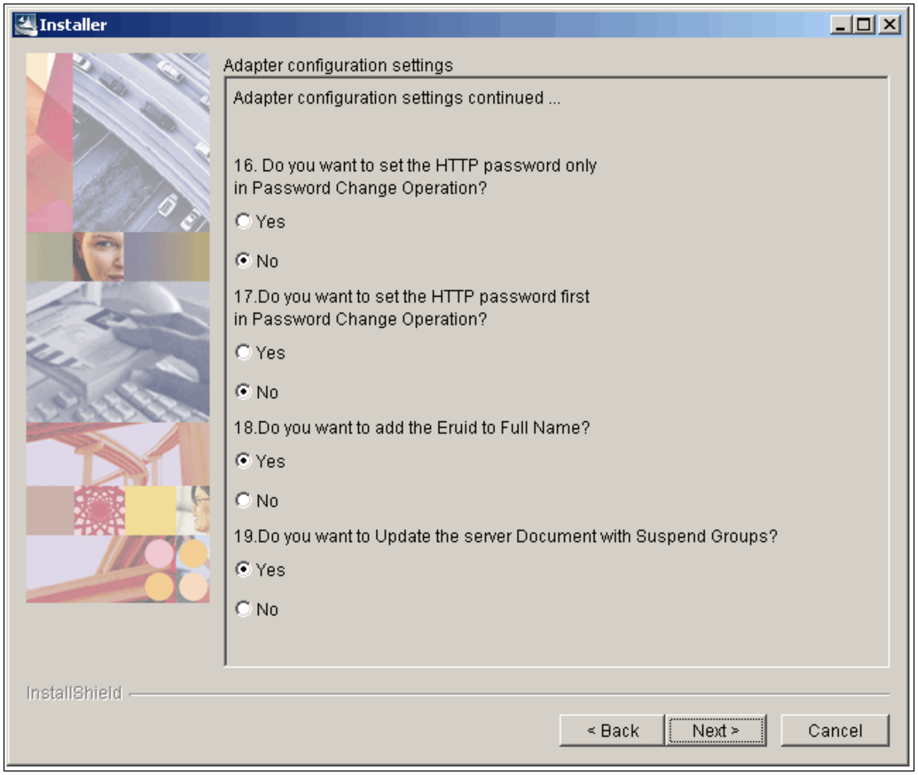
14. As shown in Figure 5-58 on page 140, specify whether only the HTTP password is changed in the password change operation from Tivoli Identity Manager. Select **Yes** if only the HTTP password is to be changed in the password change operation. The default value is `No`.

    Specify how to store the HTTP password during a change operation. Select **Yes** if you want to change the HTTP password first before changing the user password. The default value is `No`.

    Specify whether you want to store the ERUID or User ID attribute in the Full Name field in the person document. Select **Yes** if you want to store the attribute in the Full Name field. The default value is `Yes`.

    Specify whether you want to include all suspended groups in the Not Access Server field of the server document. Select **Yes** to include all suspended groups in the Not Access Server field. The default value is `No`.

    Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

16. Do you want to set the HTTP password only in Password Change Operation?

○ Yes

● No

17.Do you want to set the HTTP password first in Password Change Operation?

○ Yes

● No

18.Do you want to add the Eruid to Full Name?

● Yes

○ No

19.Do you want to Update the server Document with Suspend Groups?

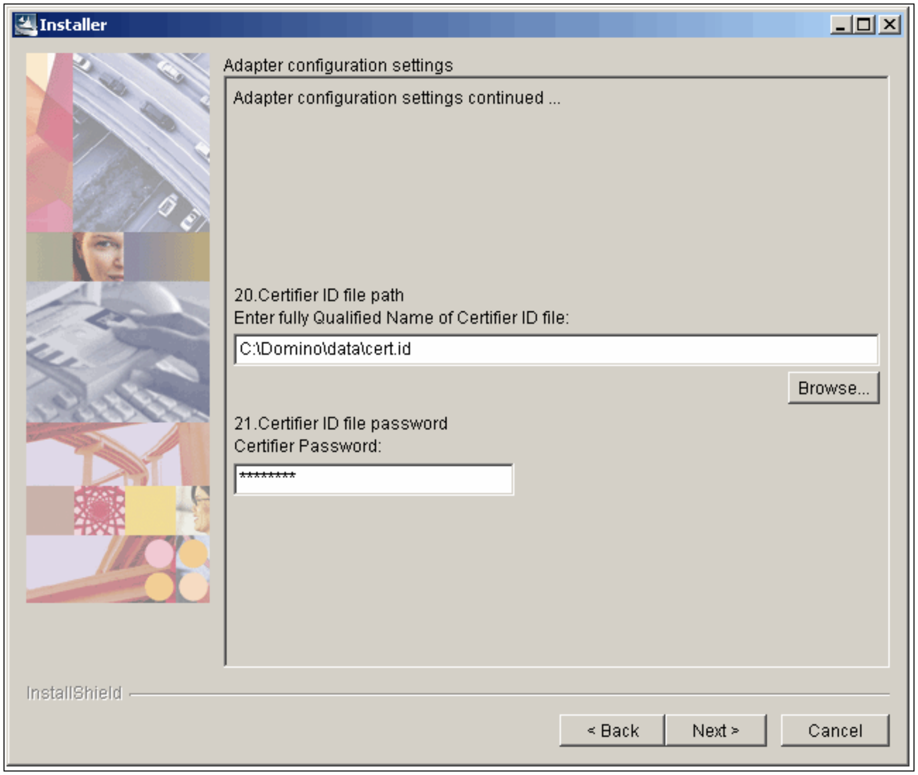
● Yes

○ No

Figure 5-58 Adapter configuration for HTTP password, Eruid, and server document

15. It is optional to specify the file path for the certifier ID file, as shown in Figure 5-59 on page 141. The certifier ID file is the default file used for *add* operations. If the file path for the certifier file is not specified when you add a user, the file path from this field is used to add the user. If you specify the path for the certifier file when you add a user, the file path in this field is ignored, for example, `C:\Lotus\Domino\cert.id`.

    Set the password for the certifier ID file that is provided in the Certifier ID File Path field. If a file path is not provided, a password is not needed. Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

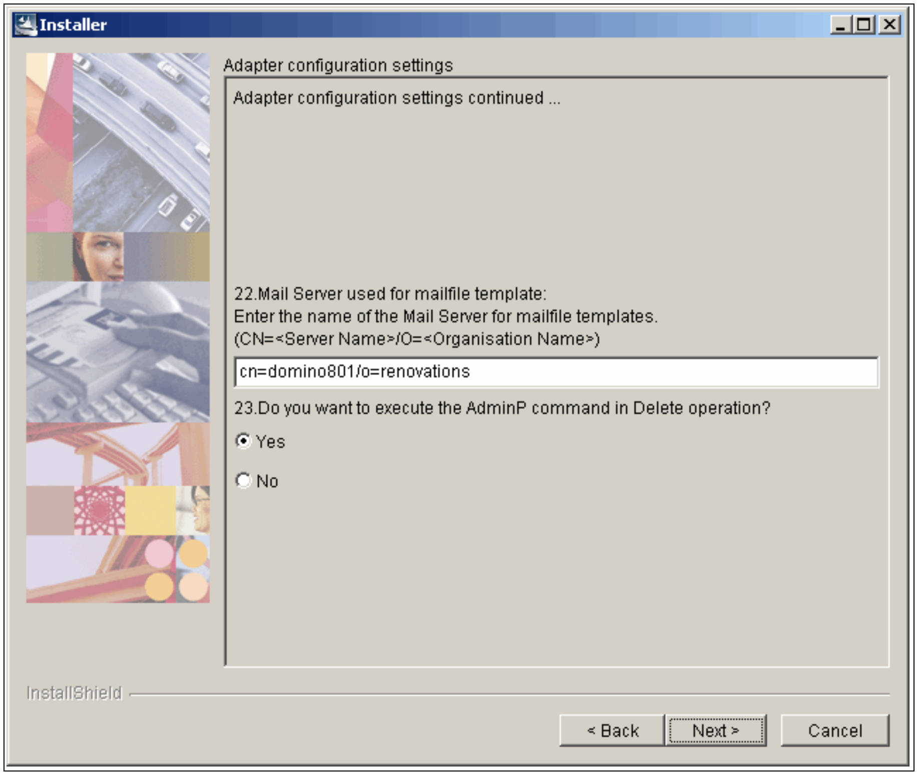
20.Certifier ID file path
Enter fully Qualified Name of Certifier ID file:
C:\Domino\data\cert.id

21.Certifier ID file password
Certifier Password:
****

Figure 5-59 Adapter configuration of Certifier ID file path and Certifier password

16. As shown in Figure 5-60 on page 142, define the server name for mail template files to be used by the adapter. If a value is not specified for this registry key, the adapter uses the mail template files from the Domino Registration Server.

    Select whether the AdminP operation is used to deprovision a user. Select **Yes** to use the AdminP operation when deprovisioning a user. The default value is `No`. Click **Next** when done.



Adapter configuration settings

Adapter configuration settings continued ...

22.Mail Server used for mailfile template:
Enter the name of the Mail Server for mailfile templates.
(CN=<Server Name>/O=<Organisation Name>)

cn=domino801/o=renovations

23.Do you want to execute the AdminP command in Delete operation?

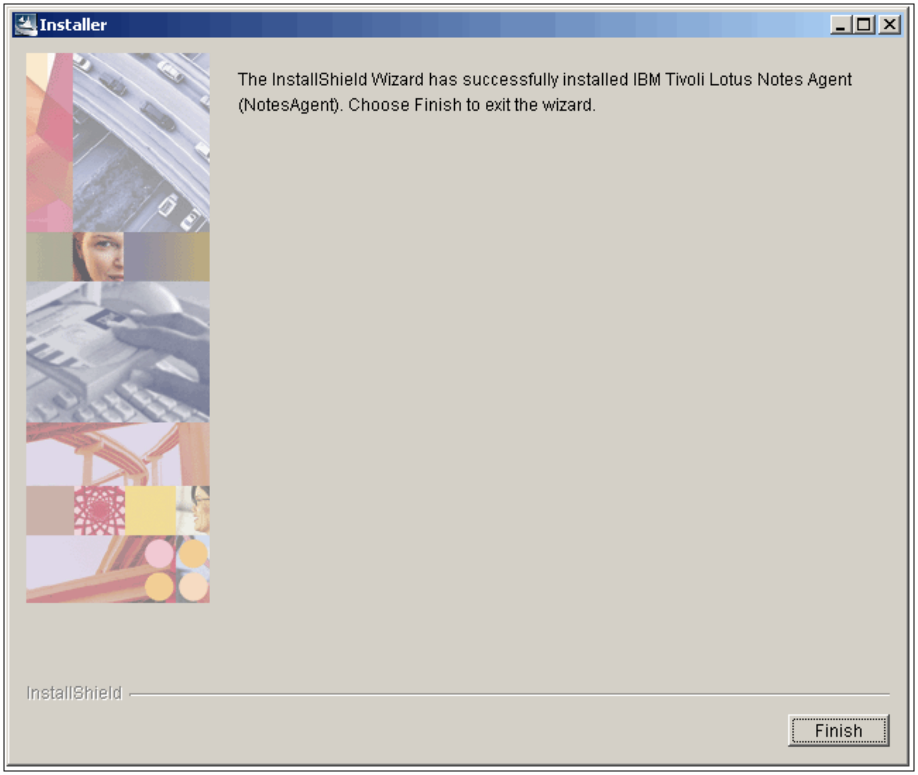
● Yes

○ No

Figure 5-60 Adapter configuration of Mail Template Server and Execute AdminP Operation

17.Next, the installation summary window is displayed. Select **Next** to proceed.

18.Now, the installation of the Domino Notes Adapter is finished. Click **Finish** to exit as depicted in Figure 5-61 on page 143.



The InstallShield Wizard has successfully installed IBM Tivoli Lotus Notes Agent (NotesAgent). Choose Finish to exit the wizard.

Figure 5-61 Installation of Domino Notes Adapter successfully finished

5.3 Identity Manager fix pack installation

From time to time, fixes to Tivoli Identity Manager are provided by IBM support. These updates for Tivoli Identity Manager are called *fix packs* and are available on the IBM support Web site for download:

`http://www.ibm.com/support/docview.wss?rs=180&uid=swg24012718`

The following section describes how to install Fix Pack 1 to Identity Manager.

5.3.1 WebSphere Update Installer

As a prerequisite for installing fix packs, you must first install IBM WebSphere Application Server Update Installer. You can download IBM WebSphere Update Installer and obtain more information about the WebSphere Update Installer at this Web site:

`http://www.ibm.com/support/docview.wss?rs=180&uid=swg24012718`

Figure 5-62 shows you the WebSphere Update package.

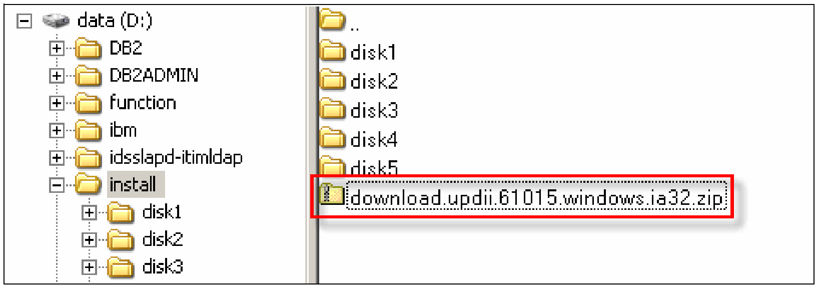


Figure 5-62 The WebSphere Update package

After downloading the software package, you unpackage it (Figure 5-63).

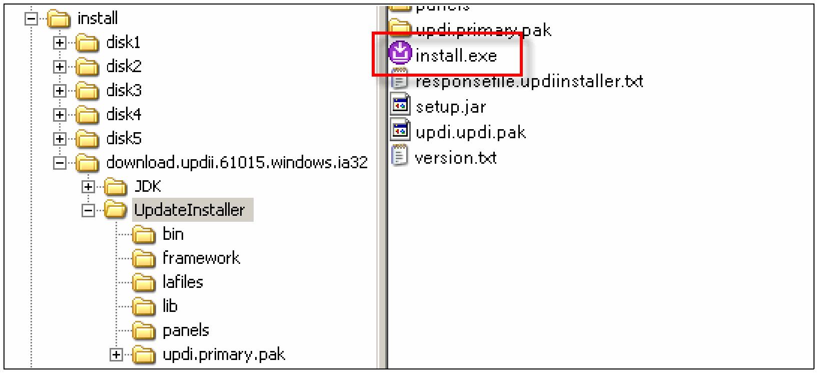
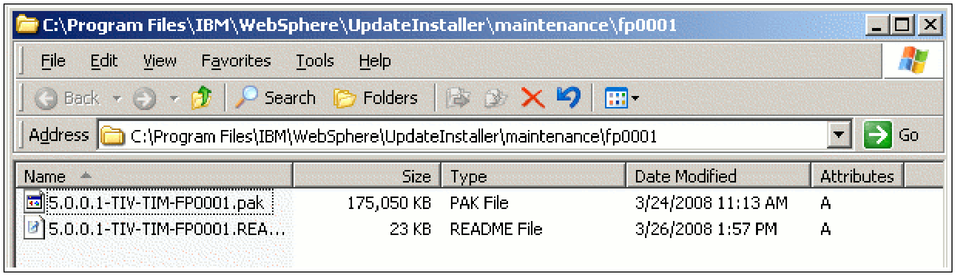


Figure 5-63 WebSphere Update Installer installation executable

Now, begin the WebSphere Update Installer installation by executing **`install.exe`**, which is found in the directory UpdateInstaller of the path to which the package was unpacked (Figure 5-63).

5.3.2 Identity Manager Fix Pack 1

Before starting the Identity Manager update, the downloaded fix pack or maintenance package has to be unpacked (Figure 5-64 on page 145).


C:\Program Files\IBM\WebSphere\UpdateInstaller\maintenance\fp0001
File
Edit
View
Favorites
Tools
Help
Back
Search
Folders
Address
C:\Program Files\IBM\WebSphere\UpdateInstaller\maintenance\fp0001
Go

Name	Size	Type	Date Modified	Attributes
5.0.0.1-TIV-TIM-FP0001.pak	175,050 KB	PAK File	3/24/2008 11:13 AM	A
5.0.0.1-TIV-TIM-FP0001.REA...	23 KB	README File	3/26/2008 1:57 PM	A

Figure 5-64 Unpacked Fix Pack 1

Also, WebSphere Application Server needs to be stopped as seen in Figure 5-65.

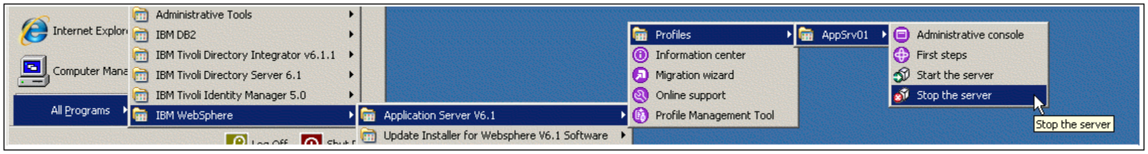


Figure 5-65 Stopping WebSphere Application Server

Note: On slower systems, the deployment of fix packs might take longer than usual, and therefore, the update SOAP request might run into a timeout and terminate the installation process. For this reason, we recommend that you change the WebSphere SOAP Request Timeout parameter from 180 to 900 or higher. To change the parameter:

- Locate the configuration file in the following directory:

  <*WAS-HOME*>\profiles\<*PROFILE_NAME*>\properties\soap.client.props

- Change the parameter `com.ibm.SOAP.requestTimeout` to 900 or higher and save the modification.

To install the update:

1. After the WebSphere Application Server is stopped, start the WebSphere Update Installer as shown in Figure 5-66 on page 146.

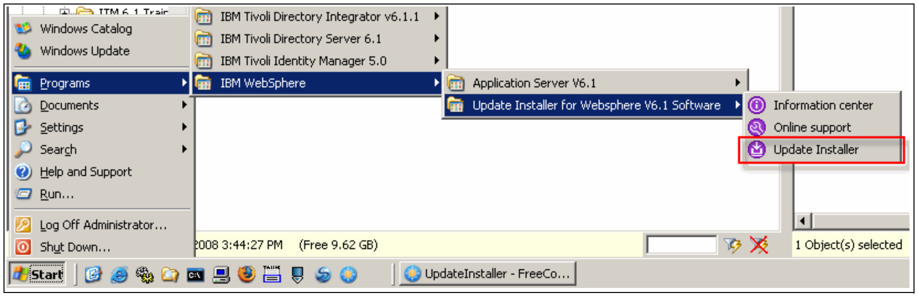
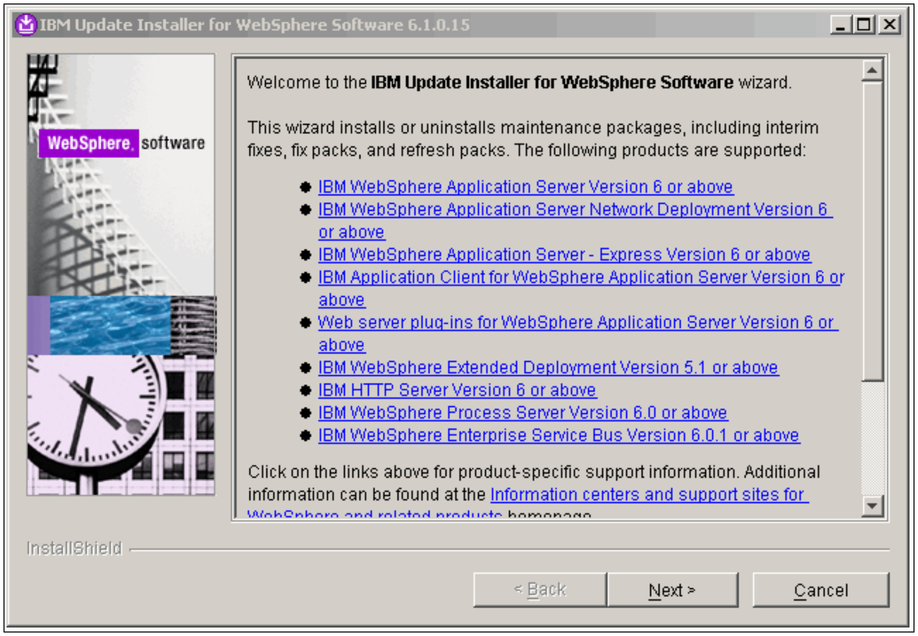


Figure 5-66 WebSphere Update Installer

2. The Welcome window is presented (Figure 5-67). Click **Next** to continue.



Welcome to the **IBM Update Installer for WebSphere Software** wizard.

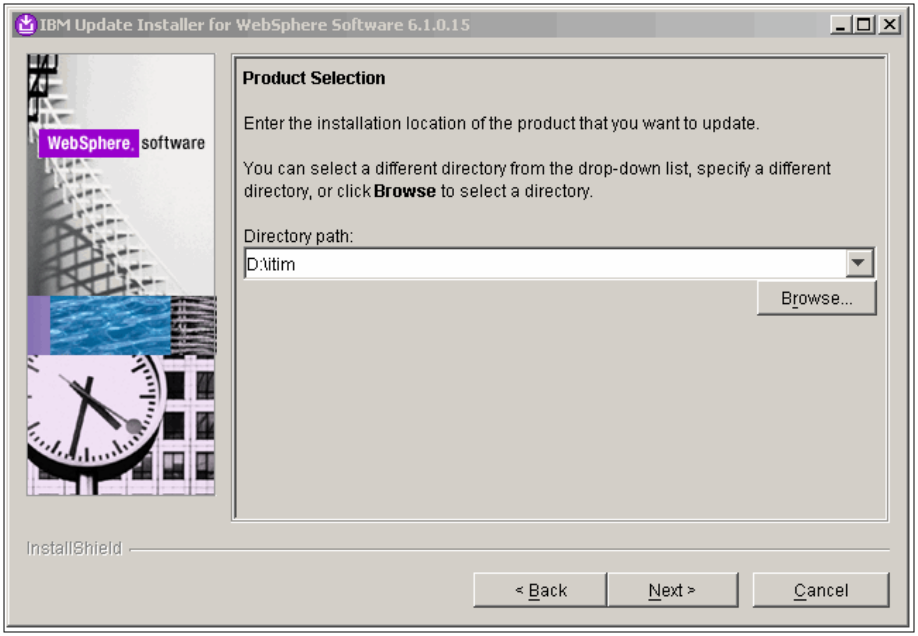
This wizard installs or uninstalls maintenance packages, including interim fixes, fix packs, and refresh packs. The following products are supported:

- IBM WebSphere Application Server Version 6 or above
- IBM WebSphere Application Server Network Deployment Version 6 or above
- IBM WebSphere Application Server - Express Version 6 or above
- IBM Application Client for WebSphere Application Server Version 6 or above
- Web server plug-ins for WebSphere Application Server Version 6 or above
- IBM WebSphere Extended Deployment Version 5.1 or above
- IBM HTTP Server Version 6 or above
- IBM WebSphere Process Server Version 6.0 or above
- IBM WebSphere Enterprise Service Bus Version 6.0.1 or above

Click on the links above for product-specific support information. Additional information can be found at the Information centers and support sites for WebSphere and related products homepage

Figure 5-67 WebSphere Update Installer window

3. On the Product Selection window, provide the Identity Manager home directory as shown in Figure 5-68 on page 147.



Product Selection

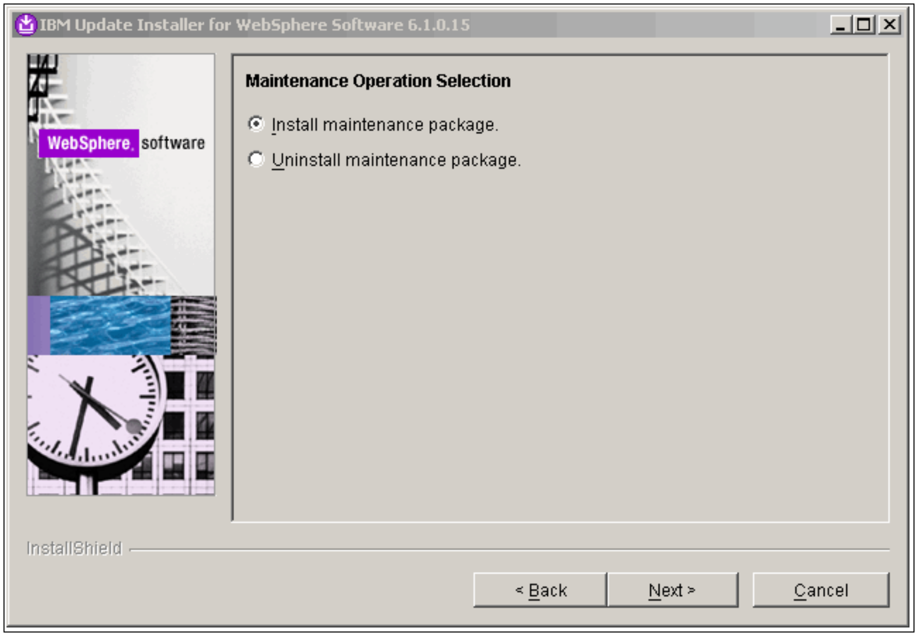
Enter the installation location of the product that you want to update.

You can select a different directory from the drop-down list, specify a different directory, or click **Browse** to select a directory.

Directory path:
D:\itim

Figure 5-68 Identity Manager home directory

4. On the Maintenance Operation Selection window, select **Install maintenance package**, and click **Next** to continue (Figure 5-69 on page 148).



IBM Update Installer for WebSphere Software 6.1.0.15

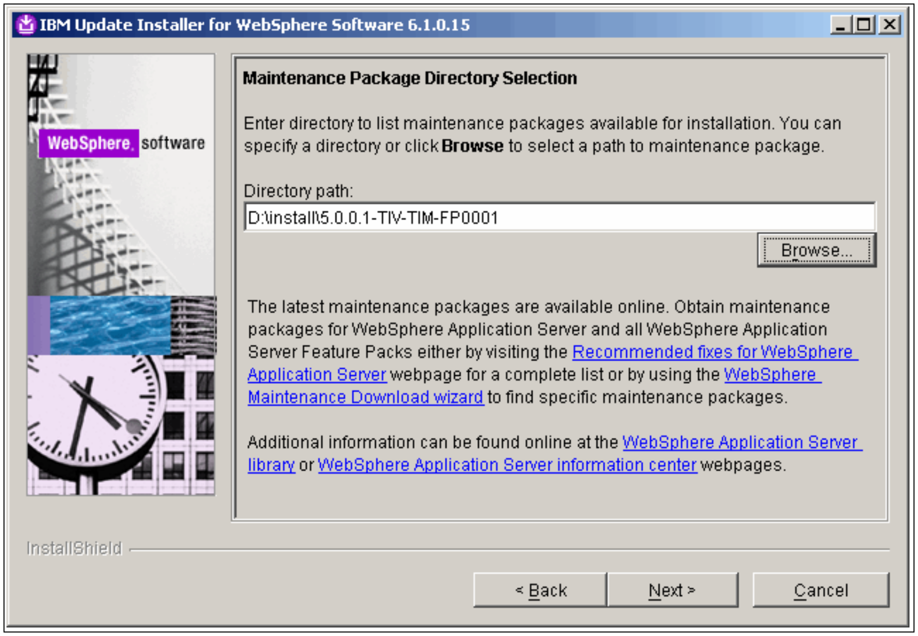
Maintenance Operation Selection

● Install maintenance package.

○ Uninstall maintenance package.

Figure 5-69 Select mode of operation

5. Next, enter the location directory path of the Identity Manager maintenance package (fix pack) as depicted in Figure 5-70 on page 149, and click **Next** to continue.



Maintenance Package Directory Selection

Enter directory to list maintenance packages available for installation. You can specify a directory or click **Browse** to select a path to maintenance package.

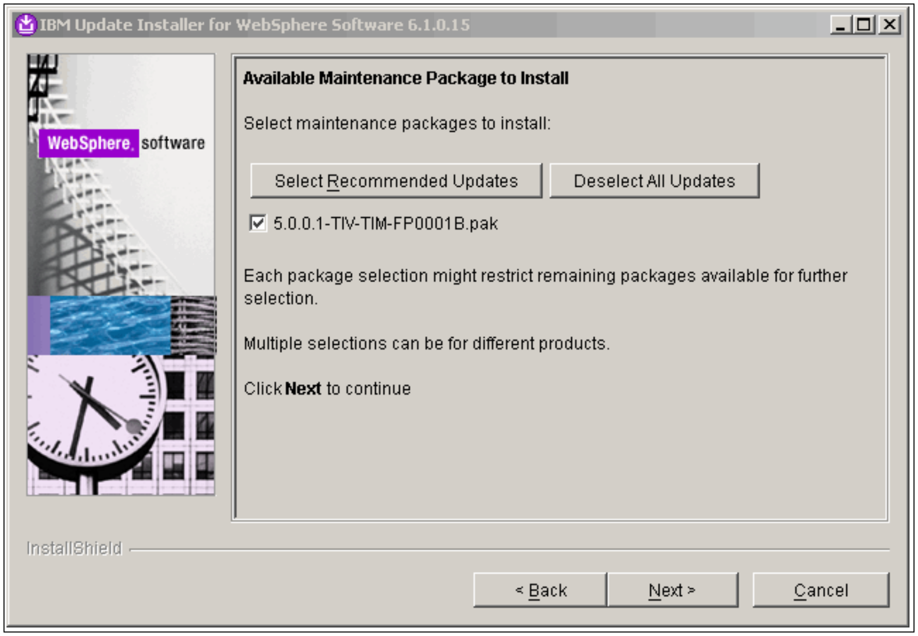
Directory path: D:\install\5.0.0.1-TIV-TIM-FP0001

The latest maintenance packages are available online. Obtain maintenance packages for WebSphere Application Server and all WebSphere Application Server Feature Packs either by visiting the Recommended fixes for WebSphere Application Server webpage for a complete list or by using the WebSphere Maintenance Download wizard to find specific maintenance packages.

Additional information can be found online at the WebSphere Application Server library or WebSphere Application Server information center webpages.

Figure 5-70 Directory of the fix pack

6. The next window (Figure 5-71 on page 150) allows you to select or deselect maintenance packages (fix packs) if there are multiple available fix packs to be installed. Click **Next** to continue.



IBM Update Installer for WebSphere Software 6.1.0.15
WebSphere. software

Available Maintenance Package to Install

Select maintenance packages to install:

Select Recommended Updates
Deselect All Updates

☑ 5.0.0.1-TIV-TIM-FP0001B.pak

Each package selection might restrict remaining packages available for further selection.

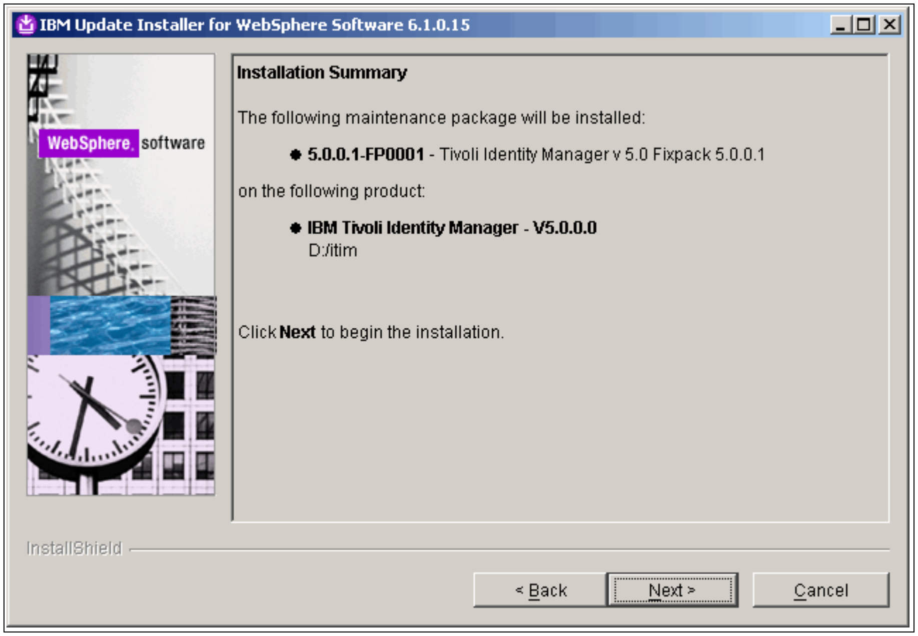
Multiple selections can be for different products.

Click **Next** to continue

InstallShield
< Back
Next >
Cancel

Figure 5-71 Verification of fix packs

7. The Installation Summary window displays (Figure 5-72 on page 151). Click **Next** to continue.



Installation Summary

The following maintenance package will be installed:

- **5.0.0.1-FP0001** - Tivoli Identity Manager v 5.0 Fixpack 5.0.0.1

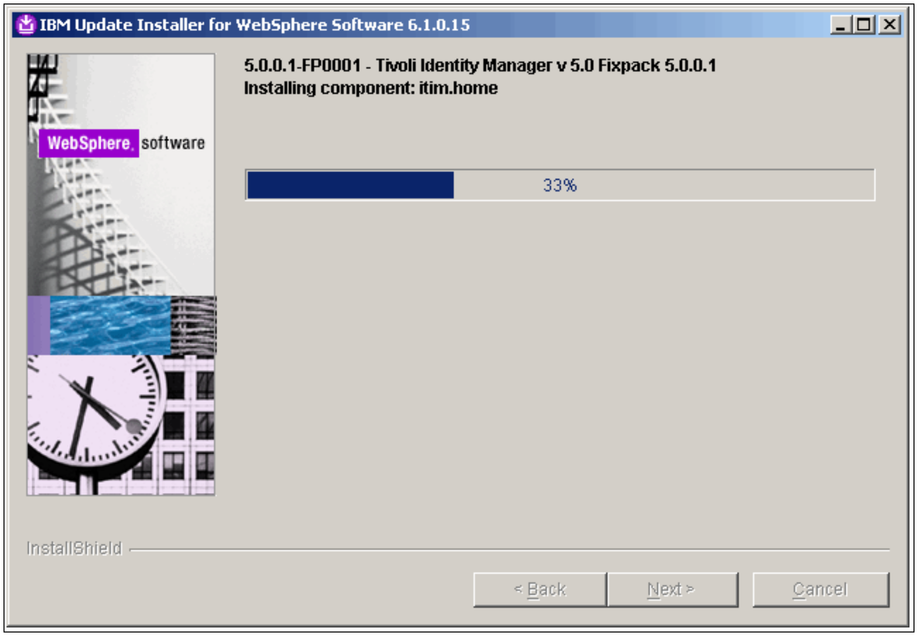
on the following product:

- **IBM Tivoli Identity Manager - V5.0.0.0**
  D:/itim

Click **Next** to begin the installation.

Figure 5-72 Installation Summary window

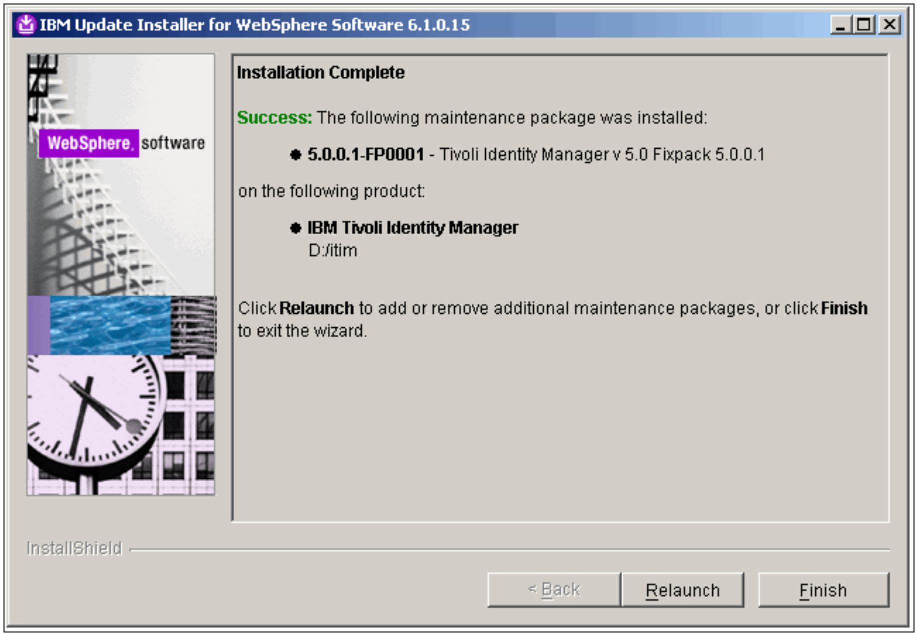
8. The Identity Manager Fix Pack installation is now starting, which can take several minutes. During this time, an installation progress window is displayed (Figure 5-73 on page 152).


IBM Update Installer for WebSphere Software 6.1.0.15

5.0.0.1-FP0001 - Tivoli Identity Manager v 5.0 Fixpack 5.0.0.1
Installing component: itim.home

Figure 5-73 Installation progress

After the installation is complete, a final window displays (Figure 5-74 on page 153). Click **Finish** to complete the process.



Installation Complete

Success: The following maintenance package was installed:

- **5.0.0.1-FP0001** - Tivoli Identity Manager v 5.0 Fixpack 5.0.0.1

on the following product:

- **IBM Tivoli Identity Manager**
  D:/itim

Click **Relaunch** to add or remove additional maintenance packages, or click **Finish** to exit the wizard.

Figure 5-74 Installation Complete window

5.4 Identity Manager Information Center installation

In this section, we show you how to install the Identity Manager Information Center so that you can browse the manuals online:

1. Download the Identity Manager Information Center package from the following link:

   `http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/topic/com.ibm.itim.doc/im500_infoctr.zip`

2. Unpack the downloaded file im500_infoctr.zip to:

   ```
   <WAS_HOME>\profile\<profilename>\installedApps\<cellname>\ITIM.ear\i
   tim-iehs_help.war\WEB-INF\lib\eclipse\plugins
   ```

3. Insure that the plugins directory contains the additional directory (Figure 5-75 on page 154):

   ```
   com.ibm.itim.doc
   ```

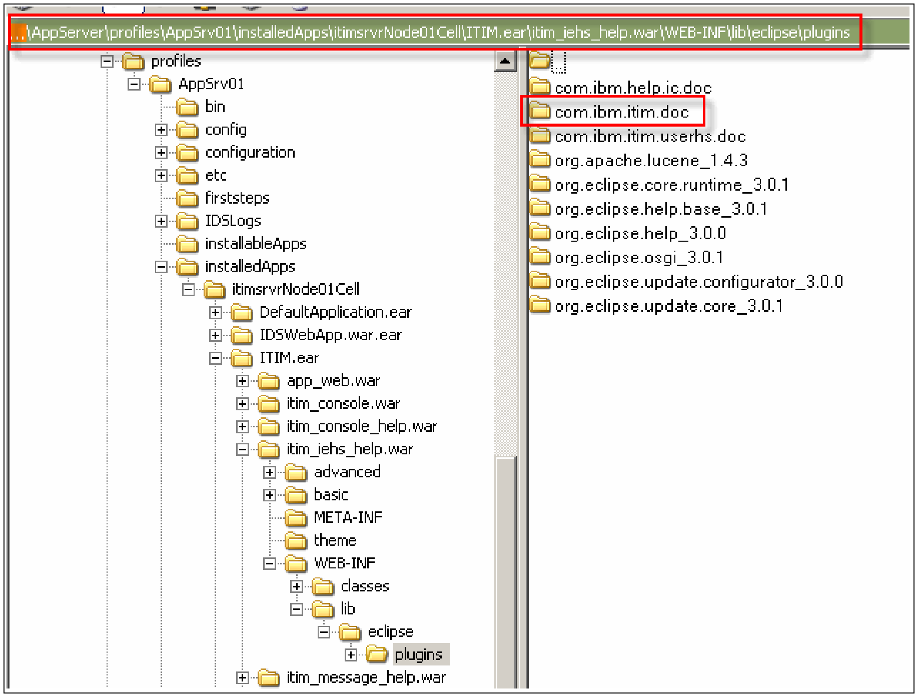


Figure 5-75 Location to copy Information Center data

4. Stop and restart Identity Manager (Figure 5-76).

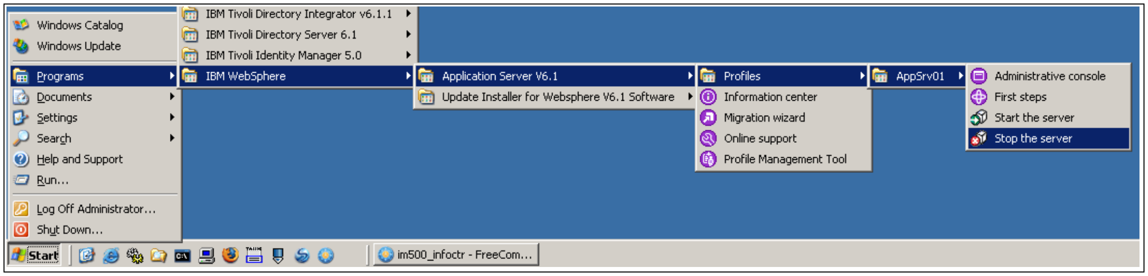
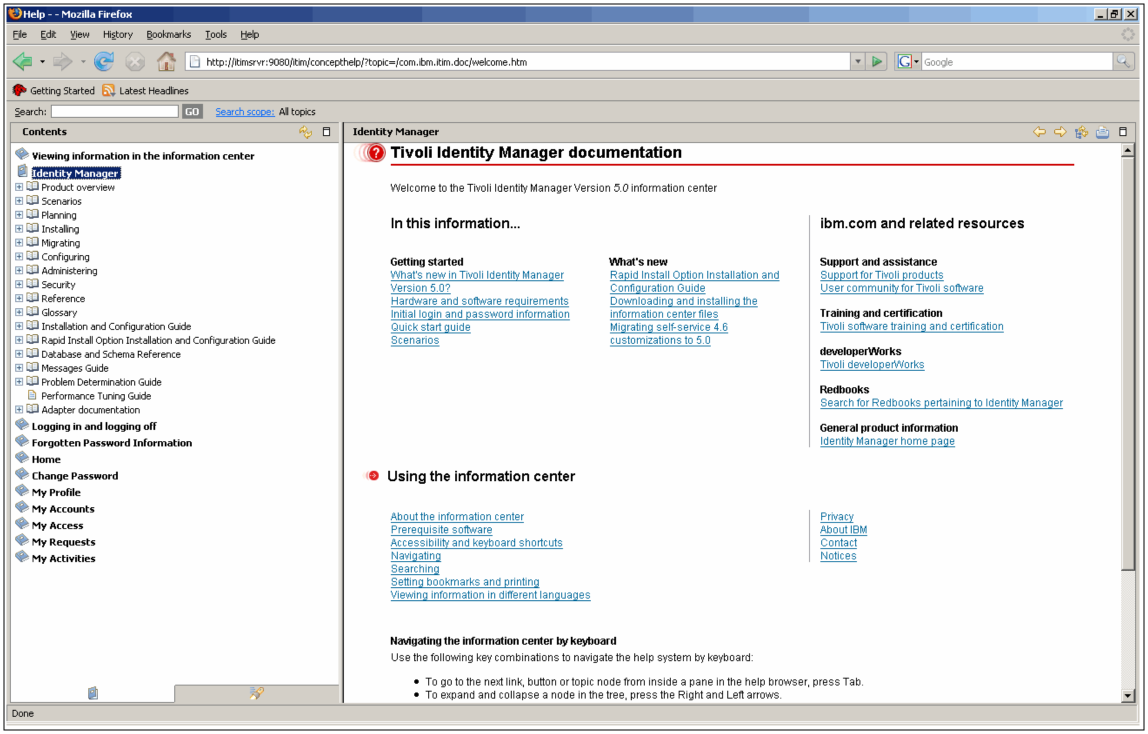


Figure 5-76 Restart Identity Manager

5. Log in to Identity Manager as a system administrator, such as `itim manager`, and in the Address field of the browser, type the following address:

   `http://<hostname>:9080/itim/concepthelp/topic/com.ibm.itim.doc/welcome.htm`

   After the Identity Manager Information Center opens in a browser window (Figure 5-77 on page 155), bookmark it for future use.


Help - - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://itimsrvr:9080/itim/concepthelp/?topic=/com.ibm.itim.doc/welcome.htm
Google
Getting Started Latest Headlines
Search: GO Search scope: All topics
Contents
Identity Manager
Done

Viewing information in the information center
Identity Manager
- Product overview
- Scenarios
- Planning
- Installing
- Migrating
- Configuring
- Administering
- Security
- Reference
- Glossary
- Installation and Configuration Guide
- Rapid Install Option Installation and Configuration Guide
- Database and Schema Reference
- Messages Guide
- Problem Determination Guide
- Performance Tuning Guide
- Adapter documentation

Logging in and logging off
Forgotten Password Information
Home
Change Password
My Profile
My Accounts
My Access
My Requests
My Activities

Tivoli Identity Manager documentation

Welcome to the Tivoli Identity Manager Version 5.0 information center

In this information...

Getting started
What's new in Tivoli Identity Manager Version 5.0?
Hardware and software requirements
Initial login and password information
Quick start guide
Scenarios

What's new
Rapid Install Option Installation and Configuration Guide
Downloading and installing the information center files
Migrating self-service 4.6 customizations to 5.0

ibm.com and related resources

Support and assistance
Support for Tivoli products
User community for Tivoli software

Training and certification
Tivoli software training and certification

developerWorks
Tivoli developerWorks

Redbooks
Search for Redbooks pertaining to Identity Manager

General product information
Identity Manager home page

Using the information center

About the information center
Prerequisite software
Accessibility and keyboard shortcuts
Navigating
Searching
Setting bookmarks and printing
Viewing information in different languages

Privacy
About IBM
Contact
Notices

Navigating the information center by keyboard

Use the following key combinations to navigate the help system by keyboard:

- To go to the next link, button or topic node from inside a pane in the help browser, press Tab.
- To expand and collapse a node in the tree, press the Right and Left arrows.

Figure 5-77 Identity Manager Information Center

You have now completed all of the tasks that are necessary to install and set up a basic Identity Manager system.

6

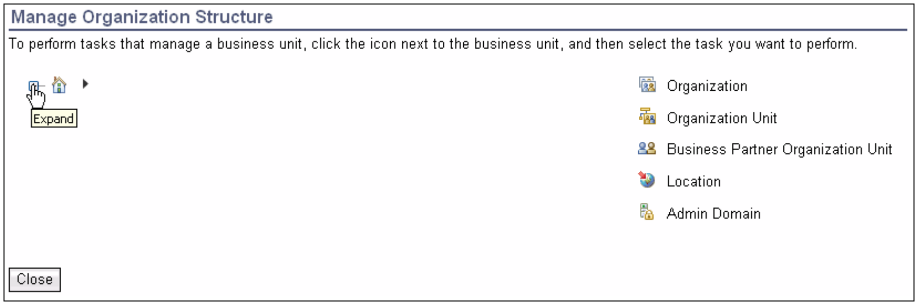
Configuring Identity Manager

In this chapter, we show how to configure Identity Manager to suit the needs of the TAMCO environment.

6.1 Creating the locations

In this section, we create a location for each country in TAMCO. Use the following steps:

1. Go to **Manage Organization Structure**.
2. Click the **+** icon to expand the Root of the Organizational Tree, as shown in Figure 6-1 on page 158.

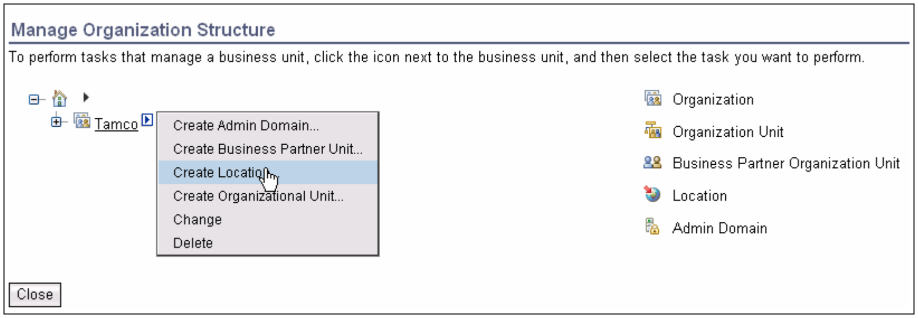


Manage Organization Structure

To perform tasks that manage a business unit, click the icon next to the business unit, and then select the task you want to perform.

Figure 6-1 Manage Organization Structure window

3. Select **Tamco** → **Create Location**, as shown in Figure 6-2.

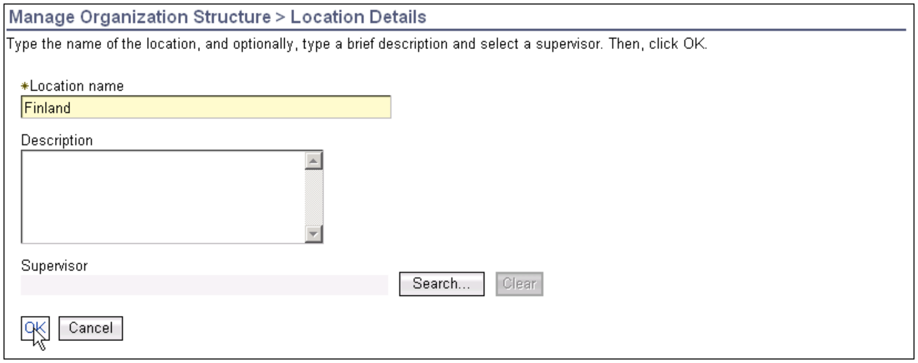


Manage Organization Structure

To perform tasks that manage a business unit, click the icon next to the business unit, and then select the task you want to perform.

Figure 6-2 Manage Organization Structure window, continued

4. Enter the name of the country in the Location name field (`Finland`, `Germany`, or `UK`) and click **OK**, as shown in Figure 6-3.


Manage Organization Structure > Location Details

Type the name of the location, and optionally, type a brief description and select a supervisor. Then, click OK.

*Location name: Finland

Description:

Supervisor:

Figure 6-3 Location Details window

Repeat steps 3-4 until you have created a location for each country.

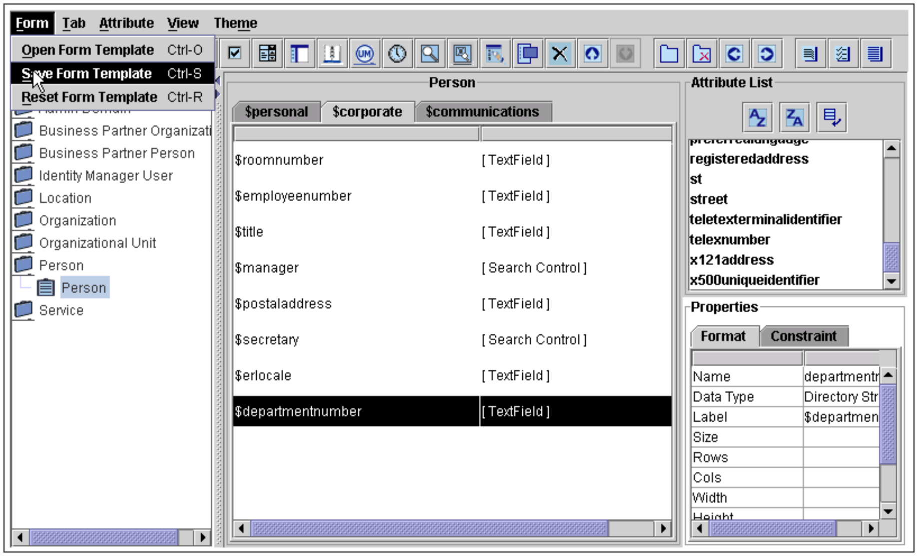
6.2 Changing the person form

To show the department and locale of the user in the person information form, the form needs to be modified.

Note: Before you start, you must have Sun Microsystems Java Runtime Environment (JRE) Version 1.5 (more commonly known as Sun Java Runtime 1.5) or higher installed on the machine where your Web browser is located.

The steps to modify the person form are:

1. Go to **Configure System** → **Design Forms**.
2. When the Form designer window opens, select **Person** → **Person** → **$corporate**.
3. Then, from the Attribute List box, select **erlocale** and **departmentnumber** by double-clicking them. When both of them appear under the Person form's $corporate tab, select **Form** → **Save Form Template**, as shown in Figure 6-4.



$roomnumber	[TextField]
$employeenumber	[TextField]
$title	[TextField]
$manager	[Search Control]
$postaladdress	[TextField]
$secretary	[Search Control]
$erlocale	[TextField]
$departmentnumber	[TextField]

preferredlanguage
registeredaddress
st
street
teletexterminalidentifier
telexnumber
x121address
x500uniqueidentifier

Name	departmentr
Data Type	Directory Str
Label	$departmen
Size	
Rows	
Cols	
Width	
Height	

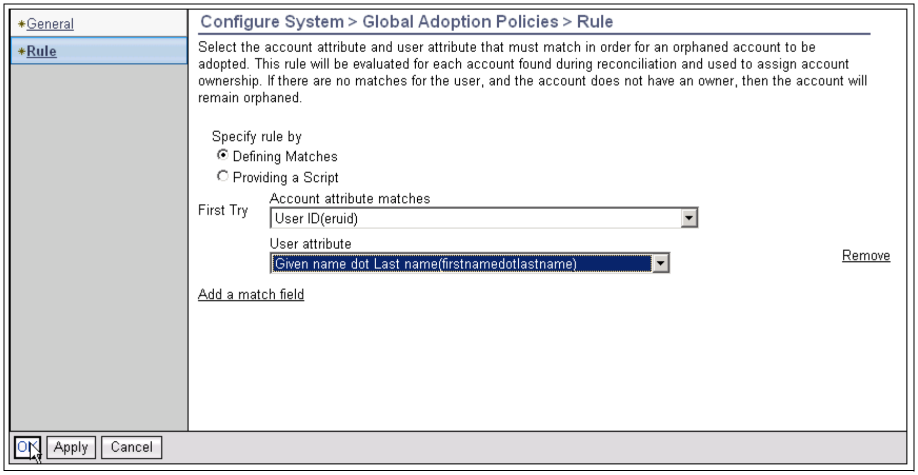
Figure 6-4 Form designer window

The person form has now been changed to include the `erlocale` and `departmentnumber` attributes.

6.3 Modifying the global adoption policy

In order to assign existing accounts to people you import into Tivoli Identity Manager, you must modify your existing global adoption policy. Complete the following steps:

1. Go to **Configure System** → **Global Adoption Policies** → **Default adoption policy for ITIM** → **Rule**.
2. In the Rule window, select **Defining Matches**, as shown in Figure 6-5.



Configure System > Global Adoption Policies > Rule

Select the account attribute and user attribute that must match in order for an orphaned account to be adopted. This rule will be evaluated for each account found during reconciliation and used to assign account ownership. If there are no matches for the user, and the account does not have an owner, then the account will remain orphaned.

Specify rule by

● Defining Matches

○ Providing a Script

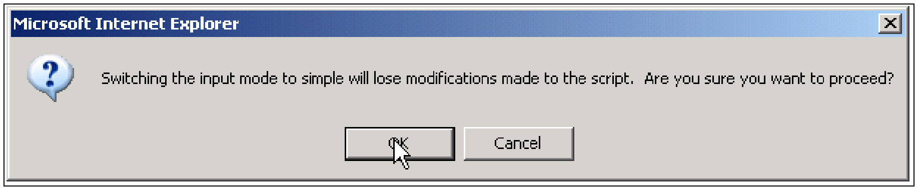
First Try

Account attribute matches: User ID(eruid)

User attribute: Given name dot Last name(firstnamedotlastname)

Figure 6-5 Global Adoption Policies Rule window

3. A warning about losing the existing script appears, as shown in Figure 6-6. Click **OK** to proceed.



Microsoft Internet Explorer

Switching the input mode to simple will lose modifications made to the script. Are you sure you want to proceed?

Figure 6-6 Adoption Policy warning

4. Next, click **Add a match field**.
5. Next, select the following from the drop-down lists:
   - Account attribute matches: `User ID (eruid)`
   - User attribute: *First name* period *Last name (firstname.lastname)*

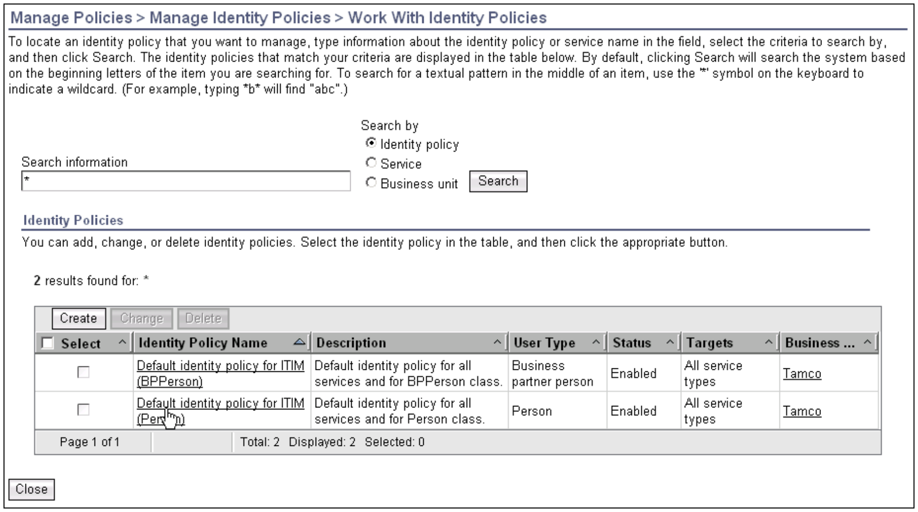
   Then, proceed by clicking **OK** → **Close**.

The global adoption policy has now been changed to match people's firstname.lastname to account IDs and to assign account ownership according to the matches found.

6.4 Modifying the identity policy

In order to create all new accounts with the desired scheme of Firstname.Lastname, you must change the default identity policy:

1. Go to **Manage Policies** → **Manage Identity Policies**.
2. In the Search information box, enter * and click **Search**.
3. From the search results, select **Default identity policy for ITIM (Person)**, as shown in Figure 6-7.



Manage Policies > Manage Identity Policies > Work With Identity Policies

To locate an identity policy that you want to manage, type information about the identity policy or service name in the field, select the criteria to search by, and then click Search. The identity policies that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information: *

Search by: ● Identity policy ○ Service ○ Business unit

Identity Policies

You can add, change, or delete identity policies. Select the identity policy in the table, and then click the appropriate button.

2 results found for: *

Select	Identity Policy Name	Description	User Type	Status	Targets	Business ...
□	Default identity policy for ITIM (BPPerson)	Default identity policy for all services and for BPPerson class.	Business partner person	Enabled	All service types	Tamco
□	Default identity policy for ITIM (Person)	Default identity policy for all services and for Person class.	Person	Enabled	All service types	Tamco

Page 1 of 1 Total: 2 Displayed: 2 Selected: 0

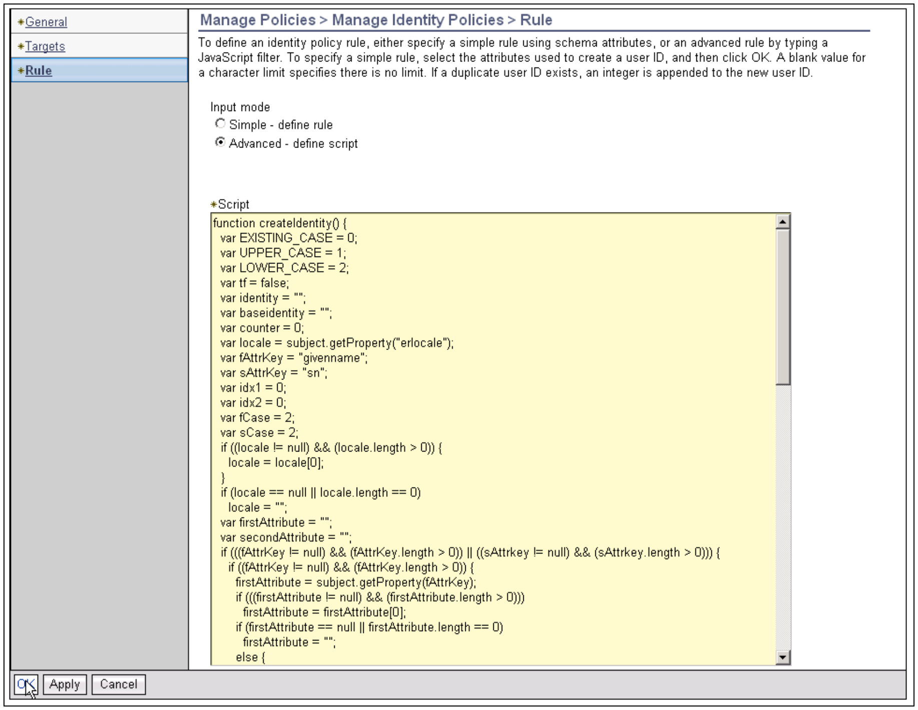
Figure 6-7 Work With Identity Policies window

4. In the window that opens, select **Rule**.
5. Insert the script that is shown in Example 6-1.

Example 6-1 Identity policy script

```
function createIdentity() {
  var EXISTING_CASE = 0;
  var UPPER_CASE = 1;
  var LOWER_CASE = 2;
  var tf = false;
  var identity = "";
  var baseidentity = "";
  var counter = 0;
  var locale = subject.getProperty("erlocale");
  var fAttrKey = "givenname";
  var sAttrKey = "sn";
  var idx1 = 0;
  var idx2 = 0;
  var fCase = 2;
  var sCase = 2;
  if ((locale != null) && (locale.length > 0)) {
    locale = locale[0];
  }
  if (locale == null || locale.length == 0)
    locale = "";
  var firstAttribute = "";
  var secondAttribute = "";
  if (((fAttrKey != null) && (fAttrKey.length > 0)) || ((sAttrkey != null)
&& (sAttrkey.length > 0))) {
    if ((fAttrKey != null) && (fAttrKey.length > 0)) {
      firstAttribute = subject.getProperty(fAttrKey);
      if (((firstAttribute != null) && (firstAttribute.length > 0)))
        firstAttribute = firstAttribute[0];
      if (firstAttribute == null || firstAttribute.length == 0)
        firstAttribute = "";
      else {
        firstAttribute = IdentityPolicy.resolveAttribute(fAttrKey,
firstAttribute);
        if ((idx1 > firstAttribute.length) || (idx1 == 0))
          idx1 = firstAttribute.length;
        firstAttribute = firstAttribute.substring(0, idx1);
      }
      if (fCase == UPPER_CASE)
        firstAttribute = firstAttribute.toUpperCase(locale);
      else if (fCase == LOWER_CASE)
        firstAttribute = firstAttribute.toLowerCase(locale);
    }
    if ((sAttrKey != null) && (sAttrKey.length > 0)) {
      secondAttribute = subject.getProperty(sAttrKey);
      if (((secondAttribute != null) && (secondAttribute.length > 0)))
        secondAttribute = secondAttribute[0];
      if (secondAttribute == null || secondAttribute.length == 0)
        secondAttribute = "";
      else {
        secondAttribute = IdentityPolicy.resolveAttribute(sAttrKey,
secondAttribute);
        if ((idx2 > secondAttribute.length) || (idx2 == 0))
          idx2 = secondAttribute.length;
        secondAttribute = secondAttribute.substring(0, idx2);
      }
      if (sCase == UPPER_CASE)
        secondAttribute = secondAttribute.toUpperCase(locale);
      else if (sCase == LOWER_CASE)
        secondAttribute = secondAttribute.toLowerCase(locale);
    }
    baseidentity = firstAttribute + "." + secondAttribute;
  }
  if ((baseidentity == null) || (baseidentity.length == 0)) {
    var givenname = subject.getProperty("givenname");
    if (((givenname != null) && (givenname.length > 0)))
      givenname = givenname[0];
    if (givenname == null || givenname.length == 0)
      givenname = "";
    else
      givenname = givenname.substring(0, 1);
    baseidentity = givenname + "." + subject.getProperty("sn")[0];
  }
  tf = IdentityPolicy.userIDExists(baseidentity, false, false);
  if (!tf) {
    return baseidentity;
  }
  while (tf) {
    counter+=1;
    identity = baseidentity + counter;
    tf = IdentityPolicy.userIDExists(identity, false, false);
  }
  return identity;
}
return createIdentity();
```

And then, in the Rule window, click **OK**, as shown in Figure 6-8 on page 165.



Manage Policies > Manage Identity Policies > Rule

To define an identity policy rule, either specify a simple rule using schema attributes, or an advanced rule by typing a JavaScript filter. To specify a simple rule, select the attributes used to create a user ID, and then click OK. A blank value for a character limit specifies there is no limit. If a duplicate user ID exists, an integer is appended to the new user ID.

Input mode
○ Simple - define rule
● Advanced - define script

Script

```
function createIdentity() {
  var EXISTING_CASE = 0;
  var UPPER_CASE = 1;
  var LOWER_CASE = 2;
  var tf = false;
  var identity = "";
  var baseidentity = "";
  var counter = 0;
  var locale = subject.getProperty("erlocale");
  var fAttrKey = "givenname";
  var sAttrKey = "sn";
  var idx1 = 0;
  var idx2 = 0;
  var fCase = 2;
  var sCase = 2;
  if ((locale != null) && (locale.length > 0)) {
    locale = locale[0];
  }
  if (locale == null || locale.length == 0)
    locale = "";
  var firstAttribute = "";
  var secondAttribute = "";
  if (((fAttrKey != null) && (fAttrKey.length > 0)) || ((sAttrkey != null) && (sAttrkey.length > 0))) {
    if ((fAttrKey != null) && (fAttrKey.length > 0)) {
      firstAttribute = subject.getProperty(fAttrKey);
      if (((firstAttribute != null) && (firstAttribute.length > 0)))
        firstAttribute = firstAttribute[0];
      if (firstAttribute == null || firstAttribute.length == 0)
        firstAttribute = "";
      else {
```

Figure 6-8 Rule window

6. Click **Close** at the success window.

The identity policy has now been changed.

Tip: The script in Example 6-1 on page 162 was autogenerated by the **Simple - define rule** selection and then slightly modified. For any identity policy changes that cannot be accomplished by the Simple definitions, it is still best to create a simple definition that is as close as possible to the desired rule (this action will create the body of the script), and then, use the Advanced view to edit the script with the finishing touches.

6.5 Creating the services

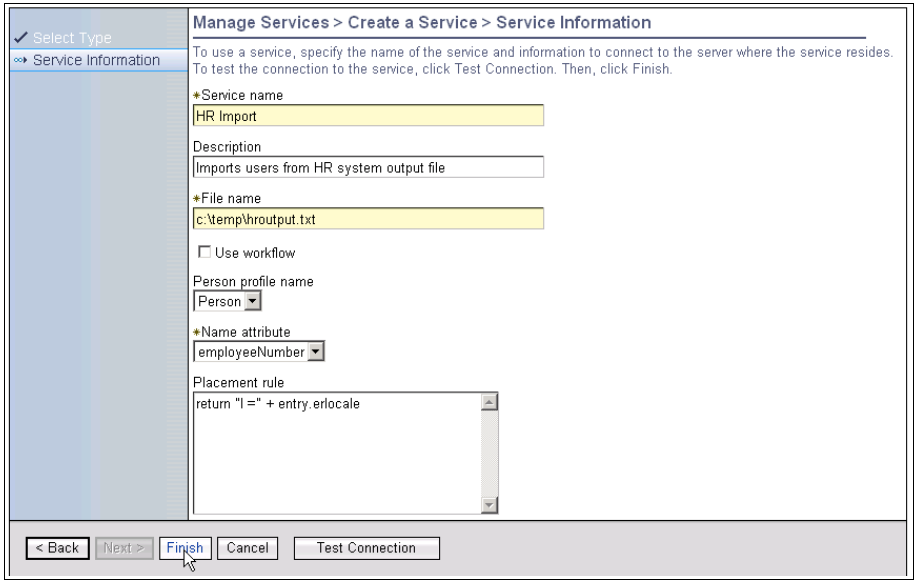
In this section, we create the following services:

- HR import service
- Tivoli Access Manager service
- Active Directory service
- Whitepages service

6.5.1 Creating the HR import service

You need to create a service to import users from the HR output file, which you can accomplish by performing the following steps:

1. Go to **Manage Services** → **Create**.
2. Select **Comma Separated File (CSV) identity feed**, and click **Next**.
3. As shown in Figure 6-9, enter or select the following values in the Service Information window:
   – Service name: `HR Import`
   – Description: `Imports users from HR system output file`
   – File Name: `c:\temp\hroutput.txt`
   – Use workflow: unchecked (default)
   – Person profile name: `Person`
   – Name attribute: `employeeNumber`
   – Placement rule: `return "l =" + entry.erlocale`



Manage Services > Create a Service > Service Information

To use a service, specify the name of the service and information to connect to the server where the service resides. To test the connection to the service, click Test Connection. Then, click Finish.

*Service name: HR Import

Description: Imports users from HR system output file

*File name: c:\temp\hroutput.txt

□ Use workflow

Person profile name: Person

*Name attribute: employeeNumber

Placement rule: return "l =" + entry.erlocale

Figure 6-9 Creating the HR import service

4. Then, click **Finish** → **Close**.

Running HR reconciliation

You must run a reconciliation on the HR import service to bring people into Identity Manager, which requires a CSV formatted file with the HR output file available in the path specified in 6.5.1, "Creating the HR import service" on page 166 (we used `c:\temp\hroutput.txt`). An example of our output file is depicted in Example 6-2.

Example 6-2 HR output file

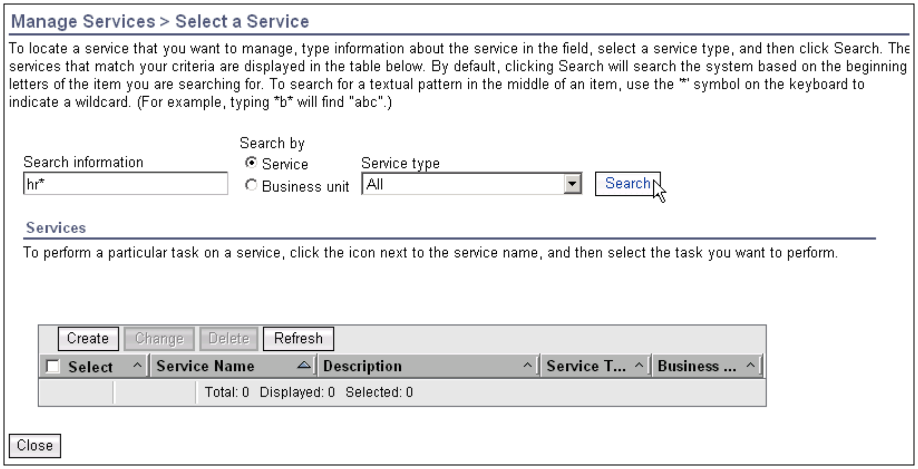
```
cn, sn, givenname, employeenumber ,departmentnumber, mail, erlocale, title,
erpersonstatus, telephonenumber
Tommi Makinen, Makinen, Tommi, 101, Manufacturing, tommi.makinen@tamco.com,
Finland, CEO, 0, 5551111
Pekka Tamminen, Tamminen, Pekka, 102, Sales, pekka.tamminen@tamco.com, Finland,
VP, 0, 5551112
Kalle Auramo, Auramo, Kalle, 103, Accounting, jouko.helminen@tamco.com,
Finland, VP, 0, 5551113
Tommi Kinnunen, Kinnunen, Tommi, 10001, Manufacturing,
tommi.kinnunen@tamco.com, Finland,,0, 5551114
Elli Salminen, Salminen, Elli, 10002, Accounting, elli.salminen@tamco.com,
Finland,,0, 5551115
Jouko Helminen, Helminen, Jouko, 10003, Sales, jouko.helminen@tamco.com,
Finland,,0, 5551116
John Stanston, Stanston, John, 10004, Sales, john.stanston@tamco.com, UK,,0,
5551117
Kurt Weiger, Weiger, Kurt, 10005, Sales, kurt.weiger@tamco.com, Germany,,0,
5551118
Kalle Nieminen, Nieminen, Kalle, 10006, IT, kalle.nieminen@tamco.com,
Finland,,, 55511110
```

All the entries in the file must be compliant with the Identity Manager Person schema. For a schema reference, refer to *IBM Tivoli Identity Manager Database and Schema Reference Version 5.0*, SC23-9011.

> **Tip:** Another quick way to reference the available schema for Person objects is to go to **Configure System** → **Design Forms** → **Person** → **Person**. The names of the fields in the Person form and in the Attribute List selection box next to it are valid attributes (be aware that the $ is not a part of the attribute name).

After the file is in place, complete the following steps:

1. Go to **Manage Services**, enter HR* into the Search information box and click **Search**, as shown in Figure 6-10 on page 168.



Manage Services > Select a Service

To locate a service that you want to manage, type information about the service in the field, select a service type, and then click Search. The services that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information: hr*

Search by: ● Service ○ Business unit

Service type: All

Services

To perform a particular task on a service, click the icon next to the service name, and then select the task you want to perform.

□ Select	Service Name	Description	Service T...	Business ...

Total: 0 Displayed: 0 Selected: 0

Figure 6-10 Select a Service window

2. In the search result box, select **HR Import** → **Reconcile Now**.
3. Click **Close** to close the success window.

The results of this reconciliation are now searchable under Manage Users.

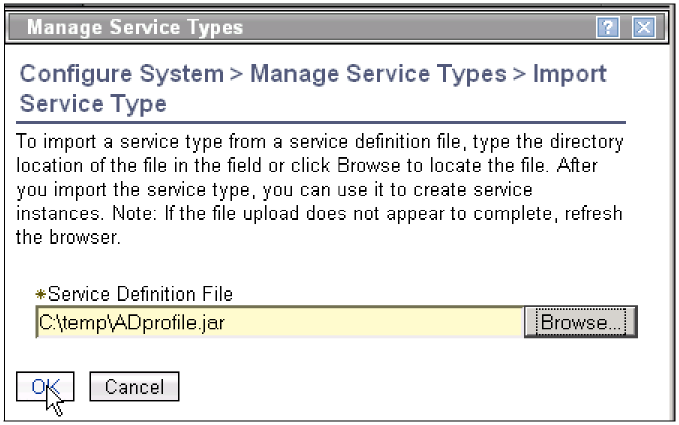
6.5.2 Creating the Active Directory service

In order to create the Active Directory service, the profile needs to be installed on the IBM Tivoli Identity Manager server first. This section describes the steps needed to install both the profile and the service.

Importing the Active Directory profile

This section describes the steps needed to import the Active Directory profile. Before you begin, make sure that your Active Directory agent media is available on the same machine as your Web browser. Then, complete these steps:

1. Go to **Configure System** → **Manage Service Types** → **Import**.
2. Browse for the service definition file that came with your Active Directory agent media (we used the path `c:\temp\ADprofile.jar`), and click **OK**, as shown in Figure 6-11 on page 169.


Manage Service Types

Configure System > Manage Service Types > Import Service Type

To import a service type from a service definition file, type the directory location of the file in the field or click Browse to locate the file. After you import the service type, you can use it to create service instances. Note: If the file upload does not appear to complete, refresh the browser.

*Service Definition File

C:\temp\ADprofile.jar

Figure 6-11 Import service definition file

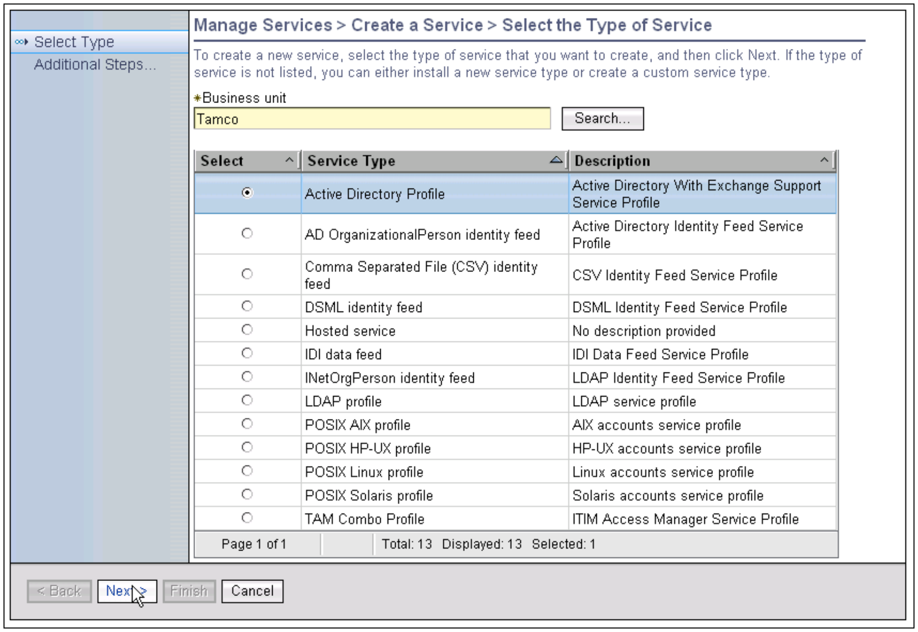
3. Click **Close** after the task is complete.

The service profile has now been imported.

Create the Active Directory service

In this section, we install the Active Directory service. To install, perform the following steps:

1. Go to **Manage Services** → **Create**.
2. In the Select the Type of Service window, select **Active Directory Profile**, as shown in Figure 6-12 on page 170.



Select Type
Additional Steps...
Manage Services > Create a Service > Select the Type of Service

To create a new service, select the type of service that you want to create, and then click Next. If the type of service is not listed, you can either install a new service type or create a custom service type.

*Business unit: Tamco

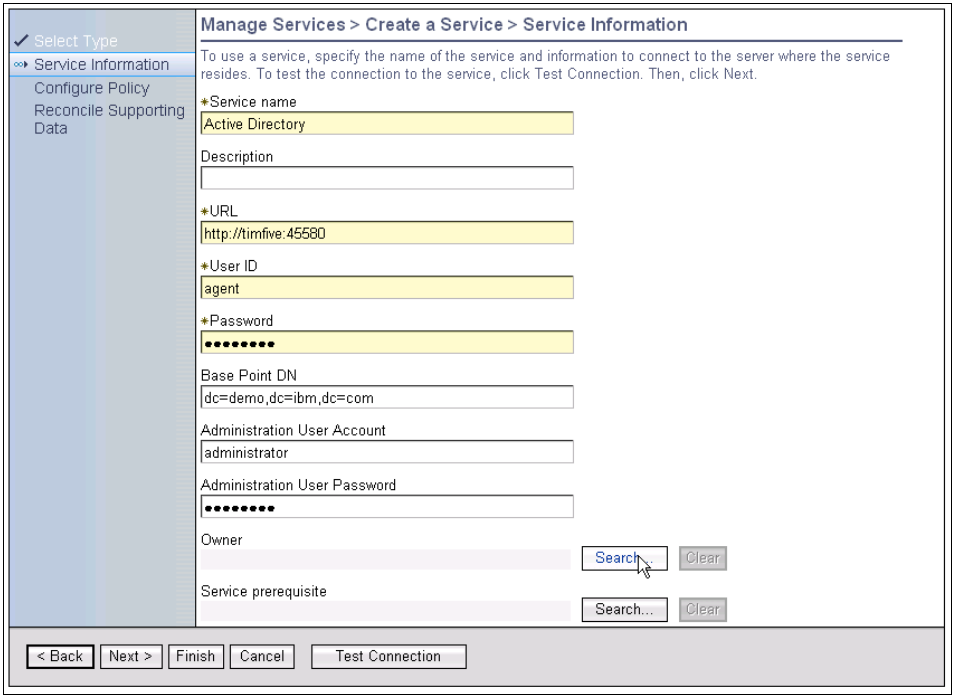
Select	Service Type	Description
●	Active Directory Profile	Active Directory With Exchange Support Service Profile
○	AD OrganizationalPerson identity feed	Active Directory Identity Feed Service Profile
○	Comma Separated File (CSV) identity feed	CSV Identity Feed Service Profile
○	DSML identity feed	DSML Identity Feed Service Profile
○	Hosted service	No description provided
○	IDI data feed	IDI Data Feed Service Profile
○	INetOrgPerson identity feed	LDAP Identity Feed Service Profile
○	LDAP profile	LDAP service profile
○	POSIX AIX profile	AIX accounts service profile
○	POSIX HP-UX profile	HP-UX accounts service profile
○	POSIX Linux profile	Linux accounts service profile
○	POSIX Solaris profile	Solaris accounts service profile
○	TAM Combo Profile	ITIM Access Manager Service Profile

Page 1 of 1 Total: 13 Displayed: 13 Selected: 1

Figure 6-12 Select the Type of Service window

3. In the Service Information window, enter the following information:
   - Service Name: `Active Directory`
   - URL: `http://timfive:45580`
   - User: `IDagent`
   - Password: `passw0rd`
   - Base Point DN: `dc=demo,dc=ibm,dc=com`
   - Administration User Account: `administrator`
   - Administration User Password: `passw0rd`

Then, click **Search** to begin the process of setting the Service Owner, as shown in Figure 6-13 on page 171.



Manage Services > Create a Service > Service Information

To use a service, specify the name of the service and information to connect to the server where the service resides. To test the connection to the service, click Test Connection. Then, click Next.

*Service name: Active Directory

Description:

*URL: http://timfive:45580

*User ID: agent

*Password: ●●●●●●●●●

Base Point DN: dc=demo,dc=ibm,dc=com

Administration User Account: administrator

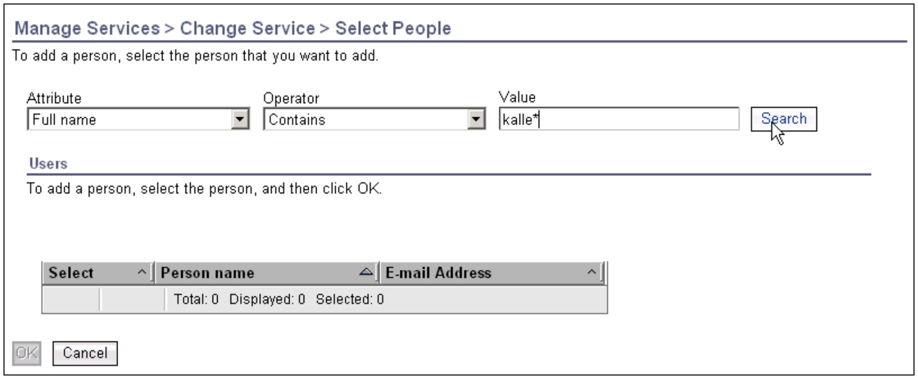
Administration User Password: ●●●●●●●●●

Owner:

Service prerequisite:

Figure 6-13 Service Information window

4. In the search box, enter the search parameter value to find the Person who is to be the service owner (we used `kalle*`), and click **Search**, as shown in Figure 6-14.



Manage Services > Change Service > Select People

To add a person, select the person that you want to add.

Attribute: Full name

Operator: Contains

Value: kalle*

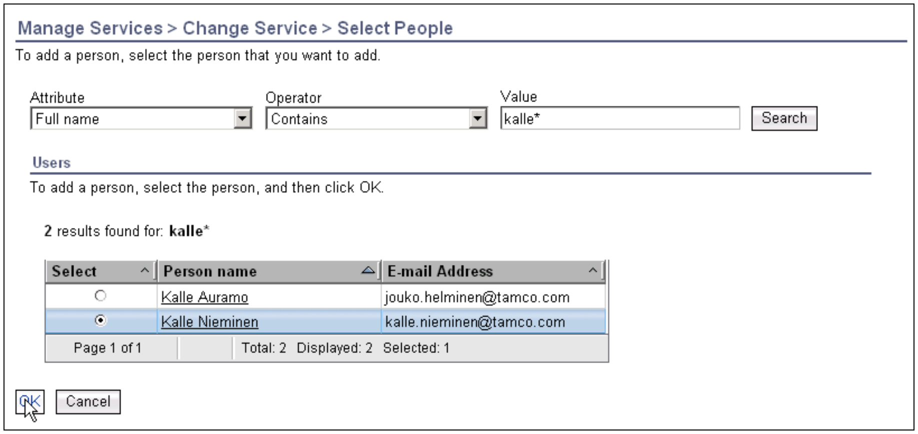
Users

To add a person, select the person, and then click OK.

Select	Person name	E-mail Address
	Total: 0 Displayed: 0 Selected: 0	

Figure 6-14 Select People window: searching for people

5. Select the service owner (we assigned this service to `Kalle Nieminen`), and click **OK**, as shown in Figure 6-15 on page 172.



Manage Services > Change Service > Select People

To add a person, select the person that you want to add.

Attribute: Full name
Operator: Contains
Value: kalle*

Users

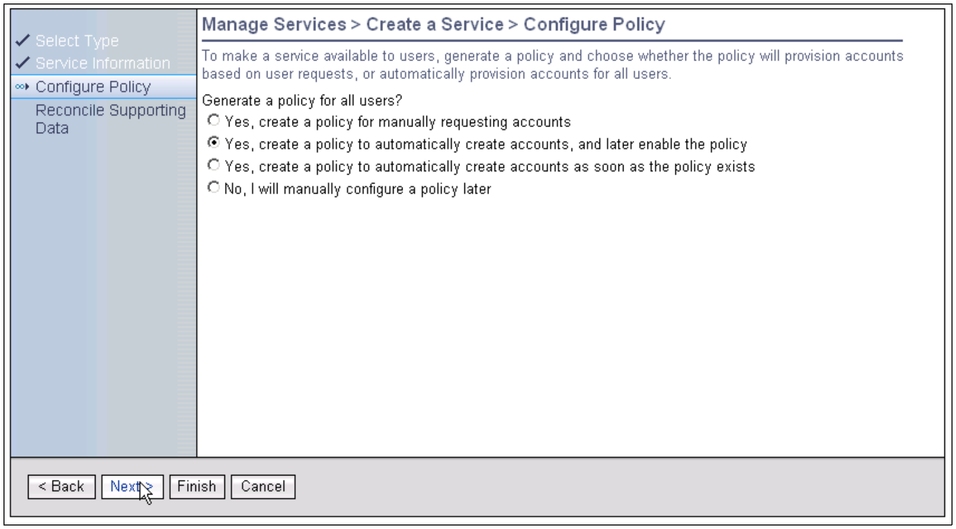
To add a person, select the person, and then click OK.

2 results found for: **kalle***

Select	Person name	E-mail Address
○	Kalle Auramo	jouko.helminen@tamco.com
●	Kalle Nieminen	kalle.nieminen@tamco.com
Page 1 of 1	Total: 2 Displayed: 2 Selected: 1	

Figure 6-15 Select People window: selecting the service owner

6. In the Configure Policy window, select **Yes, create a policy to automatically create accounts and later enable the policy**, and then, click **Next**, as shown in Figure 6-16.



Manage Services > Create a Service > Configure Policy

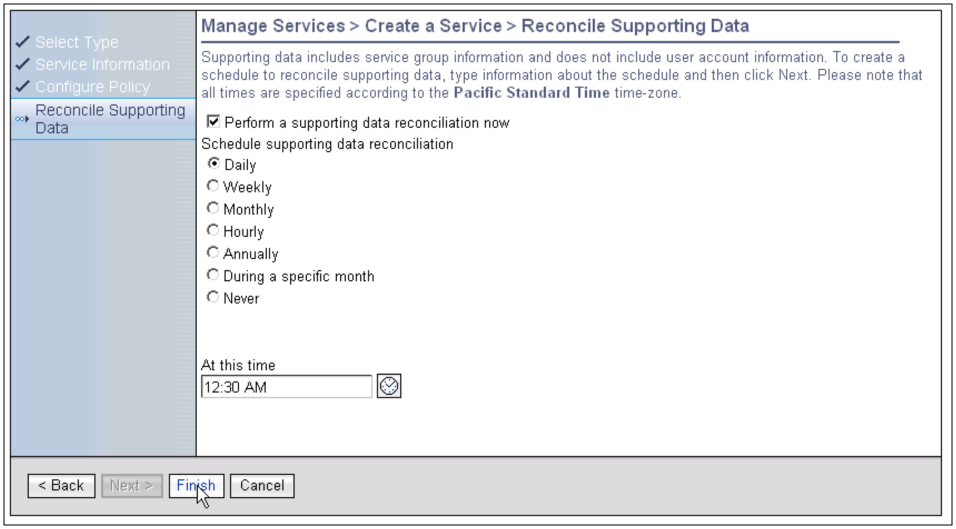
To make a service available to users, generate a policy and choose whether the policy will provision accounts based on user requests, or automatically provision accounts for all users.

Generate a policy for all users?

○ Yes, create a policy for manually requesting accounts
● Yes, create a policy to automatically create accounts, and later enable the policy
○ Yes, create a policy to automatically create accounts as soon as the policy exists
○ No, I will manually configure a policy later

Figure 6-16 Configure Policy window

7. In the Reconcile Supporting Data window, check **Perform a supporting data reconciliation now**, and create a schedule for daily reconciliation. As shown in Figure 6-17 on page 173, we set the daily reconciliation to happen at `12:30 AM`.



Manage Services > Create a Service > Reconcile Supporting Data

Supporting data includes service group information and does not include user account information. To create a schedule to reconcile supporting data, type information about the schedule and then click Next. Please note that all times are specified according to the **Pacific Standard Time** time-zone.

☑ Perform a supporting data reconciliation now

Schedule supporting data reconciliation

● Daily
○ Weekly
○ Monthly
○ Hourly
○ Annually
○ During a specific month
○ Never

At this time
12:30 AM

Figure 6-17 Reconcile Supporting Data window

Then, click **Finish** to submit. At the Success window, click **Close**.

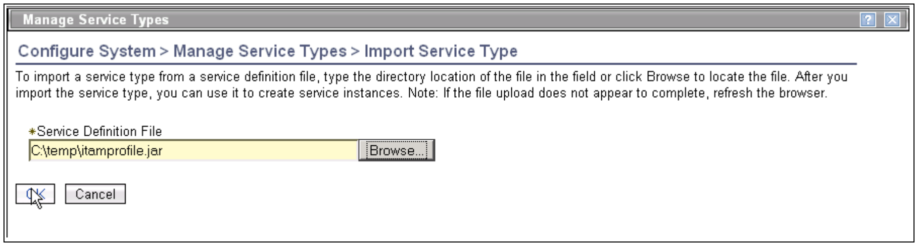
6.5.3 Creating the Access Manager service

In order to create the Access Manager service, you need to install the profile on the Identity Manager server first. This section describes the steps needed to install both the profile and the service.

Importing the Access Manager profile

Import the profile with the following steps:

1. Go to **Configure System** → **Manage Service Types** → **Import**.
2. Browse for the Service definition file, which came with your Access Manager agent media (we used the path `c:\temp\itamprofile.jar`), and click **OK**, as shown in Figure 6-18.



Configure System > Manage Service Types > Import Service Type

To import a service type from a service definition file, type the directory location of the file in the field or click Browse to locate the file. After you import the service type, you can use it to create service instances. Note: If the file upload does not appear to complete, refresh the browser.

*Service Definition File
C:\temp\itamprofile.jar

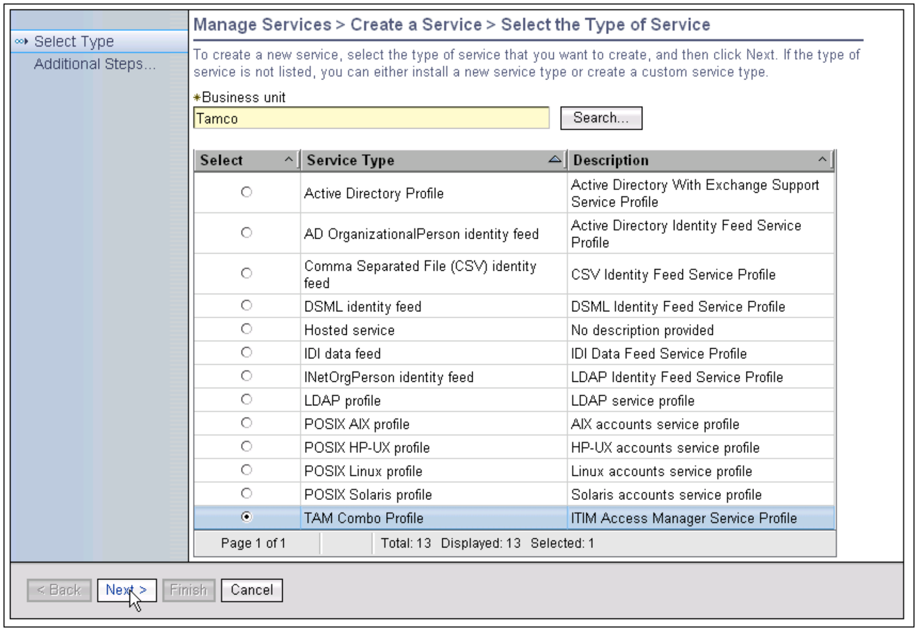
Figure 6-18 Import Service Type window

Click **Close** after the task is complete.

Creating the Access Manager service

Perform the following steps to create the Access Manager service:

1. Select **Manage Services** → **Create**.
2. In the Select the Type of Service window, select **TAM Combo Profile**, and click **Next**, as shown in Figure 6-19.



Manage Services > Create a Service > Select the Type of Service

To create a new service, select the type of service that you want to create, and then click Next. If the type of service is not listed, you can either install a new service type or create a custom service type.

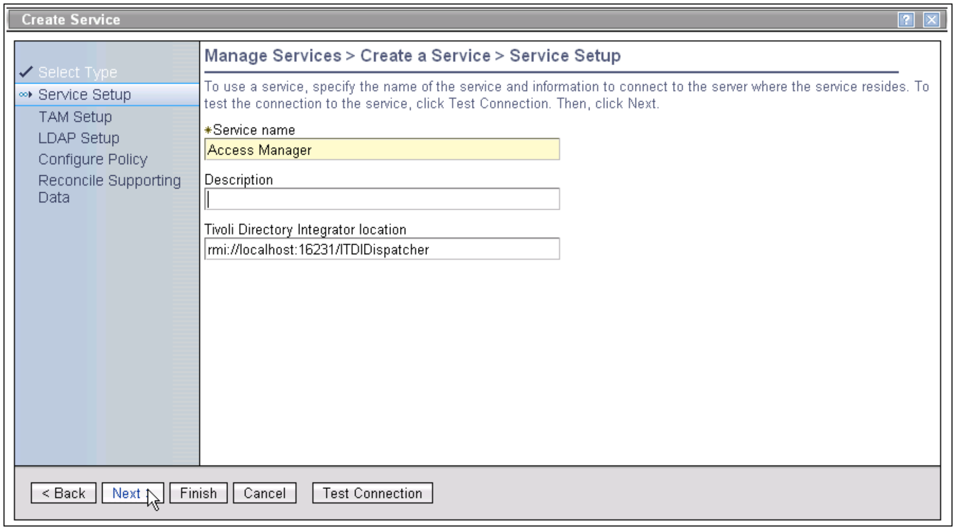
*Business unit: Tamco

Select	Service Type	Description
○	Active Directory Profile	Active Directory With Exchange Support Service Profile
○	AD OrganizationalPerson identity feed	Active Directory Identity Feed Service Profile
○	Comma Separated File (CSV) identity feed	CSV Identity Feed Service Profile
○	DSML identity feed	DSML Identity Feed Service Profile
○	Hosted service	No description provided
○	IDI data feed	IDI Data Feed Service Profile
○	INetOrgPerson identity feed	LDAP Identity Feed Service Profile
○	LDAP profile	LDAP service profile
○	POSIX AIX profile	AIX accounts service profile
○	POSIX HP-UX profile	HP-UX accounts service profile
○	POSIX Linux profile	Linux accounts service profile
○	POSIX Solaris profile	Solaris accounts service profile
●	TAM Combo Profile	ITIM Access Manager Service Profile

Page 1 of 1 Total: 13 Displayed: 13 Selected: 1

Figure 6-19 Select the Type of Service

3. In the Service Setup window, enter the following data (Figure 6-20 on page 175):
   - Service Name: `Access Manager`
   - Tivoli Directory Integrator location: `rmi://localhost:16231/ITDIDispatcher`



Manage Services > Create a Service > Service Setup

To use a service, specify the name of the service and information to connect to the server where the service resides. To test the connection to the service, click Test Connection. Then, click Next.

*Service name: Access Manager

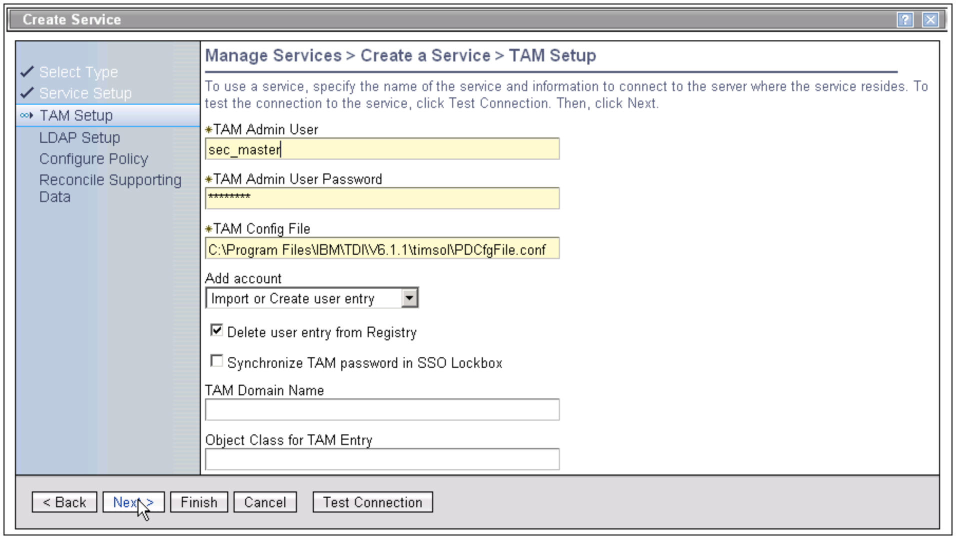
Description:

Tivoli Directory Integrator location: rmi://localhost:16231/ITDIDispatcher

Figure 6-20 Service Setup window

4. In the TAM Setup window, enter or select these values:
   - TAM Admin User: `sec_master`
   - TAM Admin User Password: `passw0rd`
   - TAM Config File: `C:\Program Files\IBM\TDI\V6.1.1\timsol\PDCfgFile.conf`
   - Add account*:* `Import or Create user entry`
   - Delete user entry from registry: `checked`

   Then, click **Next**, as shown in Figure 6-21 on page 176.



Manage Services > Create a Service > TAM Setup

To use a service, specify the name of the service and information to connect to the server where the service resides. To test the connection to the service, click Test Connection. Then, click Next.

*TAM Admin User: sec_master

*TAM Admin User Password: ********

*TAM Config File: C:\Program Files\IBM\TDI\V6.1.1\timsol\PDCfgFile.conf

Add account: Import or Create user entry

☑ Delete user entry from Registry

☐ Synchronize TAM password in SSO Lockbox

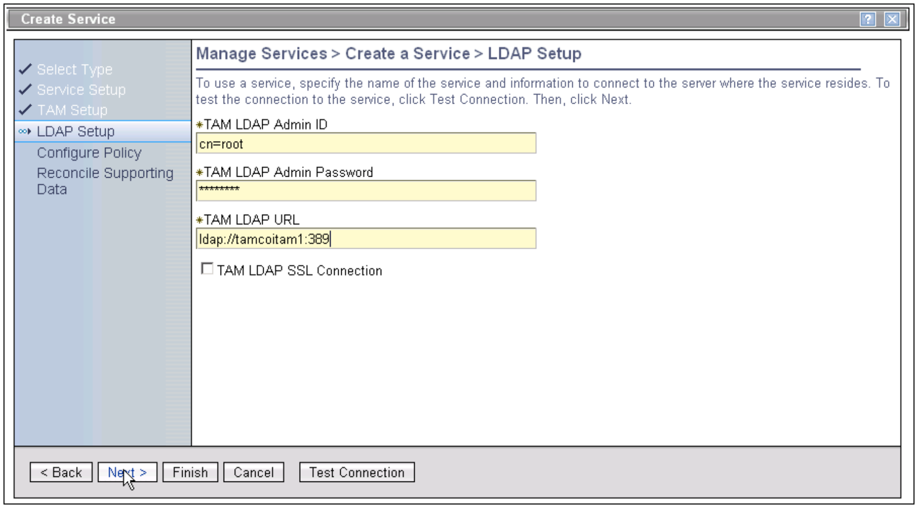
TAM Domain Name:

Object Class for TAM Entry:

Figure 6-21 TAM Setup window

5. In the LDAP Setup window, enter these values:
   - TAM LDAP Admin ID: `cn=root`
   - TAM LDAP Admin Password: `passw0rd`
   - TAM LDAP URL: `ldap://tamcoitam1:389`

   Then, click **Next**, as shown in Figure 6-22.



Manage Services > Create a Service > LDAP Setup

To use a service, specify the name of the service and information to connect to the server where the service resides. To test the connection to the service, click Test Connection. Then, click Next.

*TAM LDAP Admin ID: cn=root

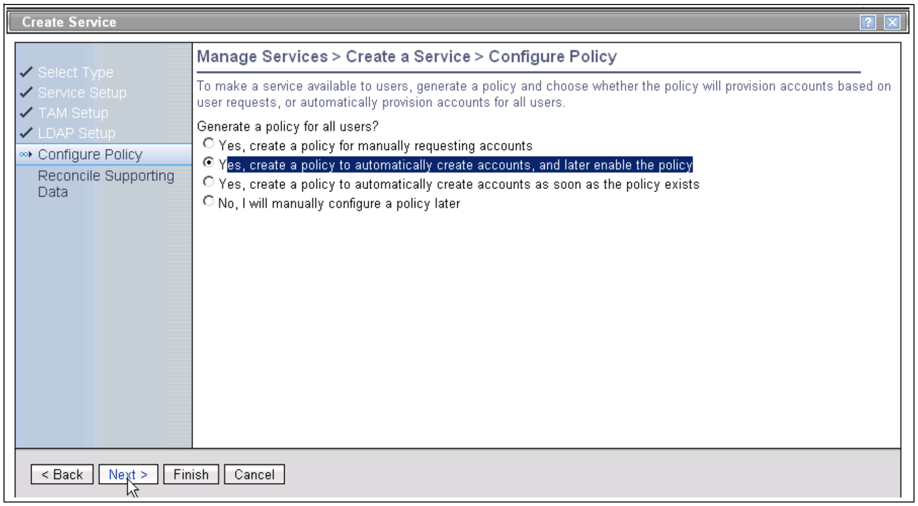
*TAM LDAP Admin Password: ********

*TAM LDAP URL: ldap://tamcoitam1:389

☐ TAM LDAP SSL Connection

Figure 6-22 LDAP Setup window

6. In the Configure Policy window, select **Yes, create a policy to automatically create accounts, and later enable the policy**, and click **Next**, as shown in Figure 6-23.



Manage Services > Create a Service > Configure Policy

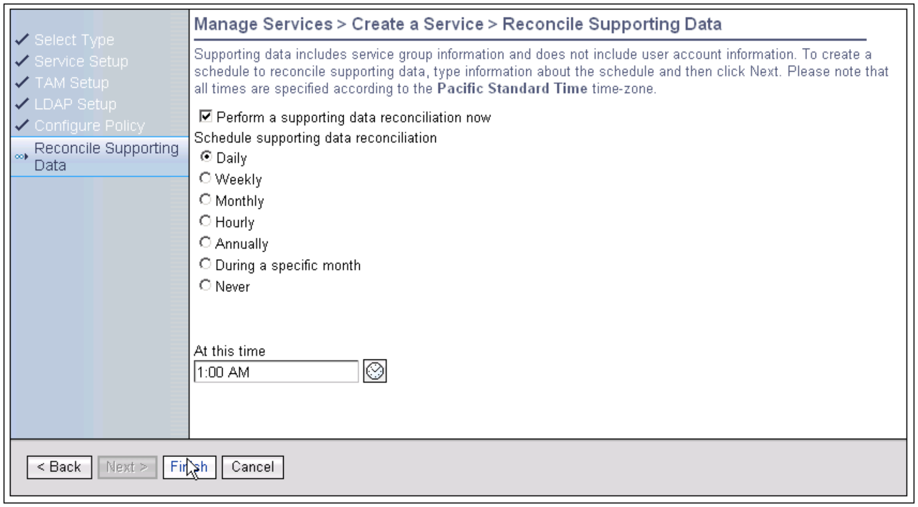
To make a service available to users, generate a policy and choose whether the policy will provision accounts based on user requests, or automatically provision accounts for all users.

Generate a policy for all users?

○ Yes, create a policy for manually requesting accounts
● Yes, create a policy to automatically create accounts, and later enable the policy
○ Yes, create a policy to automatically create accounts as soon as the policy exists
○ No, I will manually configure a policy later

Figure 6-23 Configure Policy window

7. In the Reconcile Supporting Data window, check **Perform a supporting data reconciliation now**, and create a schedule for daily reconciliation. As shown in Figure 6-24, we set the daily reconciliation to happen at `1:00 AM`.



Manage Services > Create a Service > Reconcile Supporting Data

Supporting data includes service group information and does not include user account information. To create a schedule to reconcile supporting data, type information about the schedule and then click Next. Please note that all times are specified according to the **Pacific Standard Time** time-zone.

☑ Perform a supporting data reconciliation now

Schedule supporting data reconciliation

● Daily
○ Weekly
○ Monthly
○ Hourly
○ Annually
○ During a specific month
○ Never

At this time: 1:00 AM

Figure 6-24 Reconcile Supporting Data window

8. Then, click **Finish** to submit. At the Success window, click **Close**.

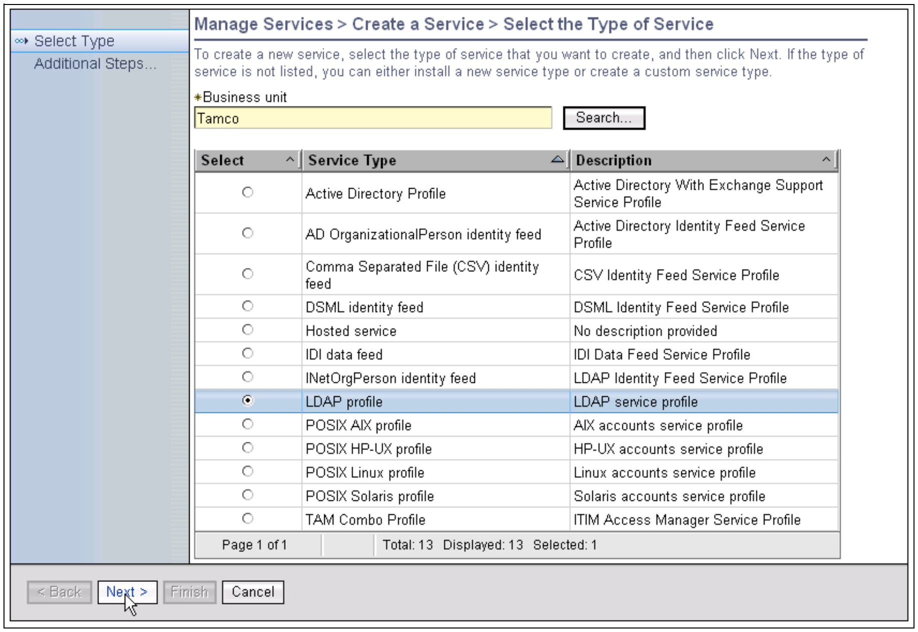
The Access Manager service has now been created.

6.5.4 Creating the Whitepages service

The Whitepages service uses the built-in agentless adapter for Lightweight Directory Access Protocol (LDAP). The profile for the built-in agentless adapter for LDAP is imported during the Tivoli Identity Manager installation, so you do not have to install it here.

The steps to configure the service are:

1. Go to **Manage Services** → **Create**.
2. In the Select the Type of Service window, select LDAP Profile, and click **Next**, as shown in Figure 6-25.



Manage Services > Create a Service > Select the Type of Service

To create a new service, select the type of service that you want to create, and then click Next. If the type of service is not listed, you can either install a new service type or create a custom service type.

*Business unit: Tamco

Select	Service Type	Description
○	Active Directory Profile	Active Directory With Exchange Support Service Profile
○	AD OrganizationalPerson identity feed	Active Directory Identity Feed Service Profile
○	Comma Separated File (CSV) identity feed	CSV Identity Feed Service Profile
○	DSML identity feed	DSML Identity Feed Service Profile
○	Hosted service	No description provided
○	IDI data feed	IDI Data Feed Service Profile
○	INetOrgPerson identity feed	LDAP Identity Feed Service Profile
●	LDAP profile	LDAP service profile
○	POSIX AIX profile	AIX accounts service profile
○	POSIX HP-UX profile	HP-UX accounts service profile
○	POSIX Linux profile	Linux accounts service profile
○	POSIX Solaris profile	Solaris accounts service profile
○	TAM Combo Profile	ITIM Access Manager Service Profile

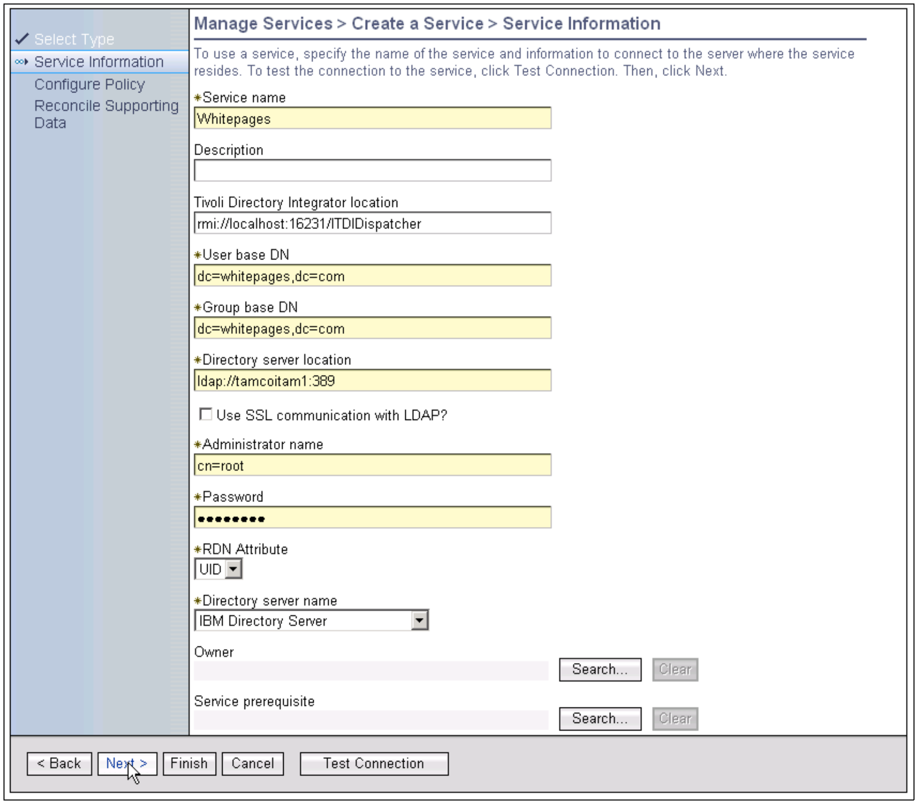
Page 1 of 1 Total: 13 Displayed: 13 Selected: 1

Figure 6-25 Select the Type of Service window

3. In the Service Information window, enter or select the following information:
   - Service name: `Whitepages`
   - Tivoli Directory Integrator location: `rmi://localhost:16231/ITDIDispatcher`
   - User base DN: `dc=whitepages,dc=com`

- Group base DN: `dc=whitepages,dc=com`
- Directory server location: `ldap://tamcoitam1:389`
- Administrator name: `cn=root`
- Password: `passw0rd`
- RDN Attribute: `UID`
- Directory server name: `IBM Directory Server`

Then, click **Next**, as shown in Figure 6-26.



Manage Services > Create a Service > Service Information

To use a service, specify the name of the service and information to connect to the server where the service resides. To test the connection to the service, click Test Connection. Then, click Next.

*Service name: Whitepages

Description:

Tivoli Directory Integrator location: rmi://localhost:16231/ITDIDispatcher

*User base DN: dc=whitepages,dc=com

*Group base DN: dc=whitepages,dc=com

*Directory server location: ldap://tamcoitam1:389

☐ Use SSL communication with LDAP?

*Administrator name: cn=root

*Password: ••••••••

*RDN Attribute: UID

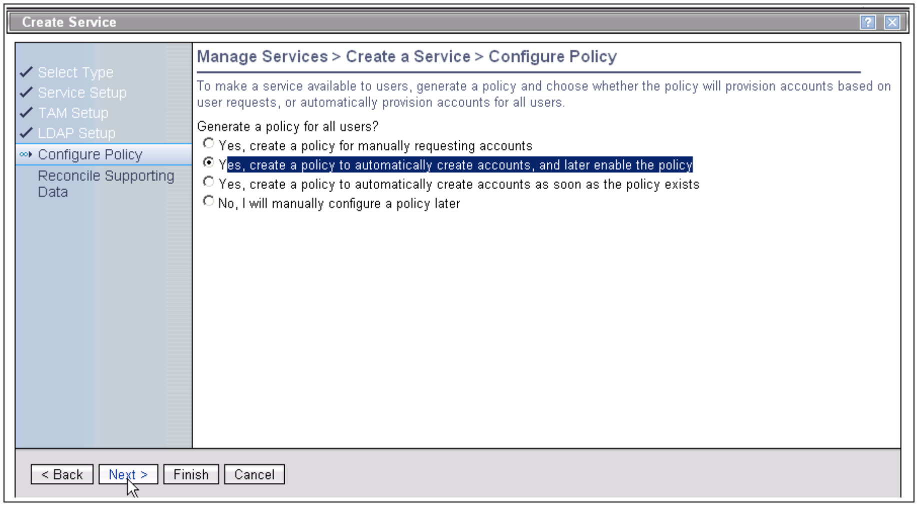
*Directory server name: IBM Directory Server

Owner:

Service prerequisite:

Figure 6-26 Service Information window

4. In the Configure Policy window, select **Yes, create a policy to automatically create accounts, and later enable the policy**, and then, click **Next**, as shown in Figure 6-27 on page 180.



Create Service

Manage Services > Create a Service > Configure Policy

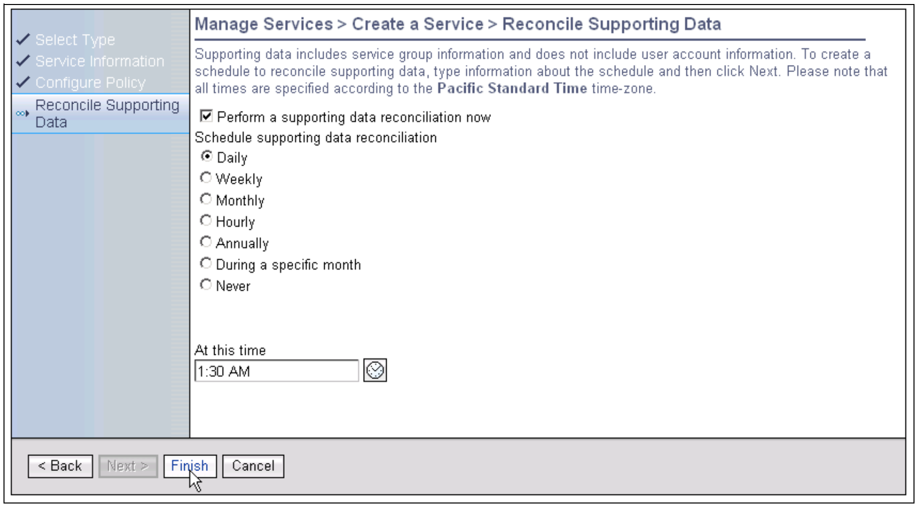
To make a service available to users, generate a policy and choose whether the policy will provision accounts based on user requests, or automatically provision accounts for all users.

Generate a policy for all users?

○ Yes, create a policy for manually requesting accounts
● Yes, create a policy to automatically create accounts, and later enable the policy
○ Yes, create a policy to automatically create accounts as soon as the policy exists
○ No, I will manually configure a policy later

Figure 6-27 Configure Policy window

5. In the Reconcile Supporting Data window, check **Perform a supporting data reconciliation now**, and create a schedule for daily reconciliation. As shown in Figure 6-28, we set the daily reconciliation to happen at `1:30 AM`.



Manage Services > Create a Service > Reconcile Supporting Data

Supporting data includes service group information and does not include user account information. To create a schedule to reconcile supporting data, type information about the schedule and then click Next. Please note that all times are specified according to the **Pacific Standard Time** time-zone.

☑ Perform a supporting data reconciliation now

Schedule supporting data reconciliation

● Daily
○ Weekly
○ Monthly
○ Hourly
○ Annually
○ During a specific month
○ Never

At this time

1:30 AM

Figure 6-28 Reconcile Supporting Data window

6. Then, click **Finish** to submit. Click **Close** at the Success window.

The Whitepages service has now been created.

6.6 Creating the organizational roles

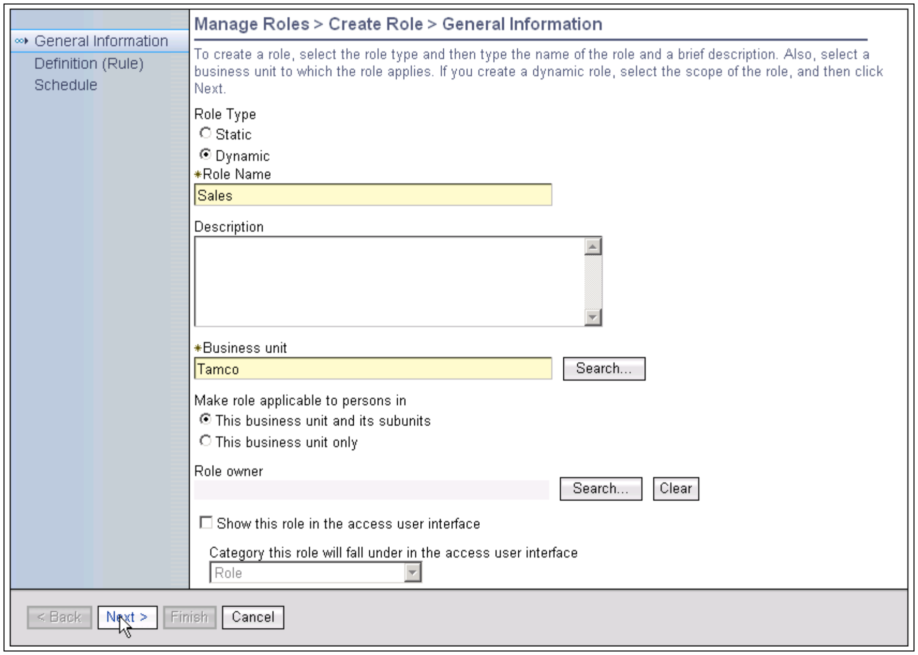
In this section, we create the organizational roles into which people will be added as they are imported from HR.

We will create the following roles:

- Executives
- Sales
- Manufacturing
- Accounting
- IT

To create the roles, perform the following steps for each of the roles, except for the Executives role, which will have a slightly different implementation:

1. Go to **Manage Roles** → **Create**.
2. In the General Information window, select **Dynamic** as the Role Type, and in the Role Name field, enter `Sales`. Then, click **Next**, as shown in Figure 6-29.



Manage Roles > Create Role > General Information

To create a role, select the role type and then type the name of the role and a brief description. Also, select a business unit to which the role applies. If you create a dynamic role, select the scope of the role, and then click Next.

Role Type
○ Static
● Dynamic

*Role Name
Sales

Description

*Business unit
Tamco

Make role applicable to persons in
● This business unit and its subunits
○ This business unit only

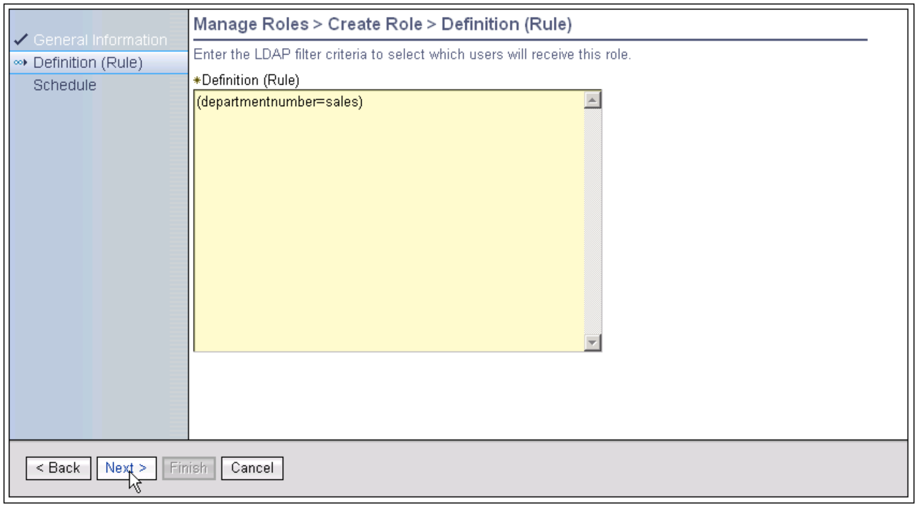
Role owner

☐ Show this role in the access user interface

Category this role will fall under in the access user interface
Role

Figure 6-29 Create Role: General Information window

3. In the Definition (Rule) window, enter `(departmentnumber=Sales)` as the Definition, as shown in Figure 6-30.



Enter the LDAP filter criteria to select which users will receive this role.

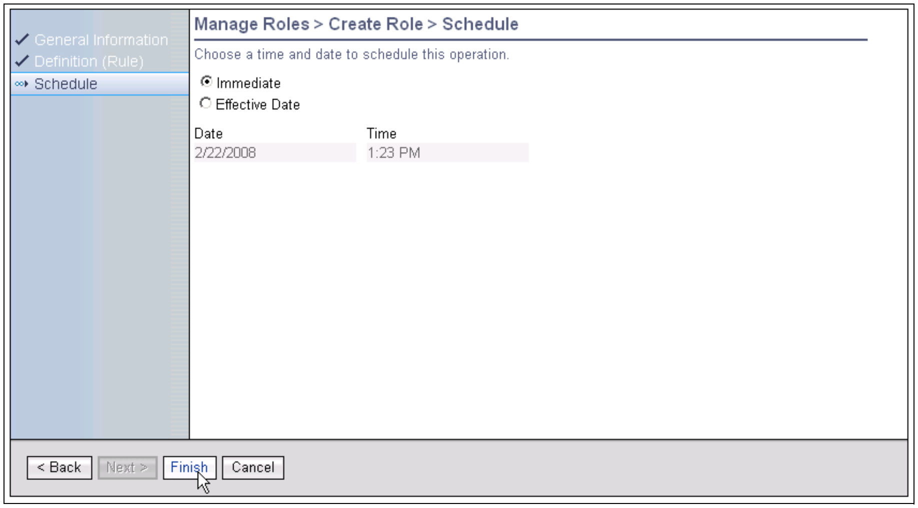
*Definition (Rule)

(departmentnumber=sales)

Figure 6-30 Create Role: Definition (Rule) window

Note: If creating the Executives role, enter `((title=vp)(title=ceo))` as the Definition.

4. In the Schedule window, choose **Immediate** in order to create the role right away, and click **Finish**, as shown in Figure 6-31 on page 182.



Choose a time and date to schedule this operation.

● Immediate

○ Effective Date

Date: 2/22/2008

Time: 1:23 PM

Figure 6-31 Create Role: Schedule window

5. At the Success window, choose **Create another role**, and create the rest of the roles following the same steps.

6.7 Creating the provisioning policies

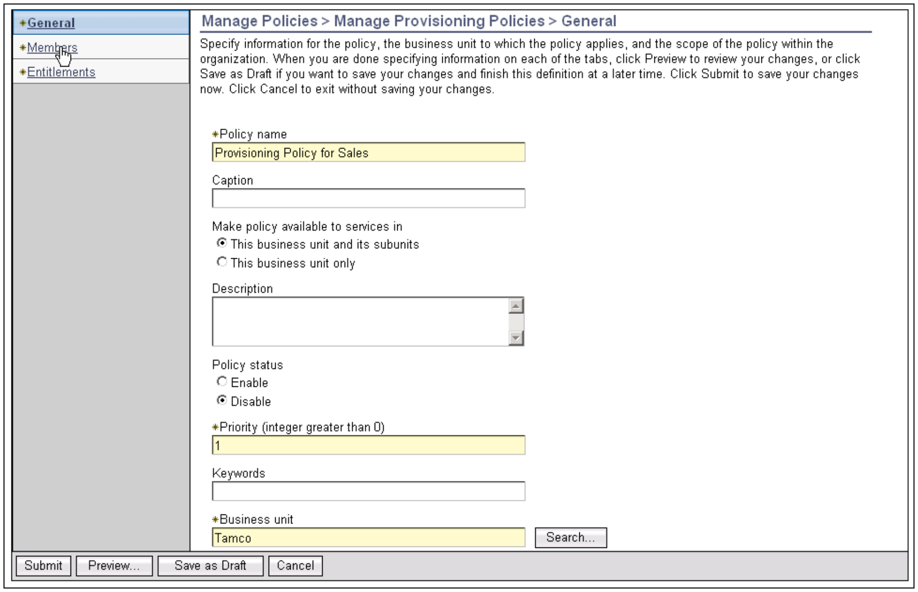
A provisioning policy must be created for each role in order to provision each role with the correct access in each system.

6.7.1 Provisioning policy for Sales

To create the policy, complete the following steps:

1. Go to **Manage Policies** → **Manage Provisioning Policies** → **Create**.
2. In the General window, enter:
   - Policy Name: `Provisioning Policy for Sales`
   - Make policy available to services in:
     `This business unit and its subunits`
   - Policy Status: `Disable`
   - Priority: `1`
   - Business Unit: `Tamco`

   Then, click **Members**, as shown in Figure 6-32 on page 184.



Manage Policies > Manage Provisioning Policies > General

Specify information for the policy, the business unit to which the policy applies, and the scope of the policy within the organization. When you are done specifying information on each of the tabs, click Preview to review your changes, or click Save as Draft if you want to save your changes and finish this definition at a later time. Click Submit to save your changes now. Click Cancel to exit without saving your changes.

*Policy name: Provisioning Policy for Sales

Caption:

Make policy available to services in
● This business unit and its subunits
○ This business unit only

Description:

Policy status
○ Enable
● Disable

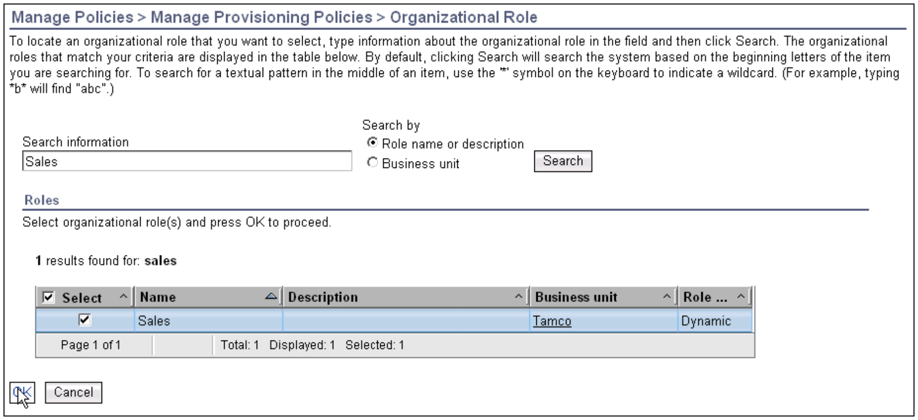
*Priority (integer greater than 0): 1

Keywords:

*Business unit: Tamco

Figure 6-32 Manage Provisioning Policies: General window

3. In the Members window, click **Roles specified below → Add**.
4. In the Organizational Role search, type `Sales` in the Search information box, and click **Search**.
5. From the search results, check the box to the left of Sales, and click **OK**, as shown in Figure 6-33.



Manage Policies > Manage Provisioning Policies > Organizational Role

To locate an organizational role that you want to select, type information about the organizational role in the field and then click Search. The organizational roles that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing "b*" will find "abc".)

Search information: Sales

Search by
● Role name or description
○ Business unit

Roles

Select organizational role(s) and press OK to proceed.

1 results found for: **sales**

☑ Select	Name	Description	Business unit	Role ...
☑	Sales		Tamco	Dynamic

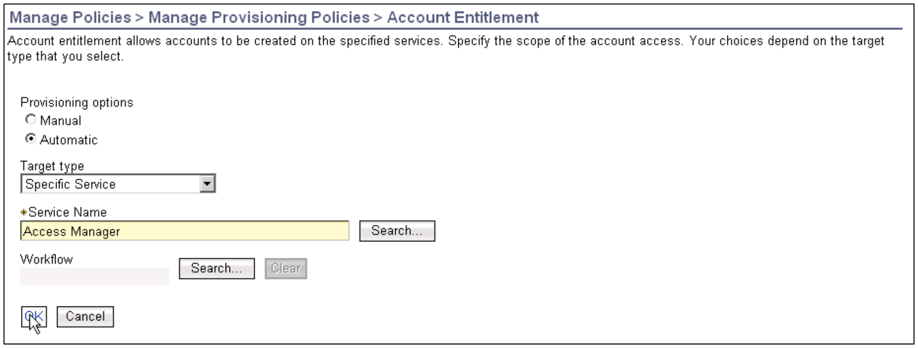
Page 1 of 1 Total: 1 Displayed: 1 Selected: 1

Figure 6-33 Organizational Role search window

6. When back in the Members window, select **Entitlements**.

7. In the Entitlements window, select **Create**.

8. In the Account Entitlement window, under the Provisioning options, select **Automatic**, select **Specific Service** for Target Type, and then click **Search**, as shown in Figure 6-34.



Manage Policies > Manage Provisioning Policies > Account Entitlement

Account entitlement allows accounts to be created on the specified services. Specify the scope of the account access. Your choices depend on the target type that you select.

Provisioning options
○ Manual
● Automatic

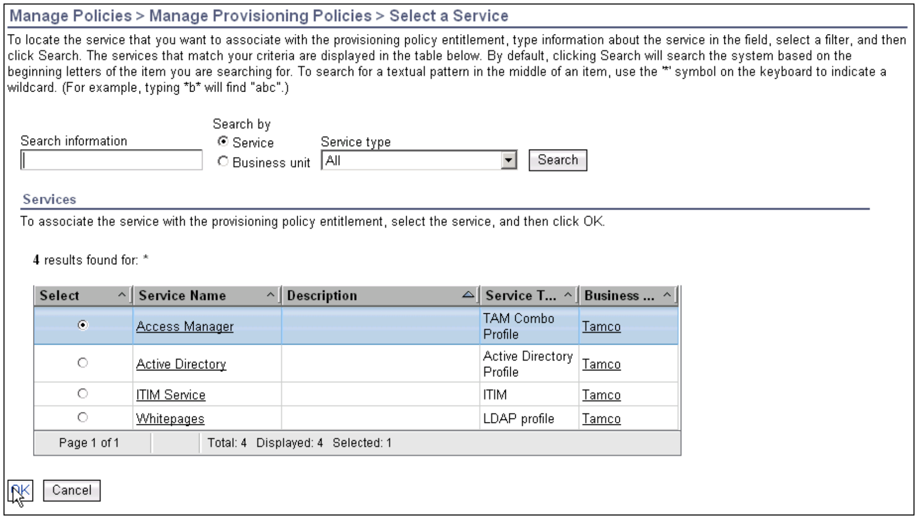
Target type: Specific Service

*Service Name: Access Manager

Figure 6-34 Account Entitlement window

9. In the Select a Service window, click **Search** to display all services.

10. From the results found, select the radio button to the left of **Access Manager**, and click **OK**, as shown in Figure 6-35.



Manage Policies > Manage Provisioning Policies > Select a Service

To locate the service that you want to associate with the provisioning policy entitlement, type information about the service in the field, select a filter, and then click Search. The services that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information

Search by
● Service
○ Business unit

Service type: All

Services

To associate the service with the provisioning policy entitlement, select the service, and then click OK.

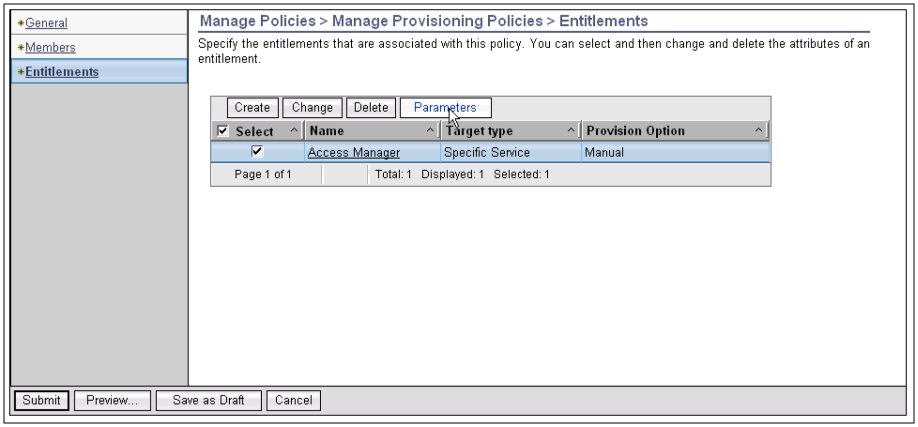
4 results found for: *

Select	Service Name	Description	Service T...	Business ...
●	Access Manager		TAM Combo Profile	Tamco
○	Active Directory		Active Directory Profile	Tamco
○	ITIM Service		ITIM	Tamco
○	Whitepages		LDAP profile	Tamco

Page 1 of 1 Total: 4 Displayed: 4 Selected: 1

Figure 6-35 Select a Service window

11. Back in the Entitlements window, check the box to the left of **Access Manager**, and click **Parameters**, as shown in Figure 6-36 on page 186.



Manage Policies > Manage Provisioning Policies > Entitlements

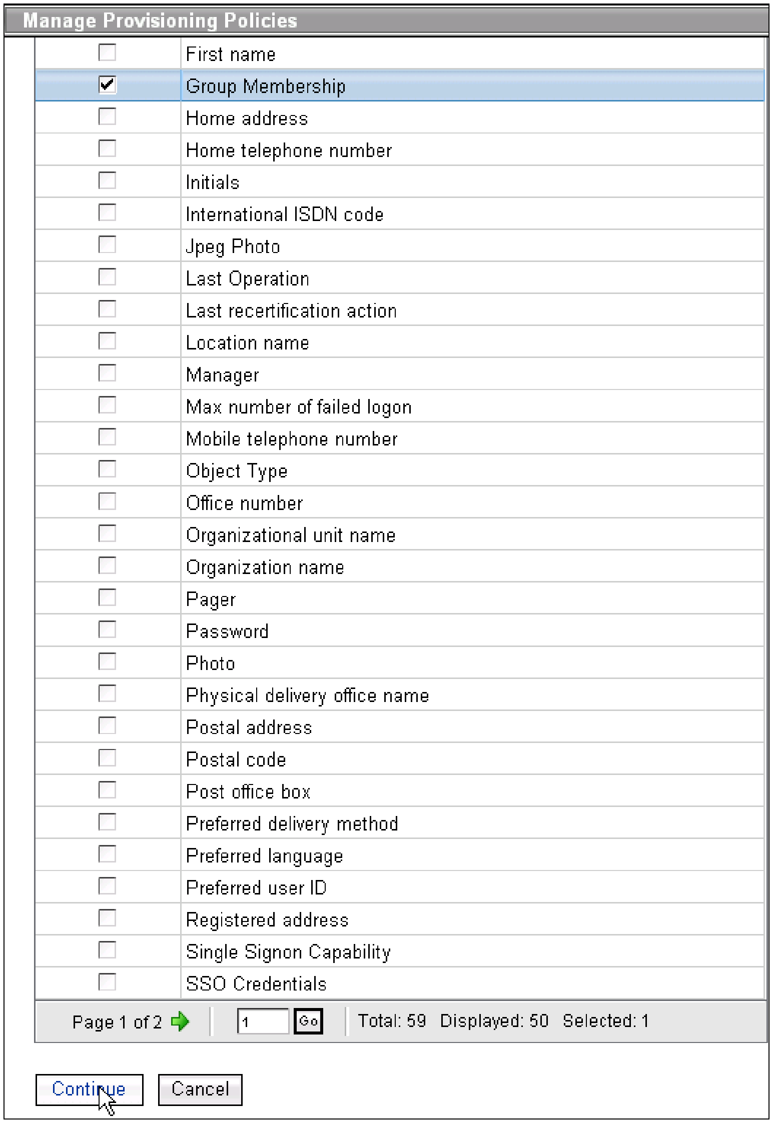
Specify the entitlements that are associated with this policy. You can select and then change and delete the attributes of an entitlement.

☑ Select	Name	Target type	Provision Option
☑	Access Manager	Specific Service	Manual

Page 1 of 1 Total: 1 Displayed: 1 Selected: 1

Figure 6-36 Entitlements window: Selecting Parameters

12. Select **Create** in the Entitlement Parameter window.
13. In the Manage Provisioning Policies window to add a new parameter, select **Group Membership**, and click **Continue**, as shown in Figure 6-37 on page 187.



Manage Provisioning Policies

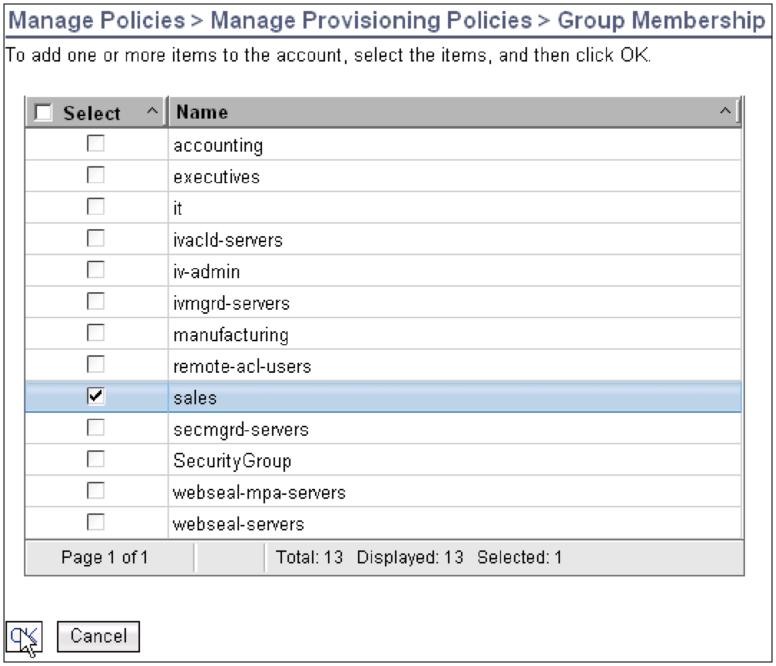
- □ First name
- ☑ Group Membership
- □ Home address
- □ Home telephone number
- □ Initials
- □ International ISDN code
- □ Jpeg Photo
- □ Last Operation
- □ Last recertification action
- □ Location name
- □ Manager
- □ Max number of failed logon
- □ Mobile telephone number
- □ Object Type
- □ Office number
- □ Organizational unit name
- □ Organization name
- □ Pager
- □ Password
- □ Photo
- □ Physical delivery office name
- □ Postal address
- □ Postal code
- □ Post office box
- □ Preferred delivery method
- □ Preferred language
- □ Preferred user ID
- □ Registered address
- □ Single Signon Capability
- □ SSO Credentials

Page 1 of 2 ➡ 1 Go Total: 59 Displayed: 50 Selected: 1

Figure 6-37 Add New Parameter window

14. In the Define Constant window, leave the Parameter Type as `Constant Value` (Default) and select **Mandatory** as Enforcement Type. Then, click **Search**.

15. In the Group Membership window, select **sales** and click **OK**, as shown in Figure 6-38 on page 188.



Manage Policies > Manage Provisioning Policies > Group Membership

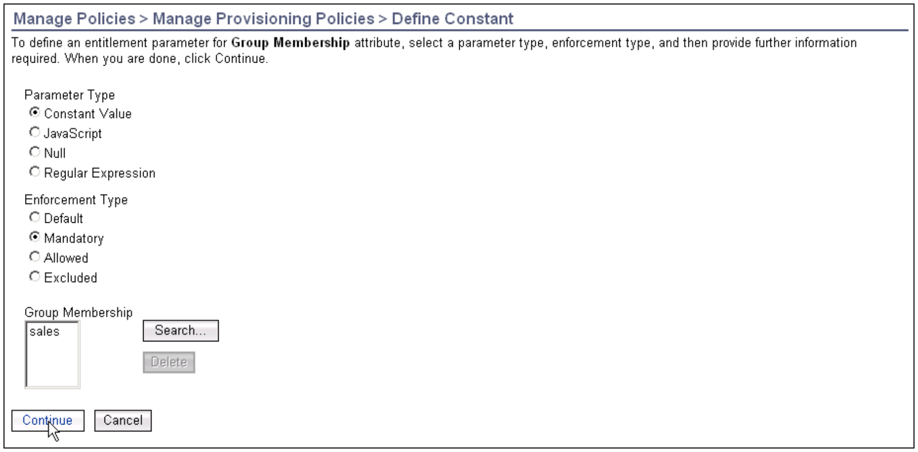
To add one or more items to the account, select the items, and then click OK.

□ Select	Name
□	accounting
□	executives
□	it
□	ivacld-servers
□	iv-admin
□	ivmgrd-servers
□	manufacturing
□	remote-acl-users
☑	sales
□	secmgrd-servers
□	SecurityGroup
□	webseal-mpa-servers
□	webseal-servers

Page 1 of 1 Total: 13 Displayed: 13 Selected: 1

Figure 6-38 Manage Provisioning Policies: Group Membership window

16. Back in the Define Constant window, click **Continue**, as shown in Figure 6-39.



Manage Policies > Manage Provisioning Policies > Define Constant

To define an entitlement parameter for **Group Membership** attribute, select a parameter type, enforcement type, and then provide further information required. When you are done, click Continue.

Parameter Type
● Constant Value
○ JavaScript
○ Null
○ Regular Expression

Enforcement Type
○ Default
● Mandatory
○ Allowed
○ Excluded

Group Membership
sales

Figure 6-39 Define Constant window

17. This action brings you back to the Entitlement Parameter window, where you click **Continue**.

18. To create the Sales entitlement for Active Directory, repeat steps 7-17 with the following exceptions:

    – In step 10, select **Active Directory** instead of Access Manager.

    – In step 13, select **Group** instead of Group Membership.

19. When the Active Directory entitlement has also been created, and you are back in the Entitlements window, click **Submit** → **Submit** → **Close**.

The provisioning policy for Sales has now been created. Next, we create the other provisioning policies.

6.7.2 Provisioning policy for Manufacturing

To create the provisioning policy for Manufacturing, follow the steps in 6.7.1, “Provisioning policy for Sales” on page 183 with the following exceptions:

- In step 2, enter the Policy name of `Provisioning Policy for Manufacturing`.
- In steps 4-5, select **Manufacturing** as the Organizational Role, instead of Sales.
- In step 15, select **Manufacturing**, instead of Sales.

6.7.3 Provisioning policy for Executives

To create the provisioning policy for Executives, follow the steps in 6.7.1, “Provisioning policy for Sales” on page 183 with the following exceptions:

- In step 2, enter the Policy name of `Provisioning Policy for Executives`.
- In steps 4-5, select **Executives** as the Organizational Role, instead of Sales.
- In step 15, select **Executives**, instead of Sales.

6.7.4 Provisioning policy for Accounting

To create the provisioning policy for Accounting, follow the steps in 6.7.1, “Provisioning policy for Sales” on page 183 with the following exceptions:

- In step 2, enter the Policy name of `Provisioning Policy for Accounting`.
- In steps 4-5, select **Accounting** as the Organizational Role, instead of Sales.
- In step 15, select **Accounting**, instead of Sales.

6.7.5 Provisioning policy for IT

To create the provisioning policy for IT, follow the steps in 6.7.1, “Provisioning policy for Sales” on page 183 with the following exceptions:

- In step 2, enter the Policy name of `Provisioning Policy for IT`.
- In steps 4-5, select **IT** as the Organizational Role, instead of Sales.
- When performing step 15 for Active Directory, select **Helpdesk**, instead of Sales.
- When performing step 15 for Access Manager, select **IT**, instead of Sales.

Additionally, an entitlement must be created for Identity Manager in order to allow IT personnel access to the help desk group. Again, follow steps 7 to 17 with the following exceptions:

- In step 10, select **ITIM Service** instead of Access Manager.
- In step 13, select **ITIM Group(s)** instead of Group Membership.
- In step 15, select **Help Desk Assistant**.

You have now created all of the required provisioning policies.

6.8 Managing access entitlements

Certain Active Directory resources (Customer records and Orders folders) are not accessible to any role by default. These resources have their accesses controlled by two Active Directory groups (*Customer data* and *Orders*) to which access must be requested separately from the Active Directory service owner. Access to the Customer data and Orders Active Directory groups must be recertified every six months.

In order to implement recertification of the access to the Customer data and Orders Active Directory groups, you must:

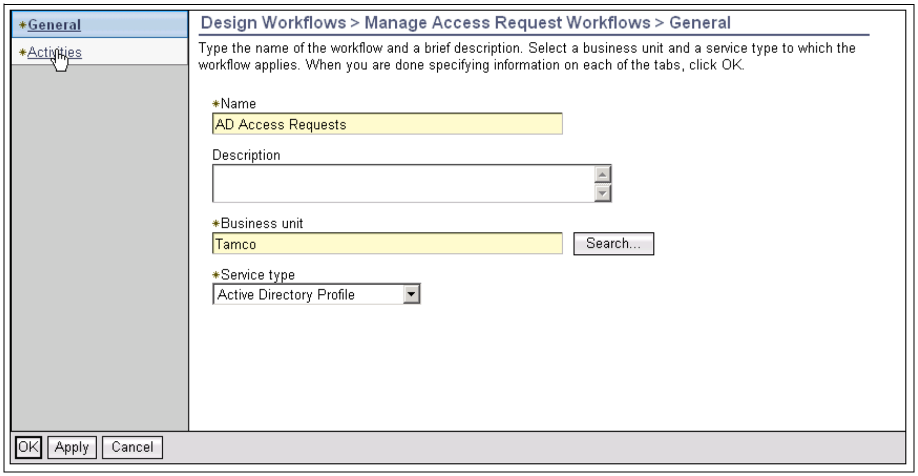
- Create and configure an *access request workflow* that asks the Active Directory service owner to approve each request for access.
- Configure the Active Directory groups as *accesses* so that users can request them.
- Create and configure a *recertification workflow* that recertifies access every six months.

6.8.1 Creating the access request workflow

To create the Access Request Workflow, follow these steps:

1. Go to **Design Workflows** → **Manage Access Request Workflows** → **Create**.
2. In the General window, enter or select:
   - Name: `AD Access Requests`
   - Business unit: `Tamco`
   - Service type: `Active Directory profile`

   Then, on the left of the window, click **Activities**, as shown in Figure 6-40.



Design Workflows > Manage Access Request Workflows > General

Type the name of the workflow and a brief description. Select a business unit and a service type to which the workflow applies. When you are done specifying information on each of the tabs, click OK.

∗Name: AD Access Requests

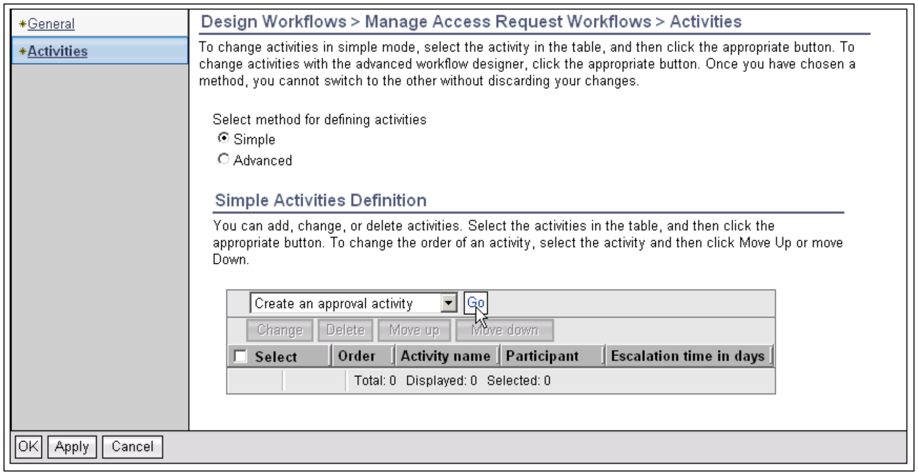
Description:

∗Business unit: Tamco

∗Service type: Active Directory Profile

Figure 6-40 Manage Access Request Workflows: General window

3. In the Activities window, click **Go**, as shown in Figure 6-41.



Design Workflows > Manage Access Request Workflows > Activities

To change activities in simple mode, select the activity in the table, and then click the appropriate button. To change activities with the advanced workflow designer, click the appropriate button. Once you have chosen a method, you cannot switch to the other without discarding your changes.

Select method for defining activities
● Simple
○ Advanced

Simple Activities Definition

You can add, change, or delete activities. Select the activities in the table, and then click the appropriate button. To change the order of an activity, select the activity and then click Move Up or move Down.

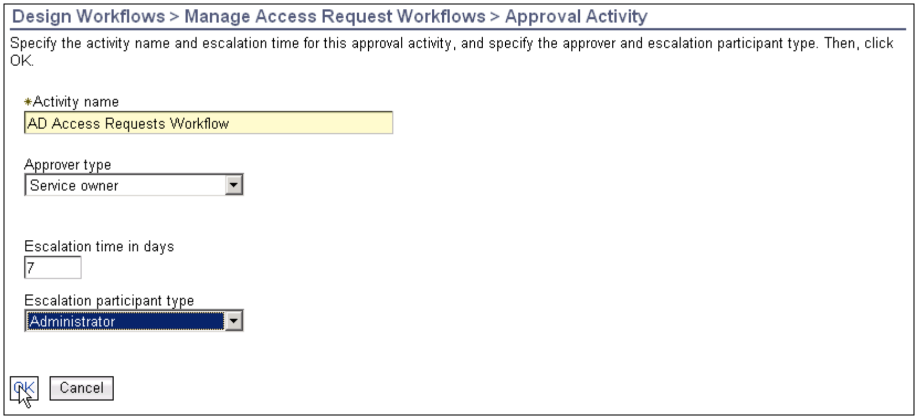
Create an approval activity

□ Select	Order	Activity name	Participant	Escalation time in days
		Total: 0 Displayed: 0 Selected: 0		

Figure 6-41 Manage Access Request Workflows: Activities window

4. In the Approval Activity window, enter or select these values:
   - Activity name: `AD Access Requests Workflow`
   - Approver type: `Service owner`
   - Escalation time in days: `7`
   - Escalation participant type: `Administrator`

   Then, click **OK**, as shown in Figure 6-42.



Design Workflows > Manage Access Request Workflows > Approval Activity

Specify the activity name and escalation time for this approval activity, and specify the approver and escalation participant type. Then, click OK.

*Activity name
AD Access Requests Workflow

Approver type
Service owner

Escalation time in days
7

Escalation participant type
Administrator

Figure 6-42 Manage Access Request Workflows: Approval Activity window

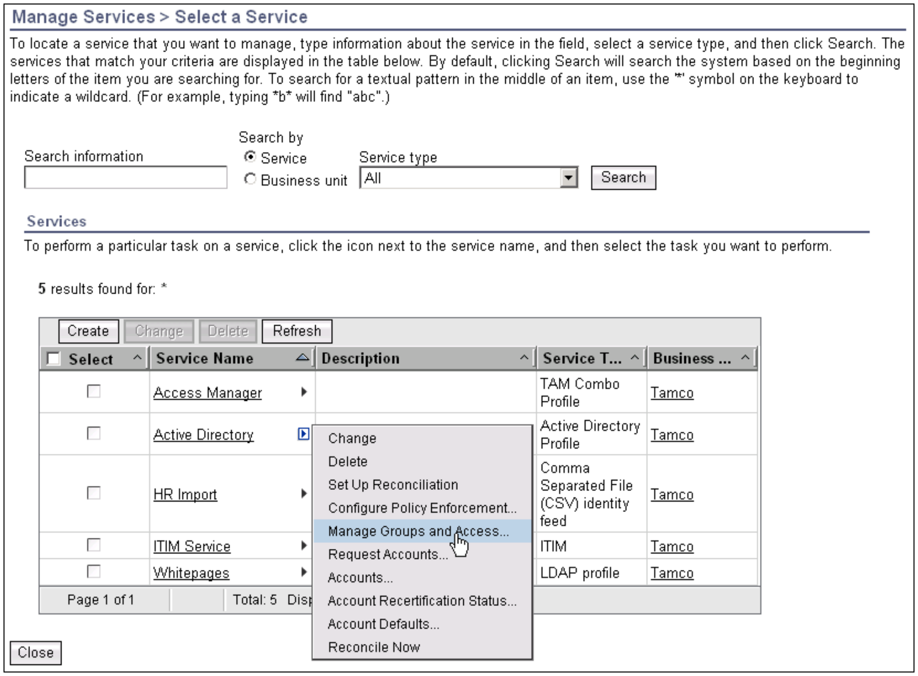
5. Back in the Activities window, click **OK**, and then, click **Close** at the Success window.

The Access Request Workflow has now been created.

6.8.2 Creating the accesses

To create the two accesses, complete the following steps:

1. Go to **Manage Services** and click **Search**.
2. Select **Active Directory** → **Manage Groups and Access**, as shown in Figure 6-43 on page 193.



Manage Services > Select a Service

To locate a service that you want to manage, type information about the service in the field, select a service type, and then click Search. The services that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information

Search by: ● Service ○ Business unit

Service type: All

Services

To perform a particular task on a service, click the icon next to the service name, and then select the task you want to perform.

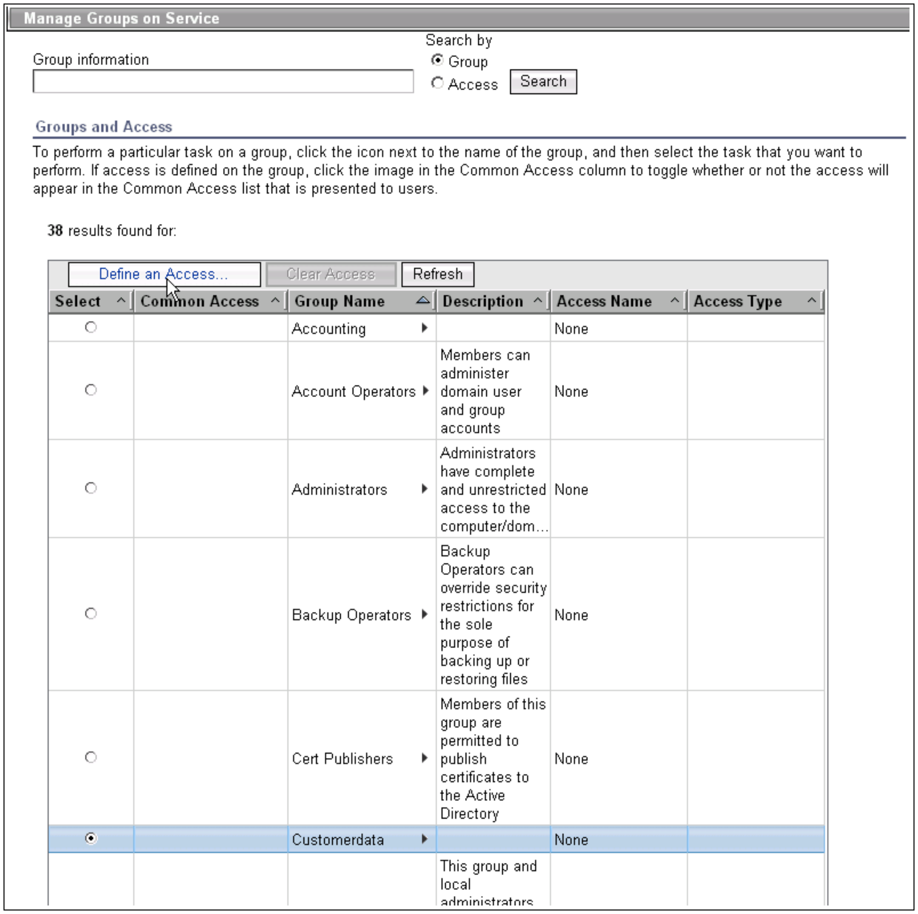
5 results found for: *

□ Select	Service Name	Description	Service T...	Business ...
□	Access Manager		TAM Combo Profile	Tamco
□	Active Directory		Active Directory Profile	Tamco
□	HR Import		Comma Separated File (CSV) identity feed	Tamco
□	ITIM Service		ITIM	Tamco
□	Whitepages		LDAP profile	Tamco

Page 1 of 1 Total: 5 Disp

Figure 6-43 Select a Service window

3. In the Manage Groups on Service window, click **Search**.
4. From the results found, select **Customerdata** and click **Define an Access**, as shown in Figure 6-44 on page 194.



Group information

Search by ● Group ○ Access

Groups and Access

To perform a particular task on a group, click the icon next to the name of the group, and then select the task that you want to perform. If access is defined on the group, click the image in the Common Access column to toggle whether or not the access will appear in the Common Access list that is presented to users.

38 results found for:

Select	Common Access	Group Name	Description	Access Name	Access Type
○		Accounting		None	
○		Account Operators	Members can administer domain user and group accounts	None	
○		Administrators	Administrators have complete and unrestricted access to the computer/dom...	None	
○		Backup Operators	Backup Operators can override security restrictions for the sole purpose of backing up or restoring files	None	
○		Cert Publishers	Members of this group are permitted to publish certificates to the Active Directory	None	
●		Customerdata		None	
			This group and local administrators		

Figure 6-44 Manage Groups on Service window

5. In the Access information window, enter or select these values:

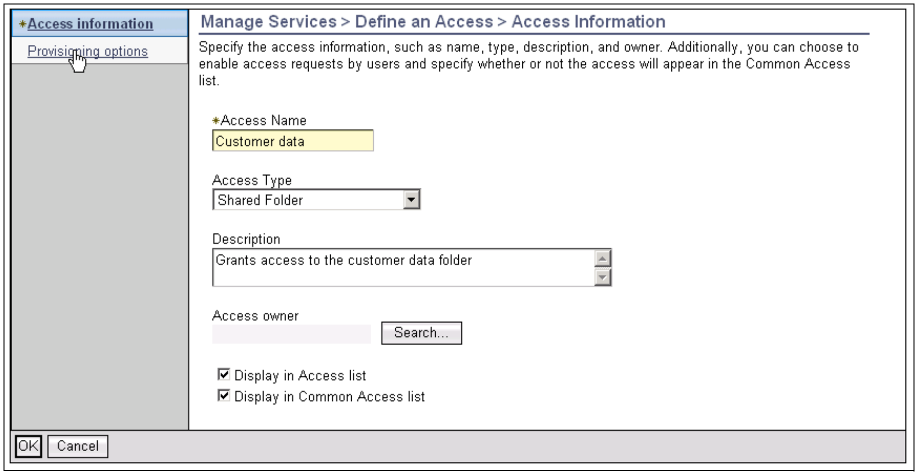
   – Access Name: `Customer data`

   – Access Type: `Shared Folder`

   – Description: `Grants access to the customer data folder`

   Select both **Display in Access list** and **Display in Common Access list**.

   Then, on the left side of the window, click **Provisioning options**, as shown in Figure 6-45 on page 195.



Manage Services > Define an Access > Access Information

Specify the access information, such as name, type, description, and owner. Additionally, you can choose to enable access requests by users and specify whether or not the access will appear in the Common Access list.

*Access Name: Customer data

Access Type: Shared Folder

Description: Grants access to the customer data folder

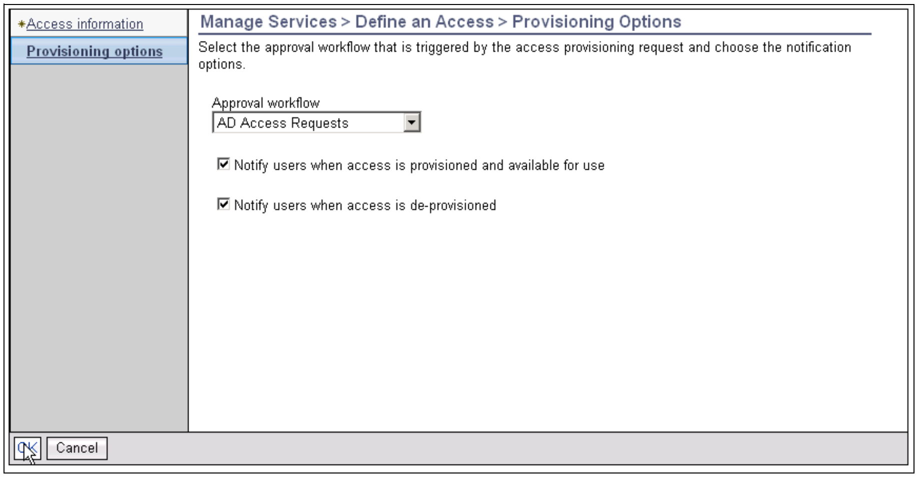
Access owner:

☑ Display in Access list

☑ Display in Common Access list

Figure 6-45 Access Information window

6. In the Provisioning Options window, set the Approval workflow to **AD Access Requests** and check both **Notify users when access is provisioned and available for use** and **Notify users when access is de-provisioned**. Then, click **OK**, as shown in Figure 6-46.



Manage Services > Define an Access > Provisioning Options

Select the approval workflow that is triggered by the access provisioning request and choose the notification options.

Approval workflow: AD Access Requests

☑ Notify users when access is provisioned and available for use

☑ Notify users when access is de-provisioned

Figure 6-46 Provisioning Options window

7. Click **Close** at the Success window.

8. Repeat steps 1-7 to create the *Orders* group, but with the following exceptions:

   In step 5, replace the fields with the following values:

   – Access name: `Orders`
   – Description: `Grants access to the outstanding orders folder`

The accesses have now been created, but you will still need to set them as allowed values in the default Active Directory provisioning policy, which we discuss in “Allowing Access Entitlements” on page 212.

Next, we create the recertification policy.

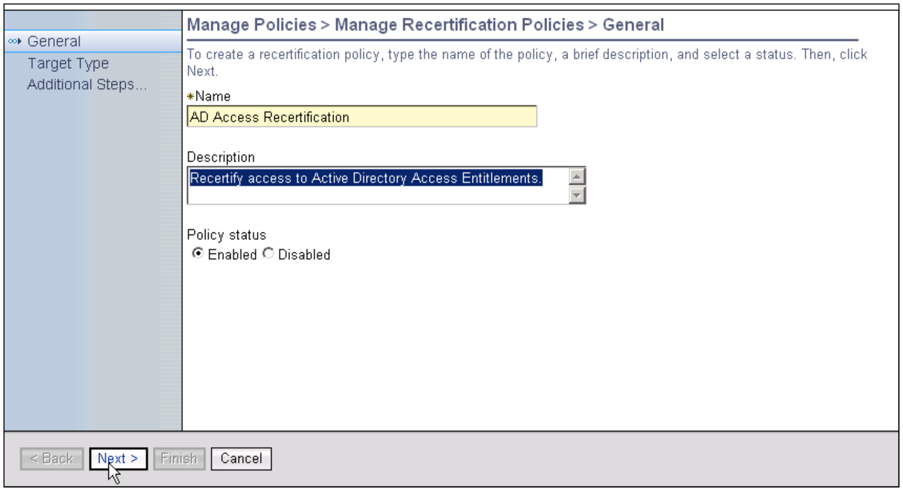
6.8.3 Creating the recertification policy

In order to create the recertification policy, which recertifies access to *Customer data* and *Orders* every six months, complete the following steps:

1. Go to **Manage Policies** → **Manage Recertification Policies** → **Create**.
2. In the General window, enter or select these values:

   – Name: `AD Access Recertification`
   – Description: `Recertify access to Active Directory Access Entitlements`
   – Policy status: `Enabled`

   Then, click **Next**, as shown in Figure 6-47.



Manage Policies > Manage Recertification Policies > General

To create a recertification policy, type the name of the policy, a brief description, and select a status. Then, click Next.

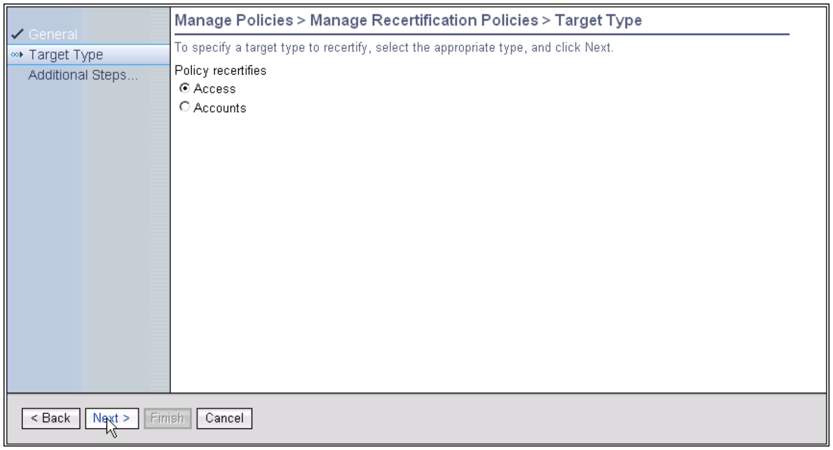
*Name
AD Access Recertification

Description
Recertify access to Active Directory Access Entitlements.

Policy status
● Enabled ○ Disabled

Figure 6-47 General window

3. In the Target Type window, under Policy recertifies, select **Access** and click **Next**, as shown in Figure 6-48.



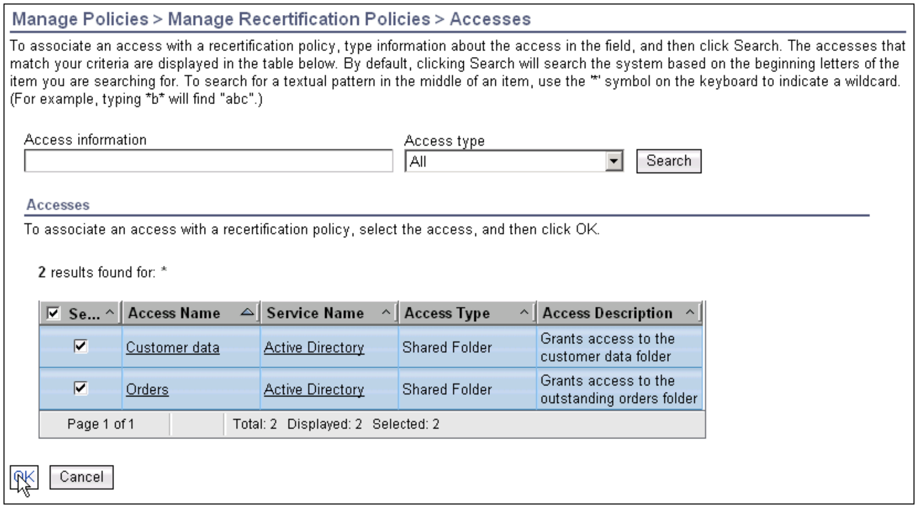
Manage Policies > Manage Recertification Policies > Target Type

To specify a target type to recertify, select the appropriate type, and click Next.

Policy recertifies
- ● Access
- ○ Accounts

Figure 6-48 Target Type window

4. In the Access Target window, click **Add**.
5. In the Accesses window, click **Search** to bring up a list of all accesses.
6. From the results found, select both **Customer data** and **Orders**, and click **OK**, as shown in Figure 6-49.



Manage Policies > Manage Recertification Policies > Accesses

To associate an access with a recertification policy, type information about the access in the field, and then click Search. The accesses that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the '*' symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Access information:

Access type: All

Accesses

To associate an access with a recertification policy, select the access, and then click OK.

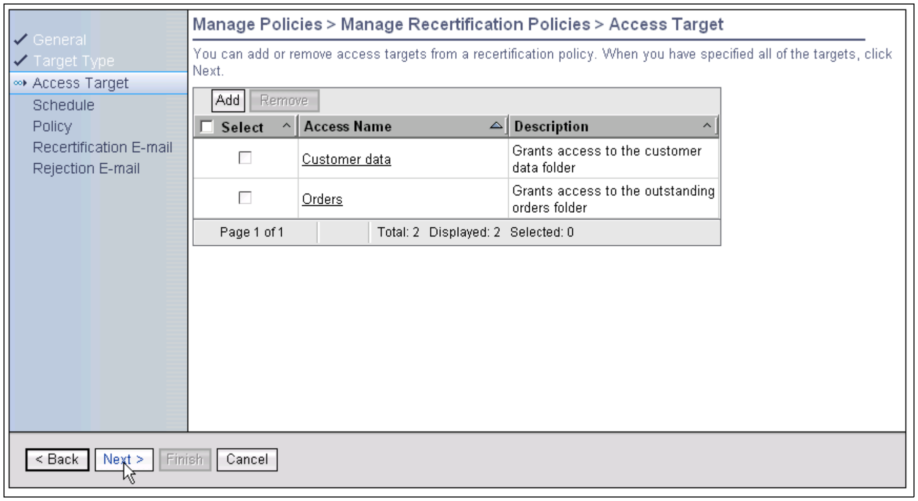
2 results found for: *

☑ Se...	Access Name	Service Name	Access Type	Access Description
☑	Customer data	Active Directory	Shared Folder	Grants access to the customer data folder
☑	Orders	Active Directory	Shared Folder	Grants access to the outstanding orders folder

Page 1 of 1 Total: 2 Displayed: 2 Selected: 2

Figure 6-49 Accesses window

7. Back in the Access Target window, click **Next**, as shown in Figure 6-50 on page 198.



Manage Policies > Manage Recertification Policies > Access Target

You can add or remove access targets from a recertification policy. When you have specified all of the targets, click Next.

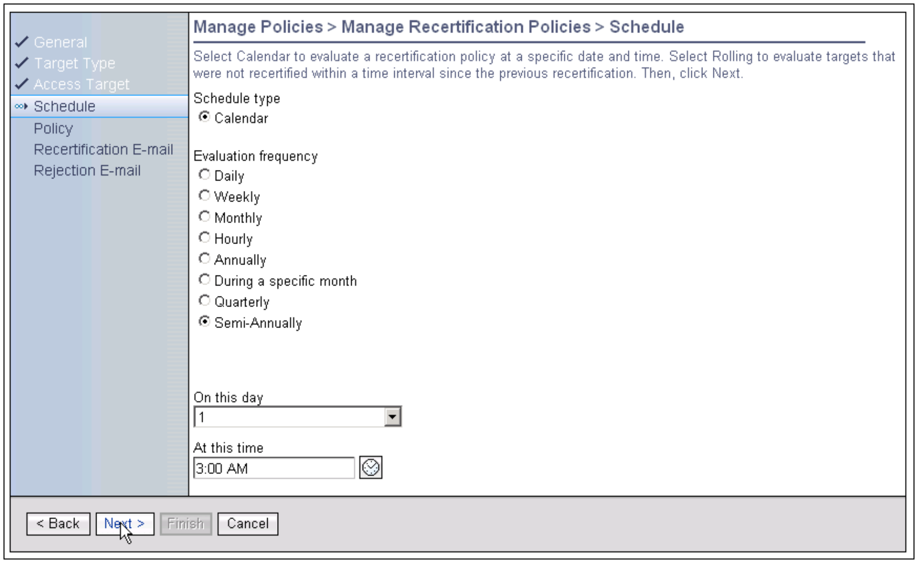
□ Select	Access Name	Description
□	Customer data	Grants access to the customer data folder
□	Orders	Grants access to the outstanding orders folder

Page 1 of 1 Total: 2 Displayed: 2 Selected: 0

Figure 6-50 Access Target window

8. In the Schedule window, set:
   - Evaluation frequency: `Semi-Annually`
   - On this day: `1`
   - At this time: `3:00 AM`

   Then, click **Next**, as shown in Figure 6-51.



Manage Policies > Manage Recertification Policies > Schedule

Select Calendar to evaluate a recertification policy at a specific date and time. Select Rolling to evaluate targets that were not recertified within a time interval since the previous recertification. Then, click Next.

Schedule type

● Calendar

Evaluation frequency

○ Daily
○ Weekly
○ Monthly
○ Hourly
○ Annually
○ During a specific month
○ Quarterly
● Semi-Annually

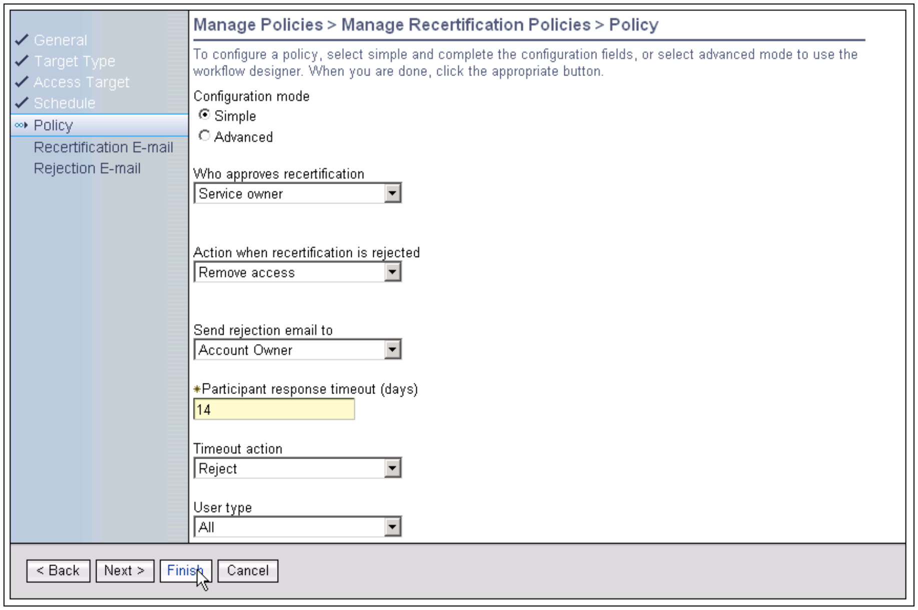
On this day: 1

At this time: 3:00 AM

Figure 6-51 Schedule window

9. In the Policy window, set:
   - Configuration mode: `Simple`
   - Who approves recertification: `Service owner`
   - Action when recertification is rejected: `Remove Access`
   - Send rejection email to: `Account Owner`
   - Participant response timeout (days): `14`
   - Timeout action: `Reject`
   - User type: `All`

   Then, click **Finish**, as shown in Figure 6-52.



Manage Policies > Manage Recertification Policies > Policy

To configure a policy, select simple and complete the configuration fields, or select advanced mode to use the workflow designer. When you are done, click the appropriate button.

Configuration mode
● Simple
○ Advanced

Who approves recertification: Service owner

Action when recertification is rejected: Remove access

Send rejection email to: Account Owner

*Participant response timeout (days): 14

Timeout action: Reject

User type: All

Figure 6-52 Policy window

10. Click **Close** at the Success window.

The Recertification Policy creation is complete.

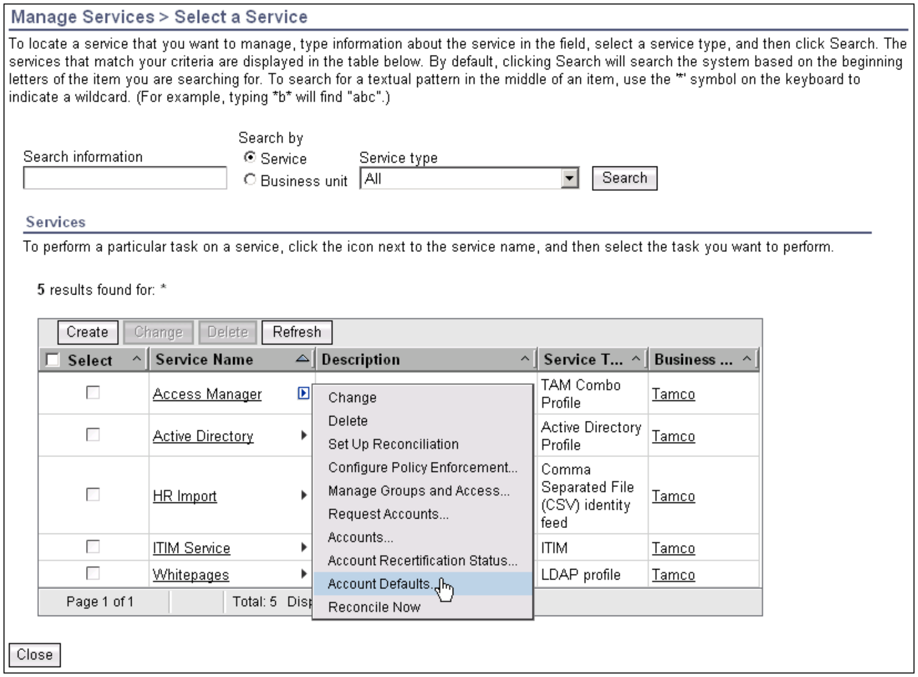
6.9 Setting the Access Manager service defaults

For automatic provisioning to occur, there must be a default value for all of the required attributes of an account. You can set this default value either in Provisioning Policies or in Service Defaults. For the Access Manager Service, we set three defaults:

- Last name
- Distinguished Name
- Full name

In this section, we show the steps needed to set all three default values:

1. Go to **Manage Services**.
2. Click **Search** to display a list of all services.
3. From the results found, under Access Manager, select **Account Defaults** from the drop-down list, as shown in Figure 6-53.



Manage Services > Select a Service

To locate a service that you want to manage, type information about the service in the field, select a service type, and then click Search. The services that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information:

Search by: ● Service ○ Business unit

Service type: All

Services

To perform a particular task on a service, click the icon next to the service name, and then select the task you want to perform.

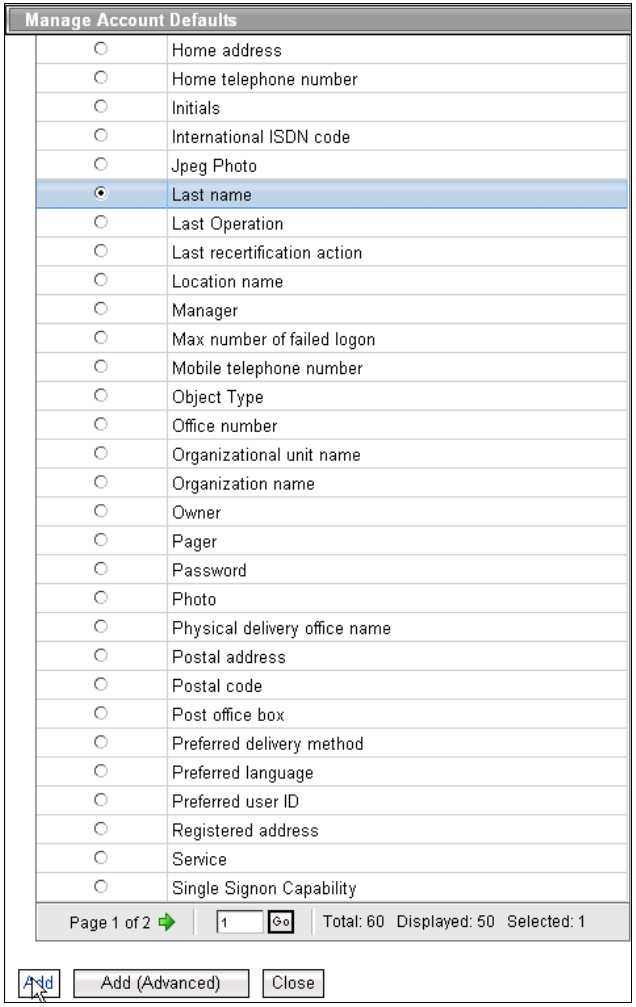
5 results found for: *

□ Select	Service Name	Description	Service T...	Business ...
□	Access Manager		TAM Combo Profile	Tamco
□	Active Directory		Active Directory Profile	Tamco
□	HR Import		Comma Separated File (CSV) identity feed	Tamco
□	ITIM Service		ITIM	Tamco
□	Whitepages		LDAP profile	Tamco

Page 1 of 1 Total: 5 Disp

Figure 6-53 Select a Service window

4. In the Select an Account Attribute window, click **Add**.
5. In the Manage Account Defaults window, when selecting an attribute default, select **Last name**, and click **Add**, as shown in Figure 6-54 on page 202.



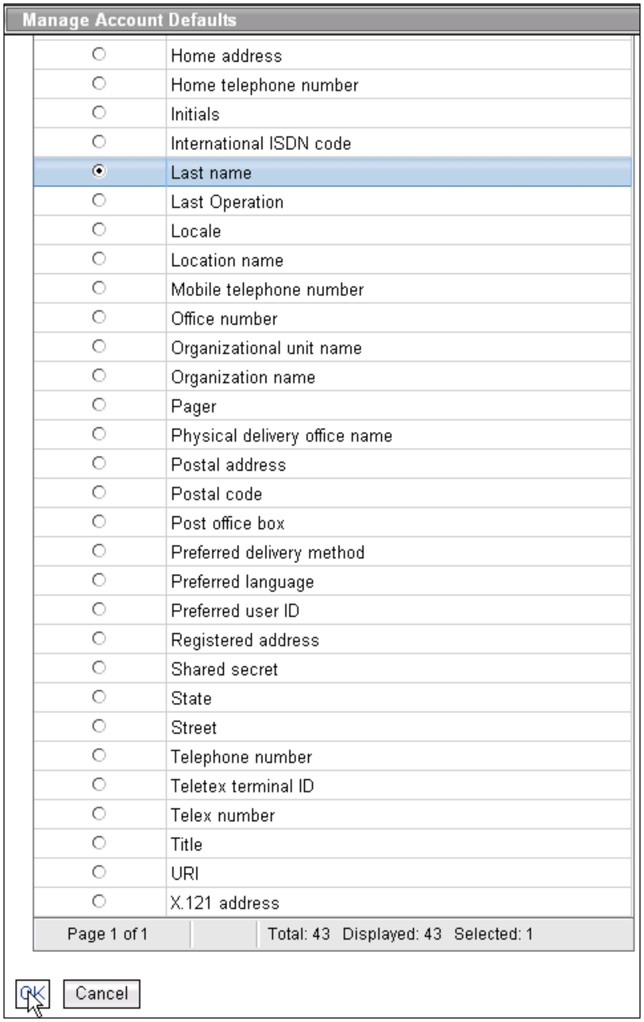
Manage Account Defaults

○	Home address
○	Home telephone number
○	Initials
○	International ISDN code
○	Jpeg Photo
●	Last name
○	Last Operation
○	Last recertification action
○	Location name
○	Manager
○	Max number of failed logon
○	Mobile telephone number
○	Object Type
○	Office number
○	Organizational unit name
○	Organization name
○	Owner
○	Pager
○	Password
○	Photo
○	Physical delivery office name
○	Postal address
○	Postal code
○	Post office box
○	Preferred delivery method
○	Preferred language
○	Preferred user ID
○	Registered address
○	Service
○	Single Signon Capability

Page 1 of 2 → 1 Go Total: 60 Displayed: 50 Selected: 1

Figure 6-54 Manage Account Defaults window

6. In the Last name window, click **Search**.
7. In the Manage Account Defaults window, when selecting a User Attribute, select **Last name** and click **OK**, as shown in Figure 6-55 on page 203.



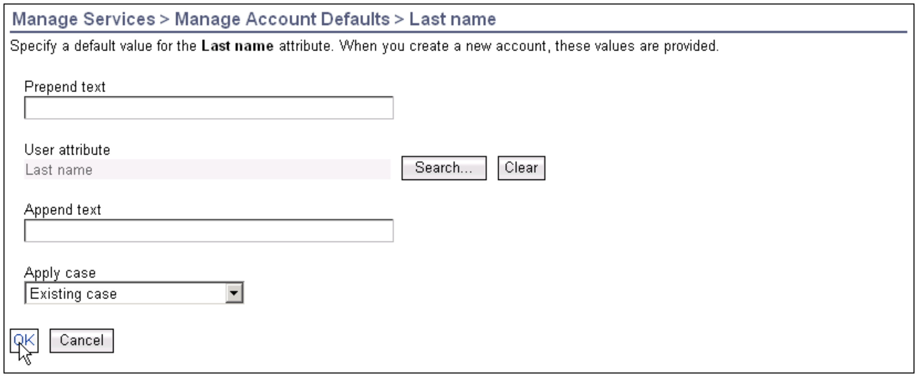
Manage Account Defaults

○	Home address
○	Home telephone number
○	Initials
○	International ISDN code
●	Last name
○	Last Operation
○	Locale
○	Location name
○	Mobile telephone number
○	Office number
○	Organizational unit name
○	Organization name
○	Pager
○	Physical delivery office name
○	Postal address
○	Postal code
○	Post office box
○	Preferred delivery method
○	Preferred language
○	Preferred user ID
○	Registered address
○	Shared secret
○	State
○	Street
○	Telephone number
○	Teletex terminal ID
○	Telex number
○	Title
○	URI
○	X.121 address

Page 1 of 1   Total: 43 Displayed: 43 Selected: 1

Figure 6-55   Manage Account Defaults

8. Back in the Last name window, click **OK**, as shown in Figure 6-56 on page 204.


Manage Services > Manage Account Defaults > Last name

Specify a default value for the **Last name** attribute. When you create a new account, these values are provided.

Prepend text:

User attribute: Last name

Append text:

Apply case: Existing case

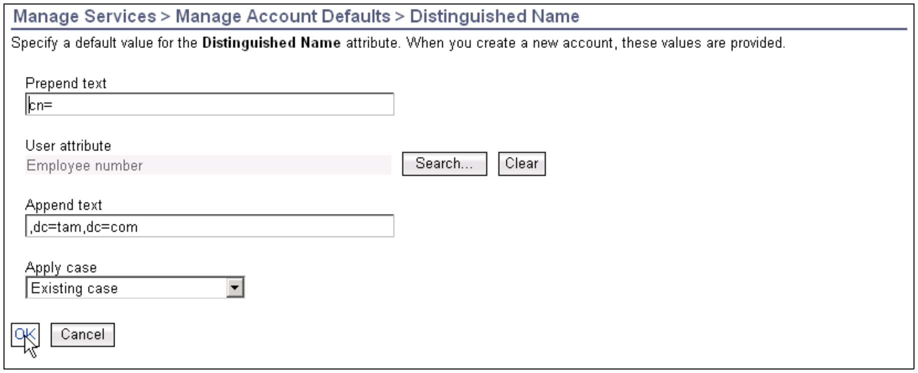
Figure 6-56 Last name window

9. To add the Distinguished Name attribute default:

   Repeat steps 4-8, with the following exceptions:

   – In step 5: Select **Distinguished Name** instead of Last name.
   – In step 7: Select **Employee number** instead of Last name.
   – In step 8: Enter the following values before clicking **OK**:
     - Prepend text: `cn=`
     - Append text: `,dc=tam,dc=com`

       Figure 6-57 shows these values.


Manage Services > Manage Account Defaults > Distinguished Name

Specify a default value for the **Distinguished Name** attribute. When you create a new account, these values are provided.

Prepend text: cn=

User attribute: Employee number

Append text: ,dc=tam,dc=com

Apply case: Existing case

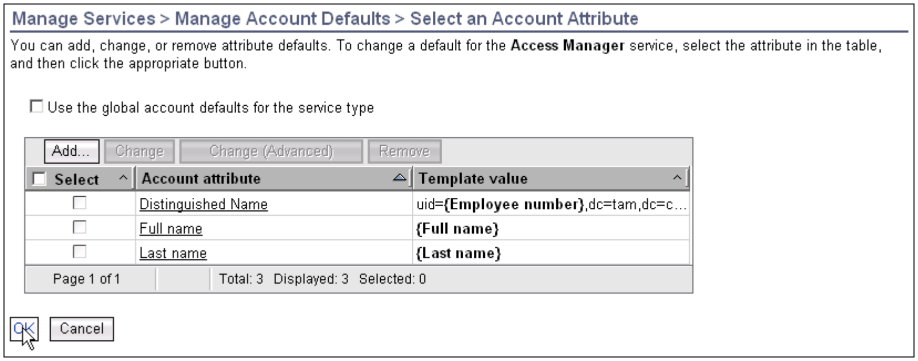
Figure 6-57 Distinguished Name window

10. To add the Full name attribute default:

    Repeat steps 4-8, with the following exceptions:

    – In step 5: Select **Full name** instead of Last name
    – In step 7: Select **Full name** instead of Last name

When all three attribute defaults have been created, click **OK** in the Select an Account Attribute window, as shown in Figure 6-58.



Manage Services > Manage Account Defaults > Select an Account Attribute

You can add, change, or remove attribute defaults. To change a default for the **Access Manager** service, select the attribute in the table, and then click the appropriate button.

□ Use the global account defaults for the service type

□ Select	Account attribute	Template value
□	Distinguished Name	uid=**{Employee number}**,dc=tam,dc=c...
□	Full name	**{Full name}**
□	Last name	**{Last name}**

Page 1 of 1 Total: 3 Displayed: 3 Selected: 0

Figure 6-58 Select an Account Attribute window

11. Click **Close** at the Success window.

The Access Manager Service Defaults have now been set.

6.10 Modifying the default provisioning policies

For automatic provisioning to occur, there must be a default value for all of the required attributes of an account. Also, whenever the Person data changes (name, phone number, location, and so on), those changes must be reflected in the Active Directory and Whitepages. These changes can be made by changing the Provisioning Policies to autogenerate the data and by forcing them to refresh the data whenever it is changed. The latter part is done by specifying as *Mandatory* any attributes that must be kept up-to-date and making sure that the Services enforce these policies.

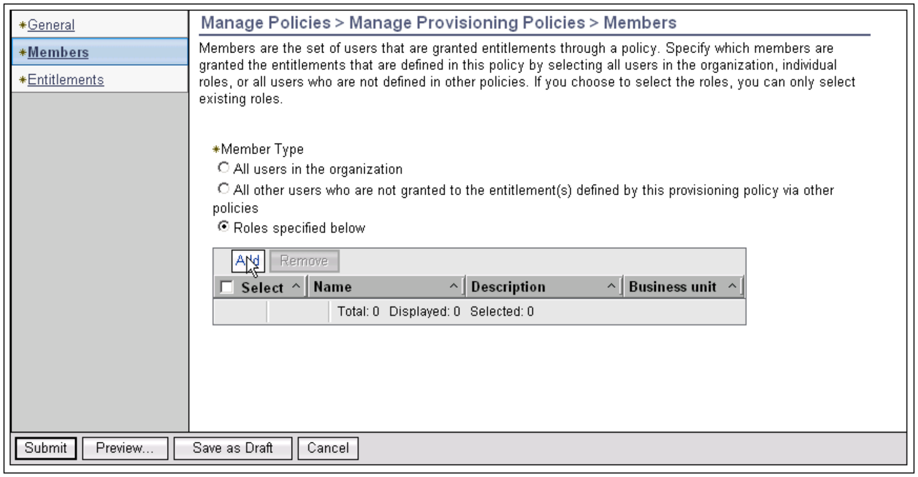
We also limit the people using this Provisioning Policy to the people in the following roles:

- Sales
- IT
- Executives
- Manufacturing
- Accounting

6.10.1 Changing the Active Directory Default Provisioning Policy

In this section, we describe the steps needed to modify the Active Directory Default Provisioning Policy to set the default values for E-mail address, First name, Full name, and Last name attributes, as well as to keep these attributes updated if there is any change in corresponding attributes on the Person entry. Follow these steps:

1. Go to **Manage Policies** → **Manage Provisioning Policies**, and click **Search**.
2. Then, click **Default Provisioning Policy for service Active Directory** → **Members** → **Add**, as shown in Figure 6-59.



Manage Policies > Manage Provisioning Policies > Members

Members are the set of users that are granted entitlements through a policy. Specify which members are granted the entitlements that are defined in this policy by selecting all users in the organization, individual roles, or all users who are not defined in other policies. If you choose to select the roles, you can only select existing roles.

*Member Type

○ All users in the organization

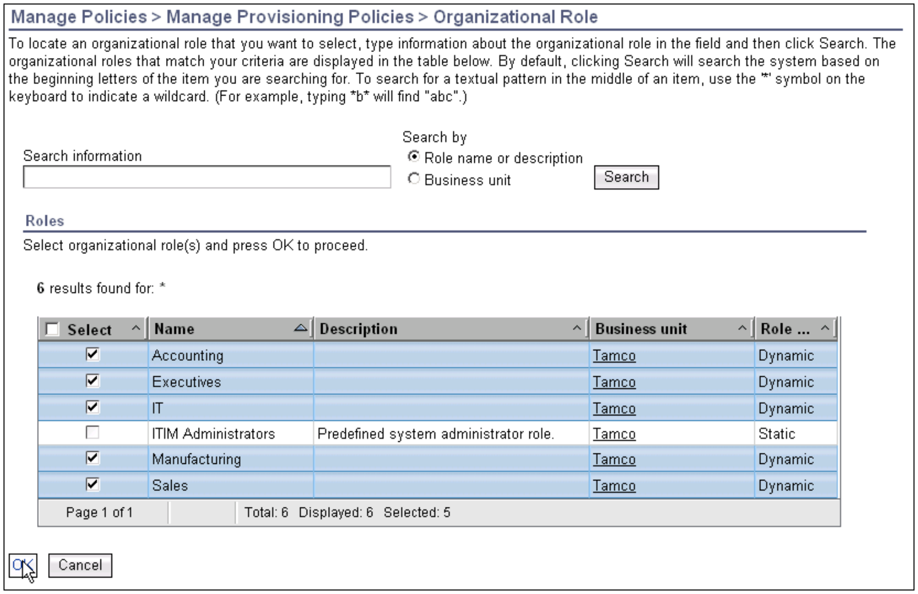
○ All other users who are not granted to the entitlement(s) defined by this provisioning policy via other policies

● Roles specified below

□ Select	Name	Description	Business unit
		Total: 0 Displayed: 0 Selected: 0	

Figure 6-59 Members window

3. In the Organizational Role window, click **Search**.
4. From the results, select **Accounting**, **Executives**, **IT**, **Manufacturing**, and **Sales**, and click **OK**, as shown in Figure 6-60 on page 207.



Manage Policies > Manage Provisioning Policies > Organizational Role

To locate an organizational role that you want to select, type information about the organizational role in the field and then click Search. The organizational roles that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information

Search by
● Role name or description
○ Business unit

Roles

Select organizational role(s) and press OK to proceed.

6 results found for: *

□ Select	Name	Description	Business unit	Role ...
☑	Accounting		Tamco	Dynamic
☑	Executives		Tamco	Dynamic
☑	IT		Tamco	Dynamic
□	ITIM Administrators	Predefined system administrator role.	Tamco	Static
☑	Manufacturing		Tamco	Dynamic
☑	Sales		Tamco	Dynamic

Page 1 of 1 Total: 6 Displayed: 6 Selected: 5

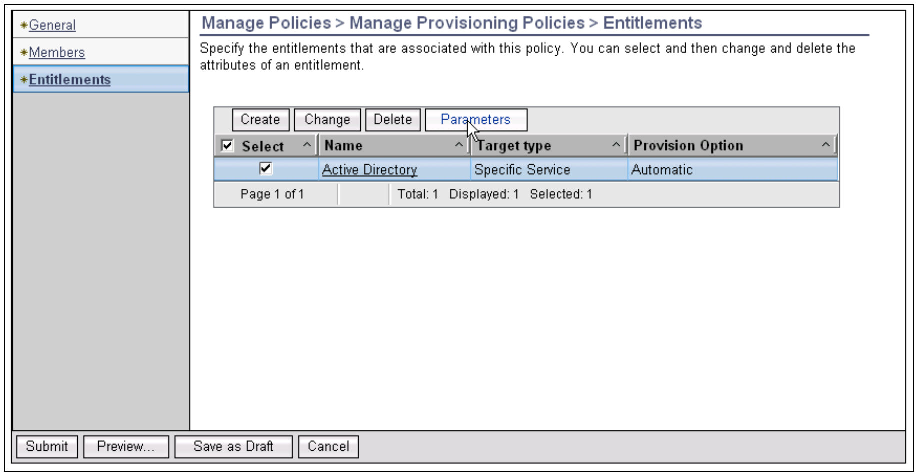
Figure 6-60 Organizational Role window

Tip: Even easier than adding all of the roles to the Provisioning Policy is creating a single dynamic role that contains all of the people in Identity Manager, except administrators, and assigning that role as the only role in the Provisioning Policy Memberships.

The filter for this type of a role is:

```
(&(objectclass=erpersonitem)(!(cn=system administrator)))
```

5. Select **Entitlements** to move to the Entitlements window.
6. In the Entitlements window, select the box to the left of **Active Directory**, and click **Parameters**, as shown in Figure 6-61 on page 208.



Manage Policies > Manage Provisioning Policies > Entitlements

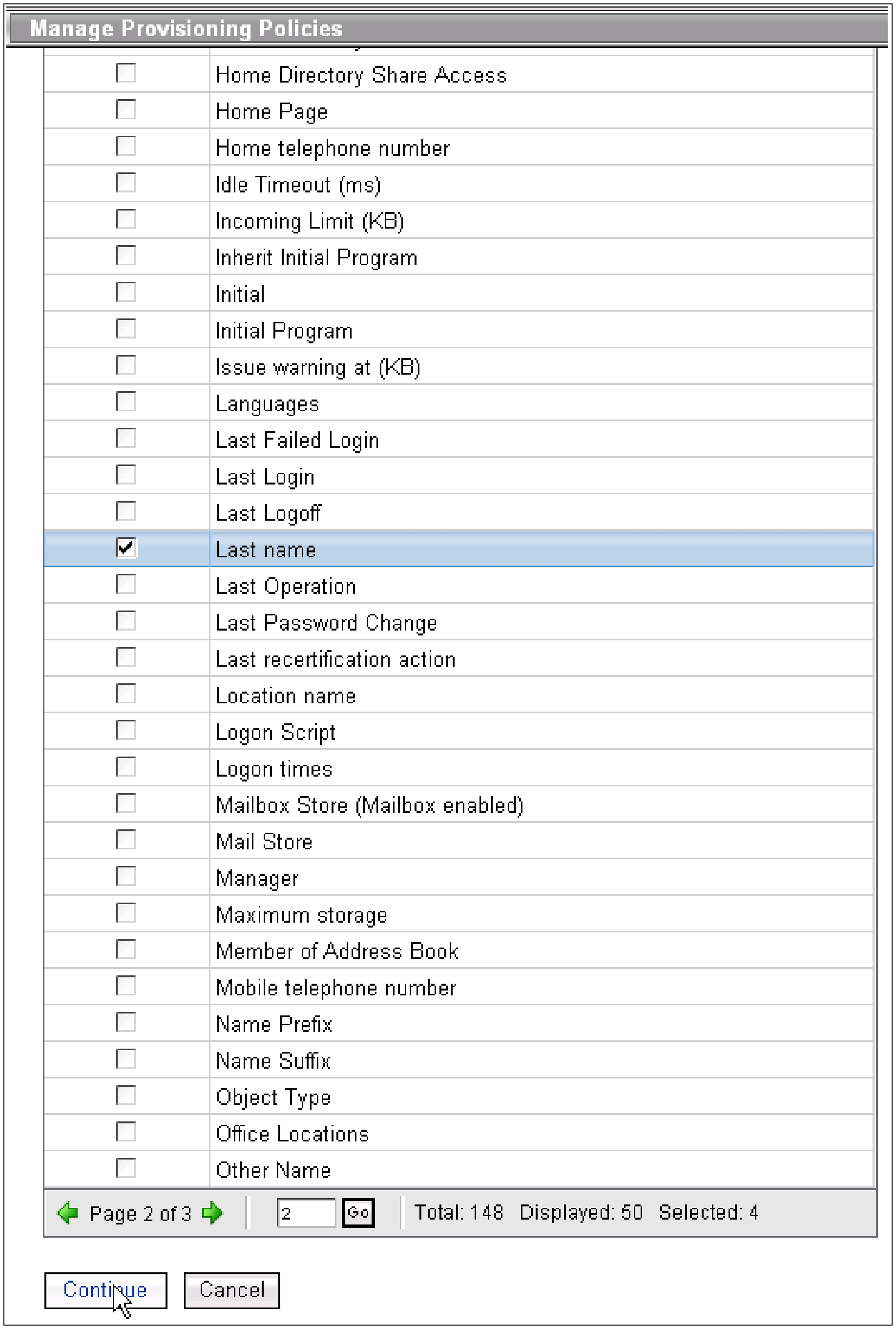
Specify the entitlements that are associated with this policy. You can select and then change and delete the attributes of an entitlement.

☑ Select	Name	Target type	Provision Option
☑	Active Directory	Specific Service	Automatic

Page 1 of 1 Total: 1 Displayed: 1 Selected: 1

Figure 6-61 Entitlements window

7. In the Entitlement Parameter window, click **Create**.
8. In the Add New Parameter window, select **E-mail address**, **First name**, **Full name**, and **Last name**, and click **Continue**, as shown in Figure 6-62 on page 209.



Manage Provisioning Policies

□	Home Directory Share Access
□	Home Page
□	Home telephone number
□	Idle Timeout (ms)
□	Incoming Limit (KB)
□	Inherit Initial Program
□	Initial
□	Initial Program
□	Issue warning at (KB)
□	Languages
□	Last Failed Login
□	Last Login
□	Last Logoff
☑	Last name
□	Last Operation
□	Last Password Change
□	Last recertification action
□	Location name
□	Logon Script
□	Logon times
□	Mailbox Store (Mailbox enabled)
□	Mail Store
□	Manager
□	Maximum storage
□	Member of Address Book
□	Mobile telephone number
□	Name Prefix
□	Name Suffix
□	Object Type
□	Office Locations
□	Other Name

Page 2 of 3 | 2 Go | Total: 148 Displayed: 50 Selected: 4

Figure 6-62 Add New Parameter window

Note: You will have to change pages to select all of these parameters. The page change arrows are located near the bottom left area of the window.

9. For each of the selected parameters, you get a Define Constant window. In this window, the first two parameters are the same for each Attribute, with the third parameter depending on which attribute is being defined:

   – Parameter Type: `Javascript`

   – Enforcement Type: `Mandatory`

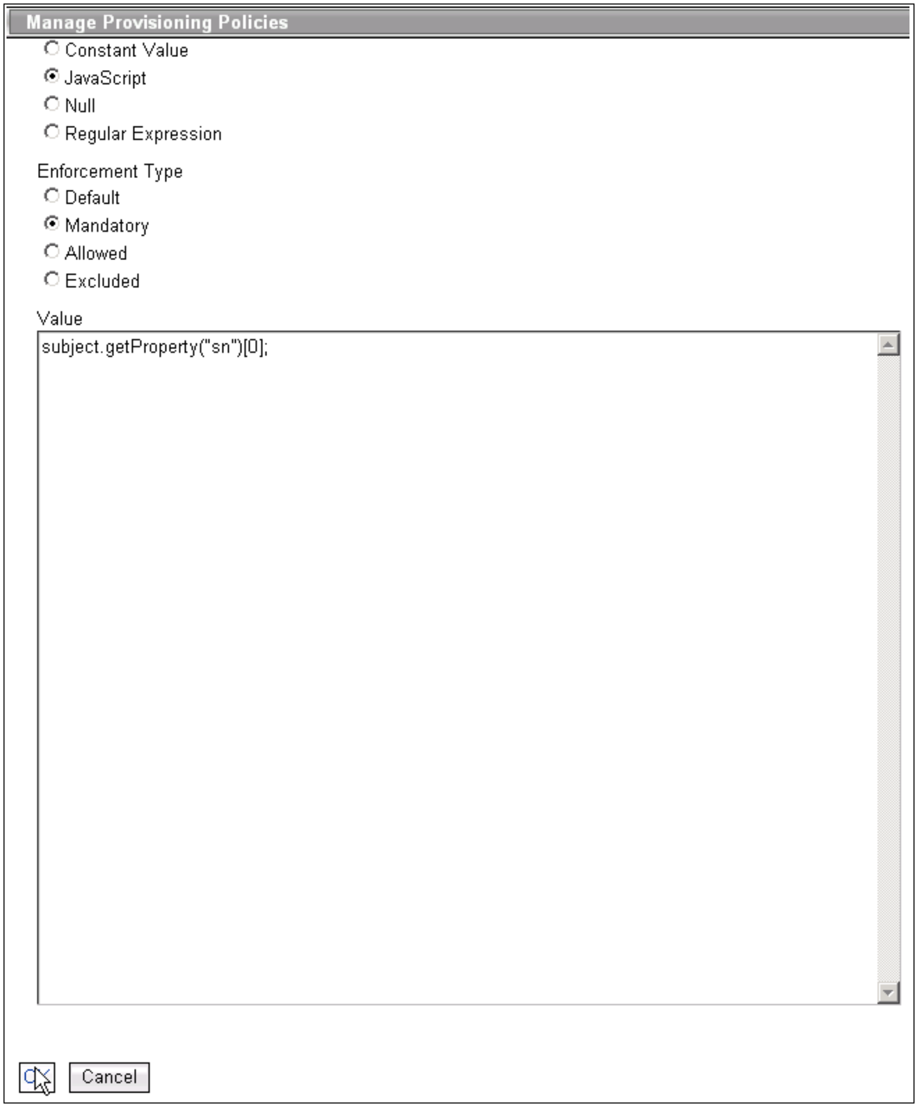
   – Value (for Last name): `{subject.getProperty("sn")[0];}`

   – Value (for E-mail address): `{subject.getProperty("mail")[0];}`

   – Value (for Full name): `{subject.getProperty("cn")[0];}`

   – Value (for First name): `{subject.getProperty("givenname")[0];}`

   For each attribute, set the three available values, and click **OK**, as shown in Figure 6-63 on page 211.


Manage Provisioning Policies

○ Constant Value
● JavaScript
○ Null
○ Regular Expression

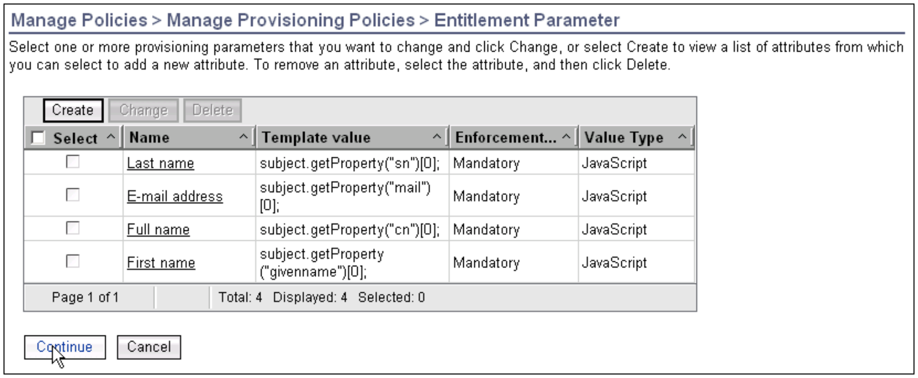
Enforcement Type
○ Default
● Mandatory
○ Allowed
○ Excluded

Value

```
subject.getProperty("sn")[0];
```

Figure 6-63 Define constant window

10. Back in the Entitlement Parameter window, click **Continue**, as shown in Figure 6-64 on page 212.



Manage Policies > Manage Provisioning Policies > Entitlement Parameter

Select one or more provisioning parameters that you want to change and click Change, or select Create to view a list of attributes from which you can select to add a new attribute. To remove an attribute, select the attribute, and then click Delete.

□ Select	Name	Template value	Enforcement...	Value Type
□	Last name	subject.getProperty("sn")[0];	Mandatory	JavaScript
□	E-mail address	subject.getProperty("mail")[0];	Mandatory	JavaScript
□	Full name	subject.getProperty("cn")[0];	Mandatory	JavaScript
□	First name	subject.getProperty("givenname")[0];	Mandatory	JavaScript

Page 1 of 1 Total: 4 Displayed: 4 Selected: 0

Figure 6-64 Entitlement Parameter window

11.Then, click **Submit** → **Submit** → **Close**.

The provisioning policy for Active Directory has now been altered.

Allowing Access Entitlements

Because we are using automated provisioning, all Access Entitlements must be set as allowed values in the Active Directory provisioning policy. To set these values, repeat steps 1-11 with the following exceptions:

- In step 8, select only **Group**.
- In step 9, set the following values:
  - Parameter Type: `Constant Value`
  - Enforcement Type: `Allowed`
  - Value: `Customer data, Orders`

  Use **Search** to open a selection window where you can select the two groups for the Value attribute.

6.10.2 Changing the Whitepages Default Provisioning Policy

In this section, we describe the steps needed to modify the Whitepages Default Provisioning Policy to set the default values for E-mail address, First name, Full name, Department number, Location name, and Last name attributes, as well as keep these attributes updated if there is any change in corresponding attributes on the Person entry.

We also limit the people using this Provisioning Policy to the people in the following roles:

- Sales
- IT
- Executives
- Manufacturing
- Accounting

To change the Whitepages Default Provisioning Policy, follow the steps outlined in 6.10.1, "Changing the Active Directory Default Provisioning Policy" on page 206, with the following exceptions:

- In step 2, select **Default Provisioning Policy for service Active Directory**.
- In step 6, select **Whitepages** instead of Active Directory.
- In step 8, select **Full name**, **Last name**, **Department number**, **E-mail address**, **First name**, **Location name**, and **Telephone number**.
- In step 9, set the following Javascript values for the attributes:
  - Value (for Last name): `{subject.getProperty("sn")[0];}`
  - Value (for Department number): `{subject.getProperty("departmentnumber")[0];}`
  - Value (for E-mail address): `{subject.getProperty("mail")[0];}`
  - Value (for Full Name): `{subject.getProperty("cn")[0];}`
  - Value (for First Name): `{subject.getProperty("givenname")[0];}`
  - Value (for Location name): `{subject.getProperty("erlocale")[0];}`
  - Value (for Telephone number): `{subject.getProperty("telephonenumber")[0];}`

The Whitepages Default Provisioning Policy has now been changed.

6.10.3 Changing the Access Manager Default Provisioning Policy

In this section, we show how to limit the people using this Provisioning Policy to the people in the following roles:

- Sales
- IT
- Executives
- Manufacturing
- Accounting

Unlike Active Directory and Whitepages Provisioning Policies, we will not set any mandatory attributes for Access Manager.

To change the Access Manager Default Provisioning Policy, follow the steps outlined in 6.10.1, “Changing the Active Directory Default Provisioning Policy” on page 206, with the following exceptions:

- In step 2, select **Default Provisioning Policy for service Access Manager**.
- Ignore steps 5-10.

6.11 Creating a default password policy

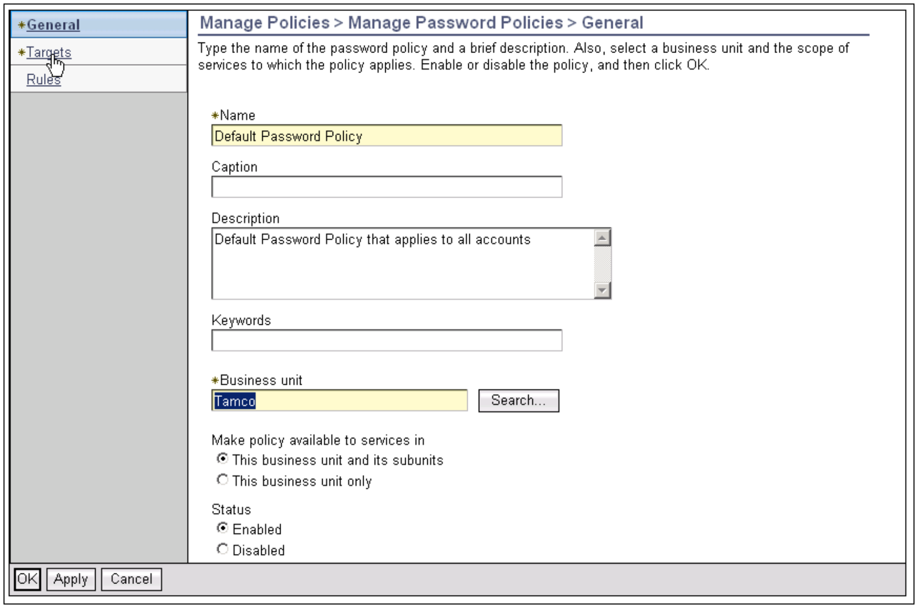
In this section, we show how to create a password policy, which will affect all services and will make all passwords comply with the following requirements:

- Must be a *minimum* of eight characters
- Must include alphabetic and numeric characters
- Cannot include the login ID or the user’s name

To create a password policy, follow these steps:

1. Go to **Manage Policies** → **Manage Password Policies** → **Create**.
2. In the General window, enter or select these values:
   - Name: `Default Password Policy`
   - Description: `Default Password Policy that applies to all accounts`
   - Business Unit: `Tamco`
   - Make policy available to services in:
     `This business unit and its subunits`
   - Status: `Enabled`

   Then, click **Targets** (on the upper left side of the window), as shown in Figure 6-65 on page 215.



Manage Policies > Manage Password Policies > General

Type the name of the password policy and a brief description. Also, select a business unit and the scope of services to which the policy applies. Enable or disable the policy, and then click OK.

*Name: Default Password Policy

Caption:

Description: Default Password Policy that applies to all accounts

Keywords:

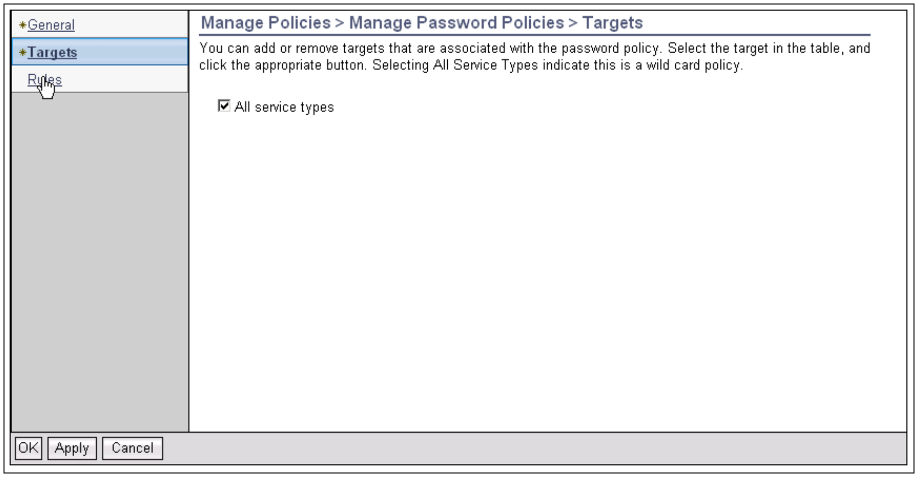
*Business unit: Tamco

Make policy available to services in
● This business unit and its subunits
○ This business unit only

Status
● Enabled
○ Disabled

Figure 6-65 Manage Password Policies: General window

3. In the Targets window, select **All service types** and click **Rules** (on the upper left side of the window), as shown in Figure 6-66.



Manage Policies > Manage Password Policies > Targets

You can add or remove targets that are associated with the password policy. Select the target in the table, and click the appropriate button. Selecting All Service Types indicate this is a wild card policy.

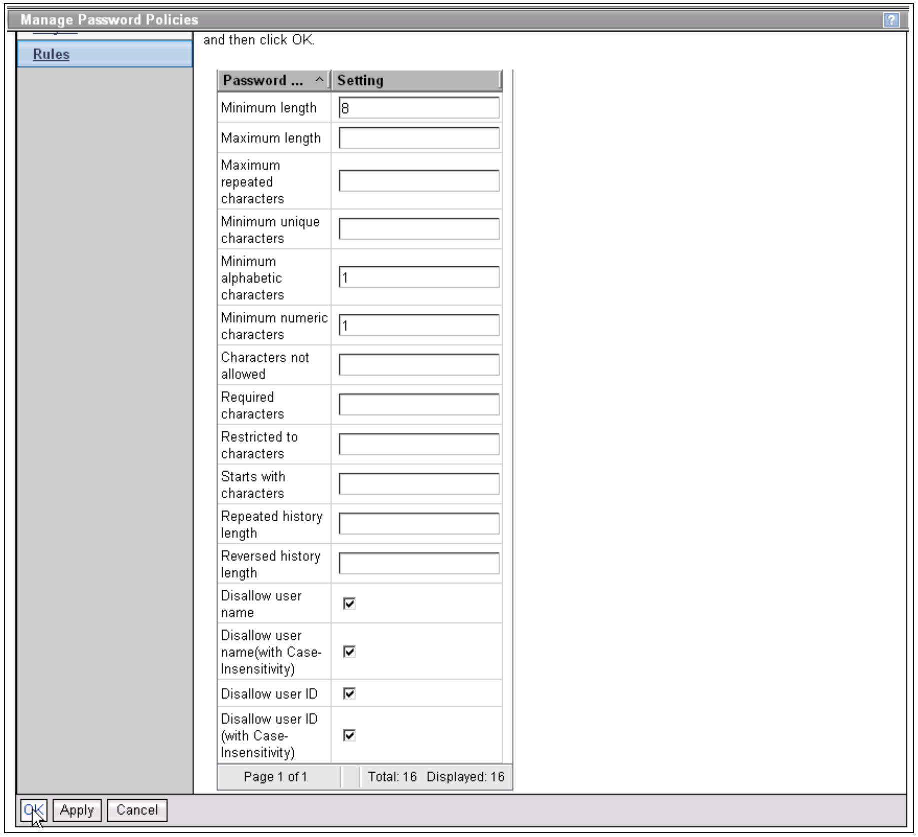
☑ All service types

Figure 6-66 Manage Password Policies: Target window

4. In the Manage Password Policies Rules window, enter these values:
   - Minimum length: 8
   - Minimum alphabetic characters: 1
   - Minimum numeric characters: 1

   Check:
   - **Disallow user name**
   - **Disallow user name (with Case-Insensitivity)**
   - **Disallow user ID**
   - **Disallow user ID (with Case-Insensitivity)**

   And, click **OK**, as shown in Figure 6-67.



and then click OK.

Password ...	Setting
Minimum length	8
Maximum length	
Maximum repeated characters	
Minimum unique characters	
Minimum alphabetic characters	1
Minimum numeric characters	1
Characters not allowed	
Required characters	
Restricted to characters	
Starts with characters	
Repeated history length	
Reversed history length	
Disallow user name	☑
Disallow user name(with Case-Insensitivity)	☑
Disallow user ID	☑
Disallow user ID (with Case-Insensitivity)	☑

Page 1 of 1 Total: 16 Displayed: 16

Figure 6-67 Manage Password Policies: Rules window

5. At the Success window, click **Close**.

The Password Policy has now been created. Any future password changes will have to comply with this policy.

7

Identifying initial tasks

In this chapter, we identify and walk through several of the initial tasks and prerequisites that are needed to start your Identity Manager project.

Important: Perform the tasks that are listed here in order.

7.1 Identity Manager prerequisites

Before Tivoli Identity Manager can be started, the following services must be up and running:

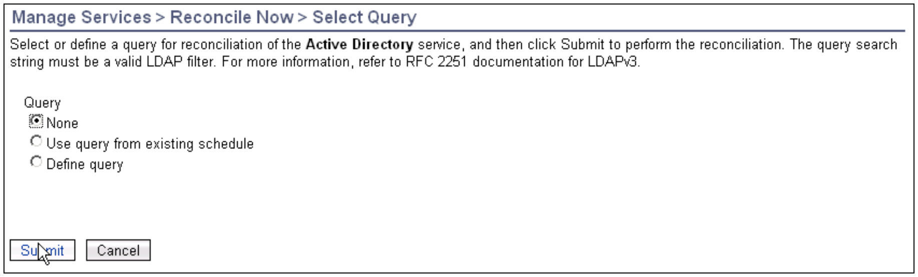
- DB2 - DB2COPY1 - DB2ADMIN
- DB2 - DB2COPY1 - ITIMLDAP
- IBM Tivoli Directory Server Instance V6.1 - itimldap
- IBM Tivoli Identity Manager Adapter
- Tivoli Active Directory Agent
- All back-end services:
  - Access Manager
  - Active Directory
  - Whitepages (Lightweight Directory Access Protocol) LDAP

If any of these services are not up when Identity Manager initial operations are started, the results can be complete failure or partial failure, depending on which service is not running.

7.2 Running reconciliation

Before activating provisioning policies, the existing accounts must be brought into Identity Manager (*reconciled*), which prevents Identity Manager from trying to create duplicates. To run a reconciliation, perform the following steps:

1. To import people, go to **Manage Services** and click **Search**.
2. In the search result box, select **Active Directory** → **Reconcile Now**.
3. In the Select Query window, select **None** and click **Submit**, as shown in Figure 7-1.



Manage Services > Reconcile Now > Select Query

Select or define a query for reconciliation of the **Active Directory** service, and then click Submit to perform the reconciliation. The query search string must be a valid LDAP filter. For more information, refer to RFC 2251 documentation for LDAPv3.

Query
● None
○ Use query from existing schedule
○ Define query

Figure 7-1 Select Query window

4. Click **Close** to close the result window.

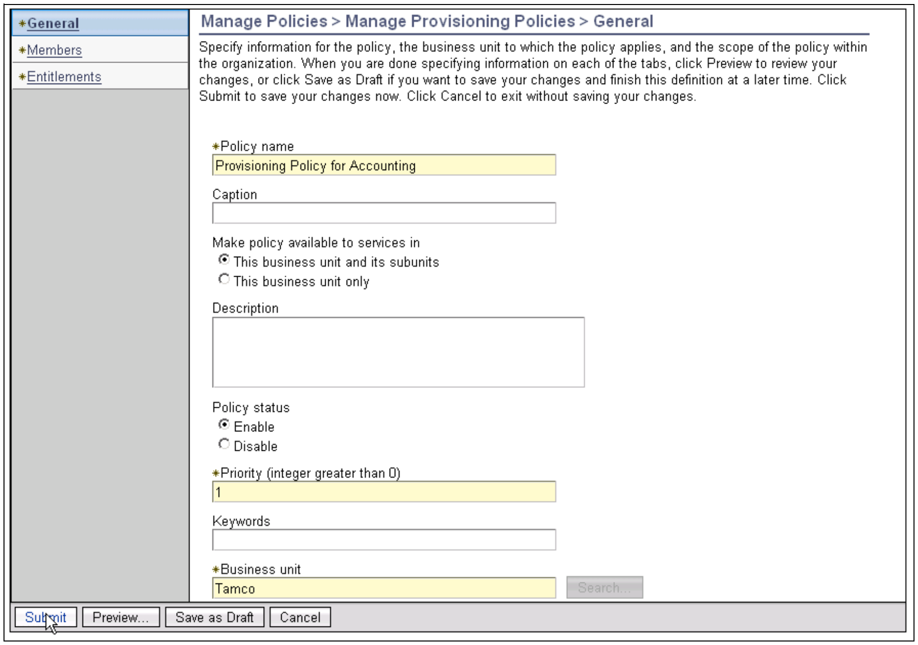
The results of this reconciliation are now searchable in the Manage Users window.

Repeat these steps for Access Manager, and you are ready to enable the provisioning policies in the TAMCO environment.

7.3 Activating the provisioning policies

Activating the provisioning policies will enable Identity Manager to automatically create accounts for each new user. To activate the provisioning policies:

1. Go to **Manage Policies** → **Manage Provisioning Policies**, and click **Search**.
2. Select **Provisioning Policy for Accounting**.
3. Select **Enable**, and click **Submit**, as shown in Figure 7-2 on page 221.



Manage Policies > Manage Provisioning Policies > General

Specify information for the policy, the business unit to which the policy applies, and the scope of the policy within the organization. When you are done specifying information on each of the tabs, click Preview to review your changes, or click Save as Draft if you want to save your changes and finish this definition at a later time. Click Submit to save your changes now. Click Cancel to exit without saving your changes.

*Policy name: Provisioning Policy for Accounting

Caption:

Make policy available to services in
● This business unit and its subunits
○ This business unit only

Description:

Policy status
● Enable
○ Disable

*Priority (integer greater than 0): 1

Keywords:

*Business unit: Tamco

Figure 7-2 Manage Provisioning Policies General window

4. In the Schedule window, select **Enforce changed only** (default), and click **Submit**.

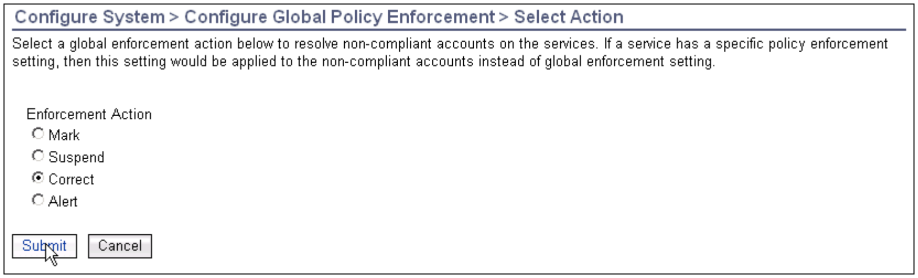
At the Success window, click **Manage other provisioning policies** and repeat the same steps for the following provisioning policies:

- Provisioning Policy for Executives
- Provisioning Policy for IT
- Provisioning Policy for Manufacturing
- Provisioning Policy for Sales
- Default Provisioning Policy for service Access Manager
- Default Provisioning Policy for service Active Directory
- Default Provisioning Policy for service Whitepages

7.4 Setting the global policy enforcement

In this section, we describe the steps needed to change the *global policy enforcement* to *Correct*. If an attribute is out of sync between the Person entry and an Account and when the provisioning policy has that attribute set as *Mandatory* (see 6.10, "Modifying the default provisioning policies" on page 205), the attribute on the account will be modified *if* the policy enforcement is set to *Correct*. To change the global policy enforcement to correct:

1. Go to **Configure System** → **Configure Global Policy Enforcement**.
2. In the Select Action window, select **Correct**, and click **Submit**, as shown in Figure 7-3.



Configure System > Configure Global Policy Enforcement > Select Action

Select a global enforcement action below to resolve non-compliant accounts on the services. If a service has a specific policy enforcement setting, then this setting would be applied to the non-compliant accounts instead of global enforcement setting.

Enforcement Action

○ Mark
○ Suspend
● Correct
○ Alert

Figure 7-3 Global Policy Enforcement: Select Action window

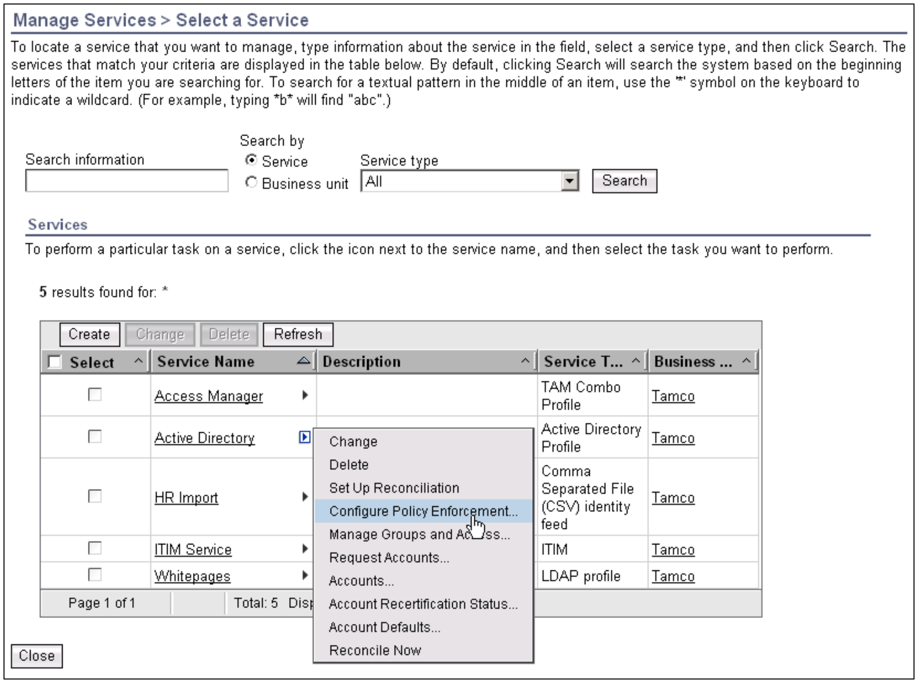
3. Then, click **Submit** → **Close**.

The global policy enforcement is now complete. Next, we modify the services to use it.

7.5 Setting policy enforcement for services

Each policy has its own policy enforcement setting. By default, it is *Mark*, which will mark any accounts that are not compliant with provisioning policies. Because we have already changed the global policy enforcement to *Correct*, which will correct any noncompliance with provisioning policies, we will now set the Active Directory and Whitepages services to use the global setting:

1. Select **Manage Services** → **Active Directory** → **Configure Policy Enforcement**, as shown in Figure 7-4 on page 223.



Manage Services > Select a Service

To locate a service that you want to manage, type information about the service in the field, select a service type, and then click Search. The services that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information:

Search by: ● Service ○ Business unit

Service type: All

Services

To perform a particular task on a service, click the icon next to the service name, and then select the task you want to perform.

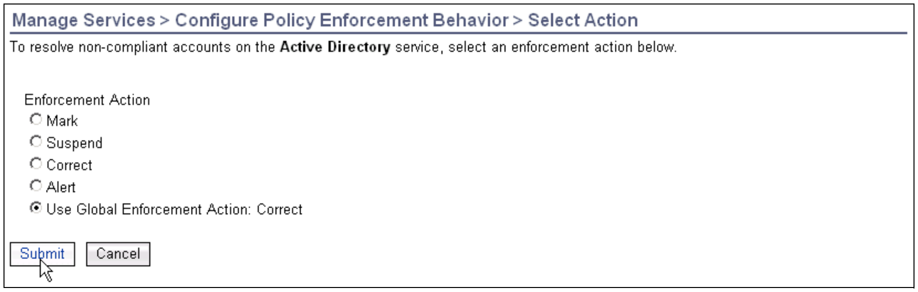
5 results found for: *

Select	Service Name	Description	Service T...	Business ...
□	Access Manager		TAM Combo Profile	Tamco
□	Active Directory		Active Directory Profile	Tamco
□	HR Import		Comma Separated File (CSV) identity feed	Tamco
□	ITIM Service		ITIM	Tamco
□	Whitepages		LDAP profile	Tamco

Page 1 of 1 Total: 5 Disp

Figure 7-4 Select a Service window

2. Select **Use Global Enforcement Action: Correct**, and click **Submit**, as shown in Figure 7-5.


Manage Services > Configure Policy Enforcement Behavior > Select Action

To resolve non-compliant accounts on the **Active Directory** service, select an enforcement action below.

Enforcement Action

○ Mark
○ Suspend
○ Correct
○ Alert
● Use Global Enforcement Action: Correct

Figure 7-5 Select Action window

3. Click **Submit** → **Close**.
4. Repeat steps 1-3 for Whitepages, with the following exception:

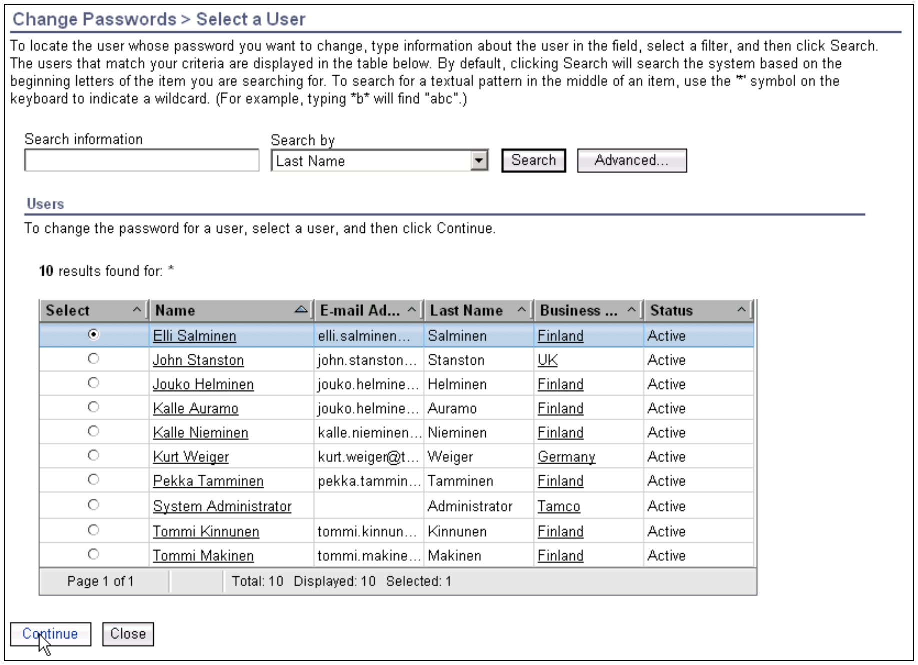
   In step 2, select **Manage Services** → **Whitepages** → **Configure Policy Enforcement**.

7.6 Changing passwords

Because no passwords have been preset for the new users, only an automatic password has been generated for each account. Therefore the password must be changed in order to use any of the accounts created. This task can be done by anyone with Administrator or Helpdesk privileges.

To change the password for a user, complete the following steps:

1. Go to **Change Passwords**.
2. Click **Search** to bring up a list of users.
3. Select **Elli Salminen** (or any other user whose password you want to change), and click **Continue**, as shown in Figure 7-6.



Change Passwords > Select a User

To locate the user whose password you want to change, type information about the user in the field, select a filter, and then click Search. The users that match your criteria are displayed in the table below. By default, clicking Search will search the system based on the beginning letters of the item you are searching for. To search for a textual pattern in the middle of an item, use the "*" symbol on the keyboard to indicate a wildcard. (For example, typing *b* will find "abc".)

Search information

Search by: Last Name

Users

To change the password for a user, select a user, and then click Continue.

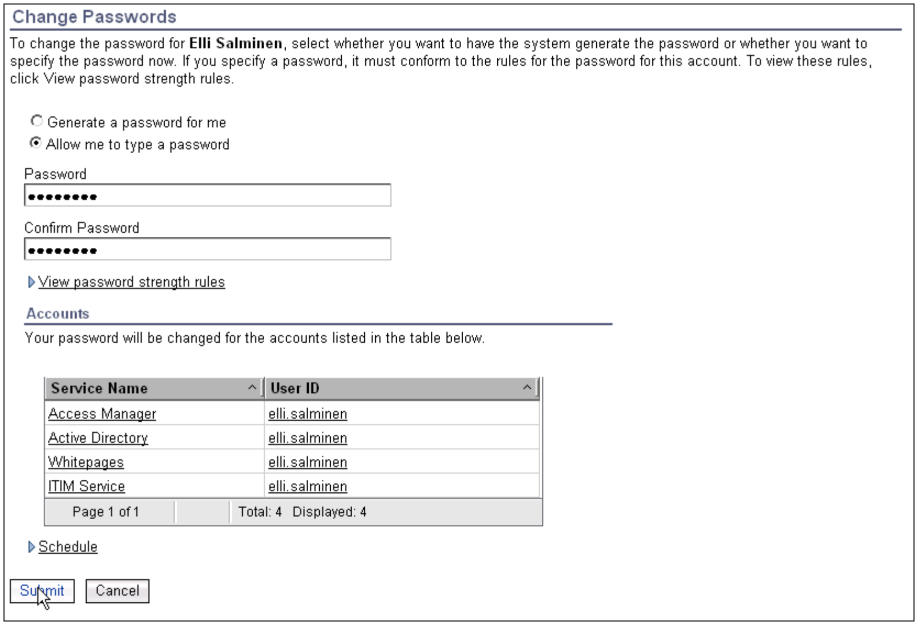
10 results found for: *

Select	Name	E-mail Ad...	Last Name	Business ...	Status
●	Elli Salminen	elli.salminen...	Salminen	Finland	Active
○	John Stanston	john.stanston...	Stanston	UK	Active
○	Jouko Helminen	jouko.helmine...	Helminen	Finland	Active
○	Kalle Auramo	jouko.helmine...	Auramo	Finland	Active
○	Kalle Nieminen	kalle.nieminen...	Nieminen	Finland	Active
○	Kurt Weiger	kurt.weiger@t...	Weiger	Germany	Active
○	Pekka Tamminen	pekka.tammin...	Tamminen	Finland	Active
○	System Administrator		Administrator	Tamco	Active
○	Tommi Kinnunen	tommi.kinnun...	Kinnunen	Finland	Active
○	Tommi Makinen	tommi.makine...	Makinen	Finland	Active

Page 1 of 1 Total: 10 Displayed: 10 Selected: 1

Figure 7-6 Select a User window

4. In the Change Passwords window, select **Allow me to type a password**.
5. Enter a password (we used `passw0rd`), and click **Submit**, as shown in Figure 7-7 on page 226.



Change Passwords

To change the password for **Elli Salminen**, select whether you want to have the system generate the password or whether you want to specify the password now. If you specify a password, it must conform to the rules for the password for this account. To view these rules, click View password strength rules.

○ Generate a password for me
● Allow me to type a password

Password: ••••••••

Confirm Password: ••••••••

View password strength rules

Accounts

Your password will be changed for the accounts listed in the table below.

Service Name	User ID
Access Manager	elli.salminen
Active Directory	elli.salminen
Whitepages	elli.salminen
ITIM Service	elli.salminen

Page 1 of 1 Total: 4 Displayed: 4

Figure 7-7 Change Passwords window

6. Click **Close** at the Success window.

The password has now been changed for Elli Salminen. Repeat this process on as many other passwords as you choose. In order to work through Appendix D, “Self-service” on page 263, you must also set the password for Kalle Nieminen, because you will need access to Kalle Nieminen’s accounts.

7.7 Conclusion

You must perform or check these initial tasks in order to bring your Tivoli Identity Manager environment to life. From now on, it is mostly about maintenance and adding new services as required.

Part 3

Appendixes

A

Troubleshooting

In this appendix, we discuss basic troubleshooting methods and provide tips to help you better operate and improve your Identity Manager installation. Also, go to **Product Overview** → **Release Information** in the Tivoli Identity Manager Information Center[1]. This section describes the latest known limitations, problems, and work-arounds. The *IBM Tivoli Identity Manager Problem Determination Guide Version 5*, SC32-1561, offers more detailed descriptions about how to tackle problematic situations.

Here are several common challenges and their resolutions.

[1] The Tivoli Identity Manager Information Center can be accessed at: http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/index.jsp?topic=/com.ibm.itim.doc/welcome.htm

Unable to access Identity Manager

You might be unable to access Identity Manager due to several reasons. Perhaps, WebSphere Application Server has not been started or the Enrole (Identity Manager) application in WebSphere has not been started.

Use this Web address for the WebSphere Administration Console, which is not available if WebSphere has not been started:

```
http://<websphereserver>:9090/admin/
```

At this Web site, you can view the state of various WebSphere components, including the Enrole application.

There might also be a problem with your HTTP server configuration, which can prevent access through the default port, which is port 80. Try connecting to Identity Manager using port 9080 to see if it is running. If you cannot connect via that port either, verify that WebSphere and the Enrole application were started.

If you cannot connect through port 9080 or port 80, restart the IBM HTTP Server service and try again.

Tip: It is always a good idea to remember that normally access to Identity Manager is routed through an IBM HTTP Server and the default ports are 80 for TCP and port 443 for Secure Sockets Layer (SSL). However, direct access is also possible at port 9080 for TCP and port 9443 for SSL.

Login to Identity Manager fails

A login failure can happen for a variety of reasons. The least of which is a misspelled password or a password entered in the wrong case. The username is case-insensitive.

However, if the username and password are correct, there are several reasons why a login might fail. The only reasons that are easy to fix, without restarting Identity Manager, are directory failure or database failure.

These situations can be solved by restarting your Lightweight Directory Access Protocol (LDAP) directory server or your database.

A common directory failure error message that you might see is “`Directory Server Unavailable`.”

Use the following command to determine if your LDAP directory server and database are down:

```
telnet <ldaphost> 389
```

If a connection can be established, LDAP is up and running.

If the Directory Server and database restarts do not help, restart Identity Manager.

> **Tip:** If it is uncertain whether the problem lies in your LDAP or database, and if these components are being used in a production environment by other applications, we recommend that you restart Identity Manager first to see if that solves the problem.
>
> A short outage of Identity Manager services does not affect other systems.

People or accounts do not show up in Identity Manager

The most likely cause of people or accounts not showing up in Identity Manager lies in the default limit for returned objects in an LDAP search, which is usually set at `500` or `1000`. The method to change this default limit depends on which LDAP software you use. The following steps show how you increase the values on IBM Directory Server V5.2:

1. Go to <*LDAP home*>\etc\ibmslapd.conf.
2. Find the line entry `ibmslapdSizeLimit`.
3. Set the entry value to exceed the number of users that you have. If you have 3500 users, set the entry to `5000`.
4. Save the changes.
5. Restart the Directory Server.

This value is also controlled in Identity Manager; the default is set at `1000`. Follow these steps to change it:

1. Go to <*itimhome*>\data\ui.properties.
2. Find the line entry `enrole.ui.maxSearchResults`.
3. Change it to the same value as the LDAP search size limit.
4. Save the changes.
5. Restart Identity Manager.

Best practices: While changing this value allows you to get a complete listing of users, it might be wise to consider using the Search option instead of wading through hundreds of users to find the user that you want.

Access Manager reconciliation does not find all users

This problem occurs because of the same issue of LDAP returning only a limited number of hits as described in “People or accounts do not show up in Identity Manager” on page 231. Use the same steps to resolve this issue.

Logs

The log for Identity Manager is located in the Common log directory, which by default is: C:\Program Files\IBM\tivoli\common\CTGIM\logs.

WebSphere logs can also be useful in debugging certain situations. For example, you can examine logs about WebSphere server start and stop procedures in the following logfiles:

- <*WebSphere home*>\logs\server1\startServer.log
- <W*ebSphere home*>\logs\server1\stopServer.log

Workflow changes are not working

Workflow is read from a cache with a default timeout of 10 minutes. Any changes are reflected after the timeout period. A Stop/Start of Identity Manager (the Enrole application in WebSphere) resets the cache, which also affects life cycle management.

Identity Manager online log

You can examine and monitor most Identity Manager activities by using the graphical user interface:

- Basic information about completed events can be read from **Home → View Completed Requests**.
- Information for events in progress can be viewed at **Home → View Pending Requests**.

Viewing more objects simultaneously

If you have to browse through lists of people or accounts regularly, you can adjust the number of objects displayed simultaneously with the following steps:

1. Open the ui.properties file.
2. Change enrole.ui.pageSize to whatever you think is a suitable number of entries to be shown on one page.
3. Save the file.
4. Restart the Identity Manager Server.

Common problems caused by database failure

Failure of the database or failure to connect to the Identity Manager database can result in a myriad of errors. If using DB2 as the database, most of the error messages contain `DB2` or `SQL` in them. The first way to resolve the issue is to try to stop and restart the database service.

In the unlikely event of database corruption, going to a backup is the best option; however, if you are dealing with testing or development environments with no need to maintain audit information, there is another way.

Because Identity Manager only stores audit data and data from running operations in its database, a complete drop of the database followed by a database configuration with Identity Manager tools is a quick way to restore functionality without any loss of configuration data.

After dropping the database and creating a new database, the database configuration can be achieved by running the **<*Identity Manager home*>\bin\dbconfig.exe**.

> **Note:** Do not use this shortcut in a production environment, because it results in the loss of all audit data.

Common ports

Here is a short list of default ports that are used in an Identity Manager environment. The simplest way to test to see if an application is listening is to ping the port, which can be done with a ping tool that can ping a port or by telnetting to a port. The following example shows telnetting to an LDAP port to see if the route is open:

```
telnet <ldaphost> 389
```

If a connection is made, the LDAP server is listening.

Table A-1 Identity Manager port usage

Port	Explanation
80	Identity Manager TCP port (via HTTP Server)
443	Identity Manager Secure Sockets Layer (SSL) port (via HTTP Server)
9080	Identity Manager TCP port (direct connection)
9443	Identity Manager SSL port (direct connection)
386	LDAP TCP Port
45580	Adapter default port
50000	DB2 database default port (only if database was configured to accept remote connections)
9090	WebSphere administration port (not available in root, suffix host name with /admin to access administration application)

Conclusion

These notes about troubleshooting or optimizing your Tivoli Identity Manager environment only reflect a subset of the topics about Tivoli Identity Manager. For more information, go to **Product Overview** → **Release Information** in the Tivoli Identity Manager Information Center[2], which describes the latest known limitations, problems, and work-arounds or *IBM Tivoli Identity Manager Problem Determination Guide Version 5*, SC32-1561, which offers more detailed descriptions about how to tackle problematic situations.

[2] The Tivoli Identity Manager Information Center can be accessed at: http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/index.jsp?topic=/com.ibm.itim.doc/welcome.htm

B

Rapid Installer Option

The *Rapid Installer Option* helps you to install all of the required components before installing the Tivoli Identity Manager 5.0 application and adapters in a single server environment. The Rapid Installer Option installs the following components:

- WebSphere Application Server
- DB2 Universal Database
- Tivoli Directory Server
- Tivoli Directory Integrator
- Tivoli Identity Manager Server
- Tivoli Identity Manager Adapters
- Tivoli Identity Manager Middleware Configuration Utility

For more information about how to use these middleware products, refer to the *IBM Tivoli Identity Manager Rapid Install Option Installation and Configuration Guide Version 5*, SC23-9470.

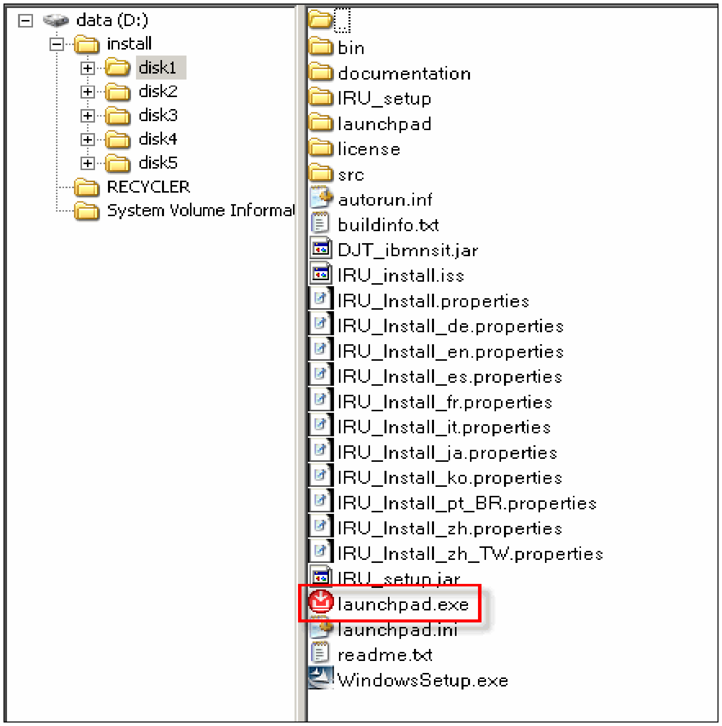
Tivoli Identity Manager Rapid Install Option

The Tivoli Identity Manager Rapid Install Option (RIO) supports a single-server configuration only. A single-server configuration includes the WebSphere Application Server product and other required applications on one computer.

Tivoli Identity Manager 5.0 Rapid Install Option is packaged as two separate packages: one package for Windows 2003 Servers and one package for Linux servers.

Follow these steps to use the Tivoli Identity Manager Rapid Install Option:

1. Navigate to the directory where the RIO disks are located. Start the launchpad by clicking **launchpad.exe** as shown in Figure B-1.

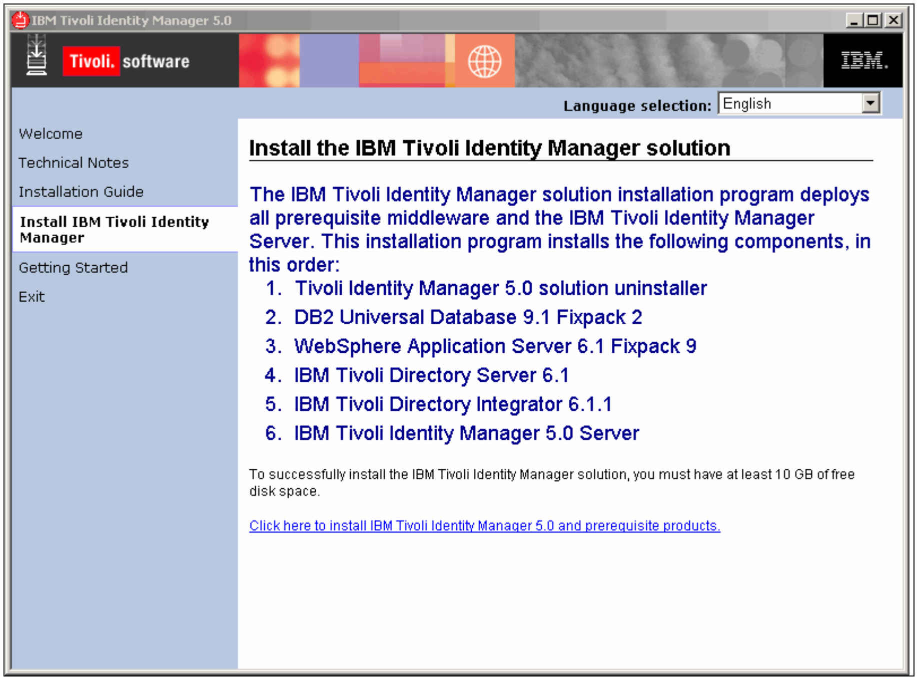


data (D:)
install
disk1
disk2
disk3
disk4
disk5
RECYCLER
System Volume Informat

..
bin
documentation
IRU_setup
launchpad
license
src
autorun.inf
buildinfo.txt
DJT_ibmnsit.jar
IRU_install.iss
IRU_Install.properties
IRU_Install_de.properties
IRU_Install_en.properties
IRU_Install_es.properties
IRU_Install_fr.properties
IRU_Install_it.properties
IRU_Install_ja.properties
IRU_Install_ko.properties
IRU_Install_pt_BR.properties
IRU_Install_zh.properties
IRU_Install_zh_TW.properties
IRU_setup.jar
launchpad.exe
launchpad.ini
readme.txt
WindowsSetup.exe

Figure B-1 Find and start launchpad.exe

2. Select the menu item to **Install IBM Tivoli Identity Manager**. Then, click the link **Click here to install** to begin the installation as shown in Figure B-2 on page 239. Note that you need 10 GB of free space to install Tivoli Identity Manager. It takes several moments before the next window appears.


IBM Tivoli Identity Manager 5.0
Tivoli. software
IBM.
Language selection: English
Welcome
Technical Notes
Installation Guide
Install IBM Tivoli Identity Manager
Getting Started
Exit

Install the IBM Tivoli Identity Manager solution

The IBM Tivoli Identity Manager solution installation program deploys all prerequisite middleware and the IBM Tivoli Identity Manager Server. This installation program installs the following components, in this order:

1. Tivoli Identity Manager 5.0 solution uninstaller
2. DB2 Universal Database 9.1 Fixpack 2
3. WebSphere Application Server 6.1 Fixpack 9
4. IBM Tivoli Directory Server 6.1
5. IBM Tivoli Directory Integrator 6.1.1
6. IBM Tivoli Identity Manager 5.0 Server

To successfully install the IBM Tivoli Identity Manager solution, you must have at least 10 GB of free disk space.

Click here to install IBM Tivoli Identity Manager 5.0 and prerequisite products.

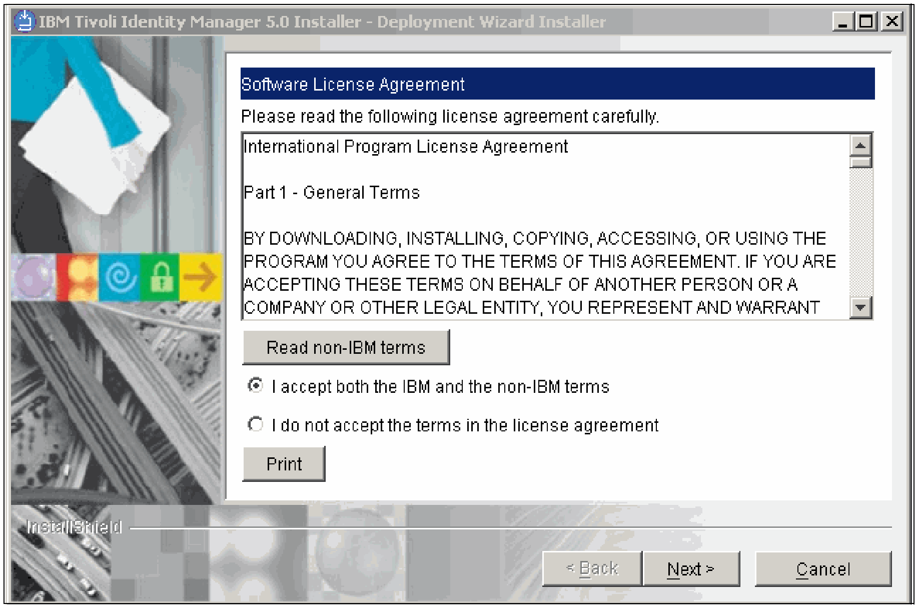
Figure B-2 Introduction window of Identity Manager

Note: You need at least 10 GB of free disk space for the installed product as well as for the temporary data (temp directory).

If there is a need to set up an alternative temporary directory, run **`launchpad.exe`** from a command line, for example:

```
launchpad.exe -is: tempdir temp_directory
```

3. The next window that appears will be the Software License Agreement. Accept the agreement by selecting **I accept both the IBM and non-IBM terms** as shown in Figure B-3 on page 240. Click **Next** to continue.


IBM Tivoli Identity Manager 5.0 Installer - Deployment Wizard Installer

Software License Agreement

Please read the following license agreement carefully.

International Program License Agreement

Part 1 - General Terms

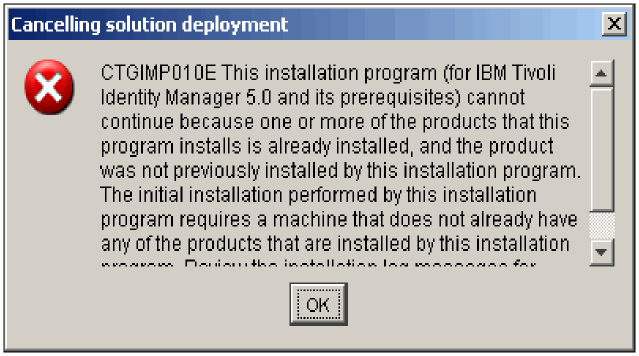
BY DOWNLOADING, INSTALLING, COPYING, ACCESSING, OR USING THE PROGRAM YOU AGREE TO THE TERMS OF THIS AGREEMENT. IF YOU ARE ACCEPTING THESE TERMS ON BEHALF OF ANOTHER PERSON OR A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT AND WARRANT

● I accept both the IBM and the non-IBM terms

○ I do not accept the terms in the license agreement

Figure B-3 License agreement

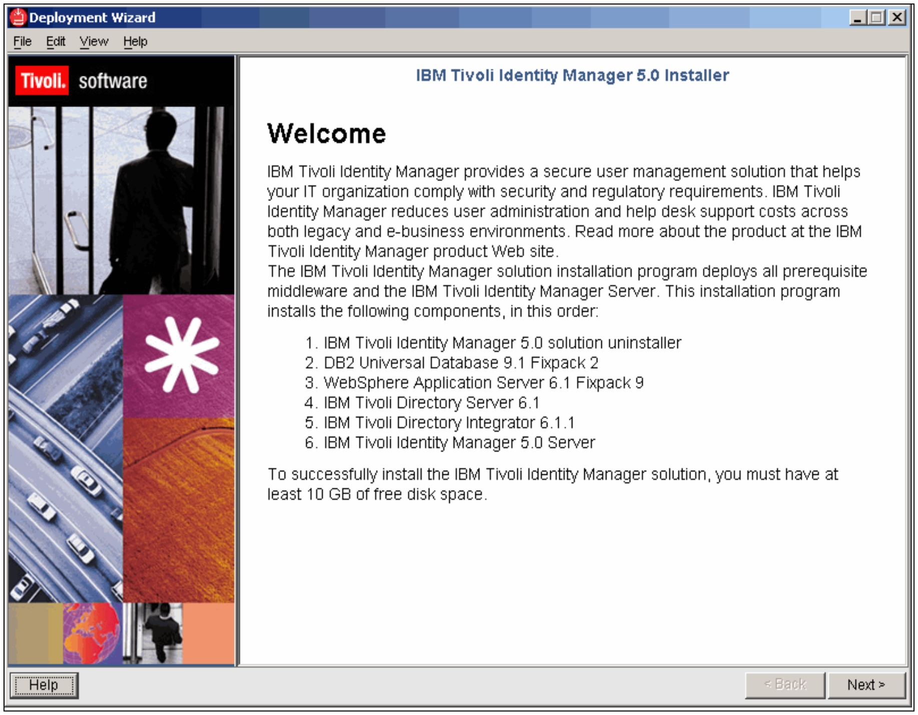
4. If any of the prerequisite products is already installed or was previously uninstalled but left information back in the Windows registry, RIO will bring up an error window as you see in Figure B-4. This behavior can vary on Linux.


Cancelling solution deployment

CTGIMP010E This installation program (for IBM Tivoli Identity Manager 5.0 and its prerequisites) cannot continue because one or more of the products that this program installs is already installed, and the product was not previously installed by this installation program. The initial installation performed by this installation program requires a machine that does not already have any of the products that are installed by this installation

Figure B-4 Cancellation window about previously installed products

5. Temporary files are installed as indicated in the Welcome window, which is depicted in Figure B-5 on page 241. This window shows the space needed and what products will be installed by RIO. Click **Next** to continue.



IBM Tivoli Identity Manager 5.0 Installer

Welcome

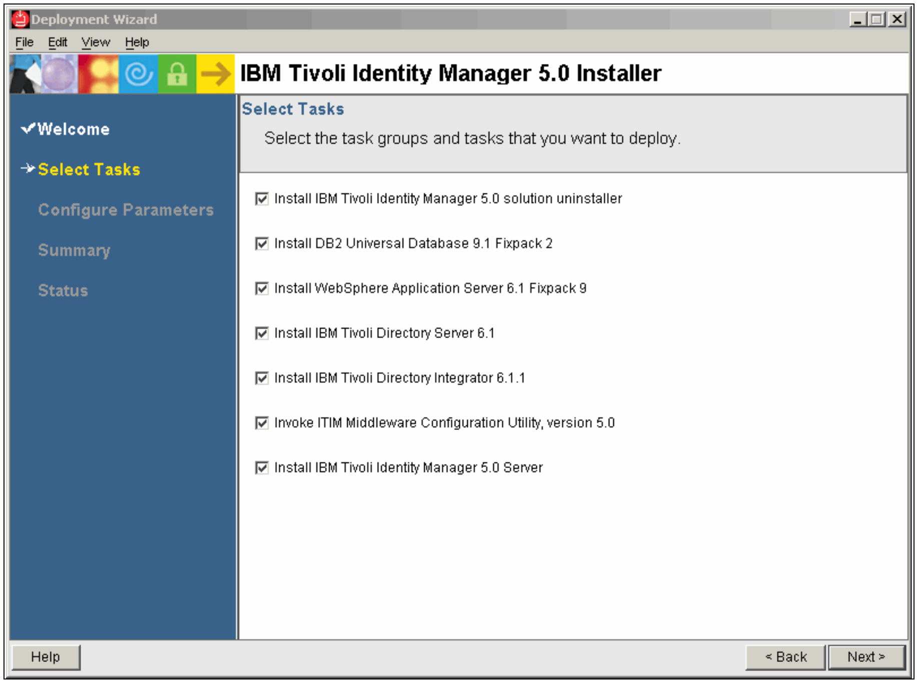
IBM Tivoli Identity Manager provides a secure user management solution that helps your IT organization comply with security and regulatory requirements. IBM Tivoli Identity Manager reduces user administration and help desk support costs across both legacy and e-business environments. Read more about the product at the IBM Tivoli Identity Manager product Web site.
The IBM Tivoli Identity Manager solution installation program deploys all prerequisite middleware and the IBM Tivoli Identity Manager Server. This installation program installs the following components, in this order:

1. IBM Tivoli Identity Manager 5.0 solution uninstaller
2. DB2 Universal Database 9.1 Fixpack 2
3. WebSphere Application Server 6.1 Fixpack 9
4. IBM Tivoli Directory Server 6.1
5. IBM Tivoli Directory Integrator 6.1.1
6. IBM Tivoli Identity Manager 5.0 Server

To successfully install the IBM Tivoli Identity Manager solution, you must have at least 10 GB of free disk space.

Figure B-5 Products to be installed and required disk space

6. Now, the deployment tasks are displayed as shown in Figure B-6 on page 242.



Select Tasks

Select the task groups and tasks that you want to deploy.

☑ Install IBM Tivoli Identity Manager 5.0 solution uninstaller

☑ Install DB2 Universal Database 9.1 Fixpack 2

☑ Install WebSphere Application Server 6.1 Fixpack 9

☑ Install IBM Tivoli Directory Server 6.1

☑ Install IBM Tivoli Directory Integrator 6.1.1

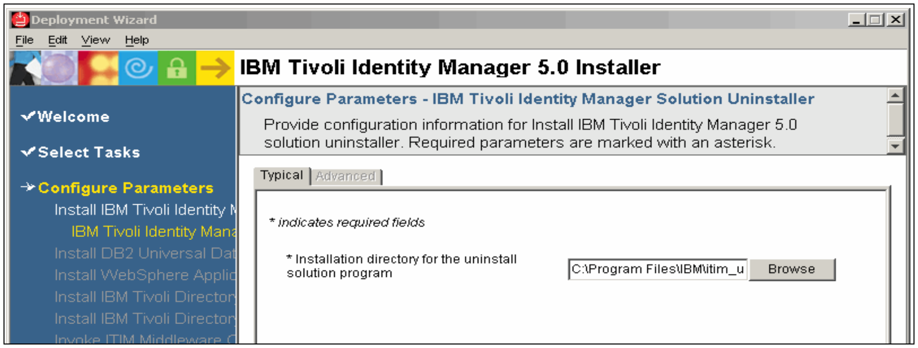
☑ Invoke ITIM Middleware Configuration Utility, version 5.0

☑ Install IBM Tivoli Identity Manager 5.0 Server

Figure B-6 Deployment tasks

The next steps guide you through the definition of the installation parameters of the products.

7. Choose the installation directory of the Identity Manager installer or accept the default setting (Figure B-7).



Configure Parameters - IBM Tivoli Identity Manager Solution Uninstaller

Provide configuration information for Install IBM Tivoli Identity Manager 5.0 solution uninstaller. Required parameters are marked with an asterisk.

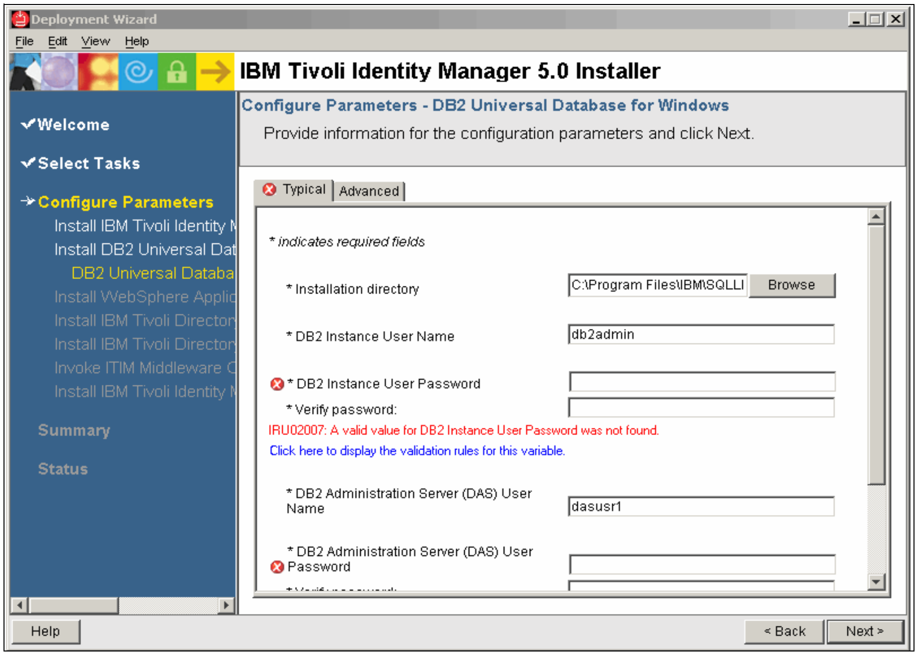
* indicates required fields

* Installation directory for the uninstall solution program: C:\Program Files\IBM\itim_u

Figure B-7 Installation directory of the Identity Manager uninstaller

8. In the next window, the DB2 installation parameters are requested (Figure B-8 on page 243).

Modify the installation path or accept the default setting. Provide the passwords for the DB2 admin users `db2admin` and `dasusr1`.



Configure Parameters - DB2 Universal Database for Windows

Provide information for the configuration parameters and click Next.

** indicates required fields*

* Installation directory: C:\Program Files\IBM\SQLLI

* DB2 Instance User Name: db2admin

* DB2 Instance User Password:

* Verify password:

IRU02007: A valid value for DB2 Instance User Password was not found.

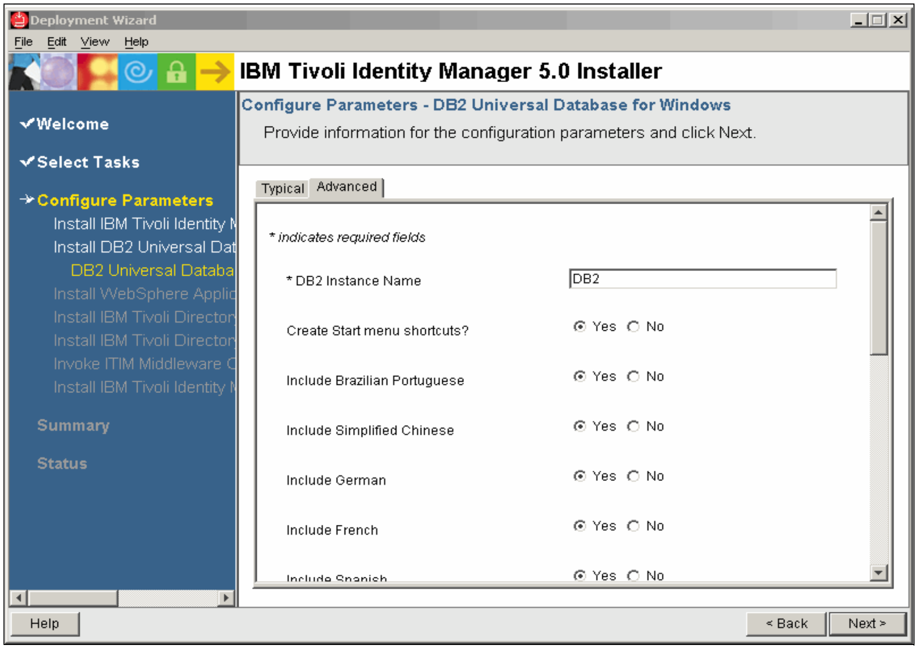
Click here to display the validation rules for this variable.

* DB2 Administration Server (DAS) User Name: dasusr1

* DB2 Administration Server (DAS) User Password:

Figure B-8 DB2 installation parameters

9. On the **Advanced** tab, you can set the DB2 Instance Name and the languages as shown in Figure B-9 on page 244. We recommend that you deselect all languages that you do not want installed. Click **Next** to continue.



Configure Parameters - DB2 Universal Database for Windows

Provide information for the configuration parameters and click Next.

** indicates required fields*

* DB2 Instance Name: DB2

Create Start menu shortcuts? ● Yes ○ No

Include Brazilian Portuguese ● Yes ○ No

Include Simplified Chinese ● Yes ○ No

Include German ● Yes ○ No

Include French ● Yes ○ No

Include Spanish ● Yes ○ No

Figure B-9 DB2 instance and National Language Support

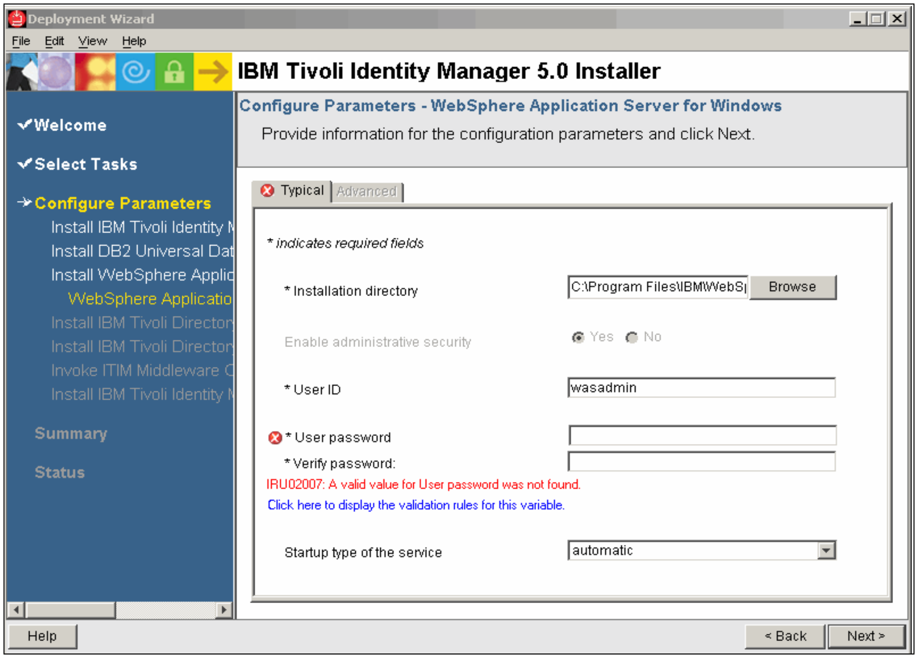
10. In the next window, the WebSphere Application Server installation parameters are shown (Figure B-10 on page 245):

    – Modify the installation path or accept the default setting.

    – Provide the password for the WAS admin user `wasadmin`.

    – Choose the startup method of the WAS service.

    Click **Next** to continue.



Configure Parameters - WebSphere Application Server for Windows

Provide information for the configuration parameters and click Next.

* indicates required fields

* Installation directory: C:\Program Files\IBM\WebS|

Enable administrative security: ● Yes ○ No

* User ID: wasadmin

* User password:

* Verify password:

IRU02007: A valid value for User password was not found.

Click here to display the validation rules for this variable.

Startup type of the service: automatic

Figure B-10 WebSphere Application Server installation parameters

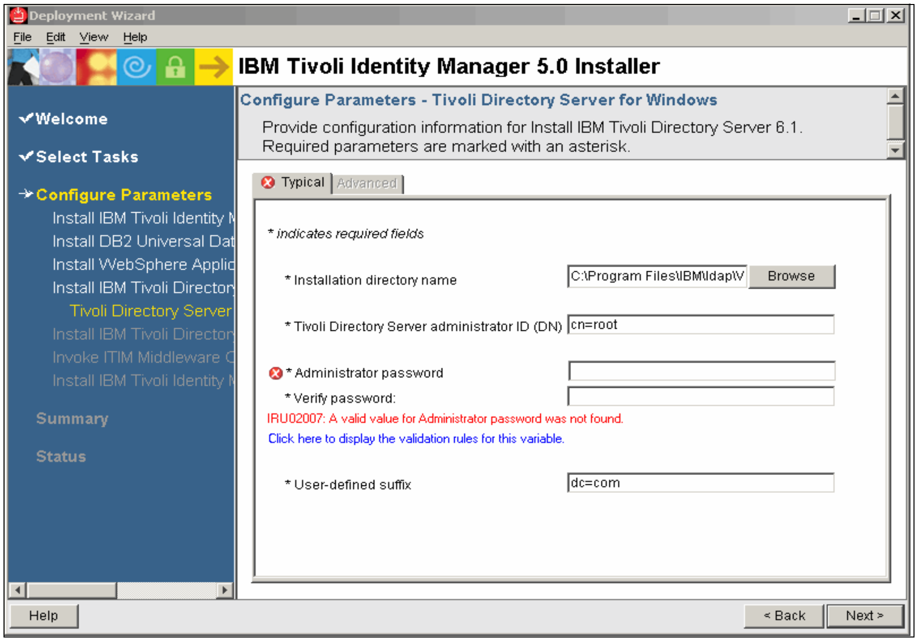
11. The next window displays the Tivoli Director Server installation parameters (Figure B-11 on page 246):

    – Modify the installation path or accept the default setting.

    – Set the password for the admin user `cn=root`.

    – Change the suffix to your needs or accept the default.

    Click **Next** to continue.



IBM Tivoli Identity Manager 5.0 Installer

Configure Parameters - Tivoli Directory Server for Windows

Provide configuration information for Install IBM Tivoli Directory Server 6.1.
Required parameters are marked with an asterisk.

* indicates required fields

* Installation directory name: C:\Program Files\IBM\ldap\V

* Tivoli Directory Server administrator ID (DN): cn=root

* Administrator password:

* Verify password:

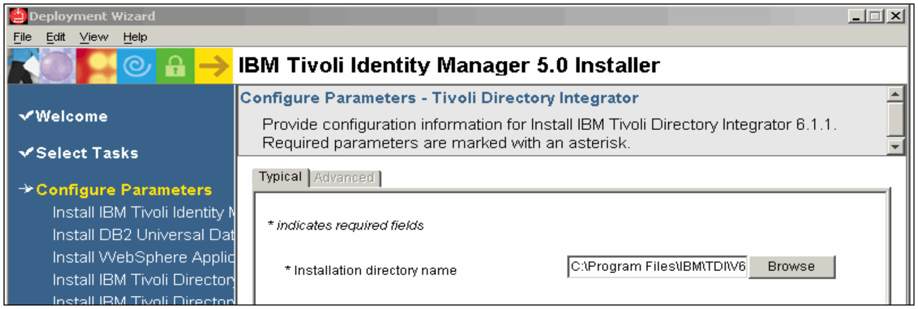
IRU02007: A valid value for Administrator password was not found.

Click here to display the validation rules for this variable.

* User-defined suffix: dc=com

Figure B-11 Tivoli Director Server installation parameters

12. Now, the Tivoli Directory Integrator settings window appears (Figure B-12). Change the installation directory to your needs or accept the default directory.



IBM Tivoli Identity Manager 5.0 Installer

Configure Parameters - Tivoli Directory Integrator

Provide configuration information for Install IBM Tivoli Directory Integrator 6.1.1.
Required parameters are marked with an asterisk.

* indicates required fields

* Installation directory name: C:\Program Files\IBM\TDI\V6

Figure B-12 Tivoli Directory Integrator settings

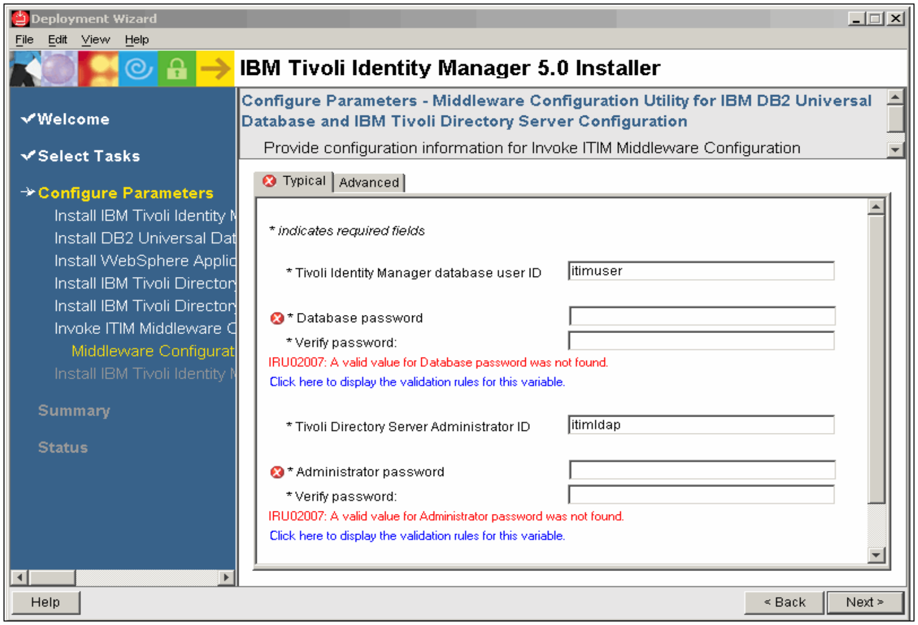
13. The Tivoli Identity Manager 5.0 Installer Configure Parameters - Middleware Configuration Utility for IBM DB2 Universal Database and IBM Tivoli Directory Server Configuration settings window appears next (Figure B-13 on page 247).

    On the **Typical** tab, you have to set:

    – The password for the DB2 user `itimuser`. This user is used to access data in the `itimdb` database from Identity Manager itself.

    – The password for the DB2 user `itimldap`. This user is used to access Identity Manager data on the directory server.

    Accept the default settings for the DB2 users and the Secure Sockets Layer (SSL) port, unless you need to change them.



Configure Parameters - Middleware Configuration Utility for IBM DB2 Universal Database and IBM Tivoli Directory Server Configuration

Provide configuration information for Invoke ITIM Middleware Configuration

indicates required fields

* Tivoli Identity Manager database user ID: itimuser

* Database password:

* Verify password:

IRU02007: A valid value for Database password was not found.

Click here to display the validation rules for this variable.

* Tivoli Directory Server Administrator ID: itimldap

* Administrator password:

* Verify password:

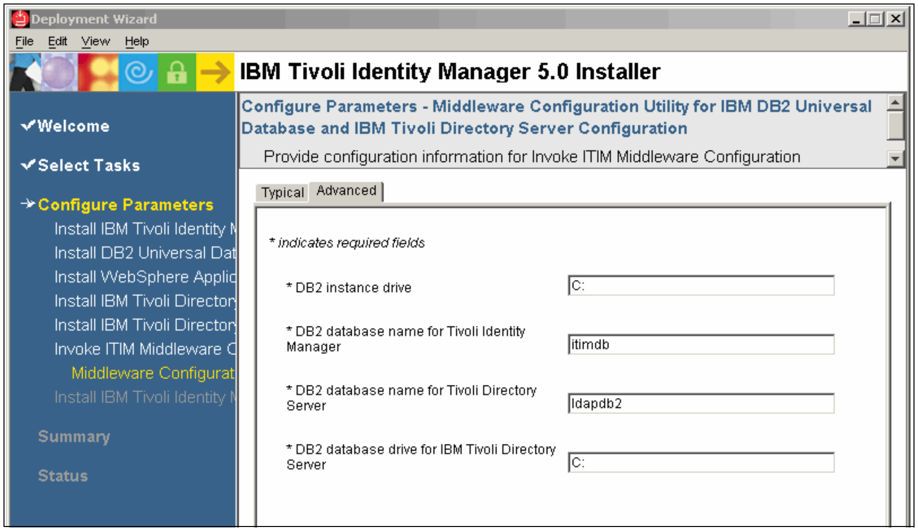
IRU02007: A valid value for Administrator password was not found.

Click here to display the validation rules for this variable.

Figure B-13 Identity Manager DB2 and LDAP server settings

On the **Advanced** tab, which is shown in Figure B-14 on page 248, you can modify or accept the default settings.

Click **Next** to continue.


Deployment Wizard
File Edit View Help
IBM Tivoli Identity Manager 5.0 Installer
✓Welcome
✓Select Tasks
Configure Parameters
Install IBM Tivoli Identity M
Install DB2 Universal Dat
Install WebSphere Applic
Install IBM Tivoli Directory
Install IBM Tivoli Directory
Invoke ITIM Middleware C
Middleware Configurat
Install IBM Tivoli Identity M
Summary
Status
Typical
Advanced

Configure Parameters - Middleware Configuration Utility for IBM DB2 Universal Database and IBM Tivoli Directory Server Configuration

Provide configuration information for Invoke ITIM Middleware Configuration

* indicates required fields

* DB2 instance drive: C:

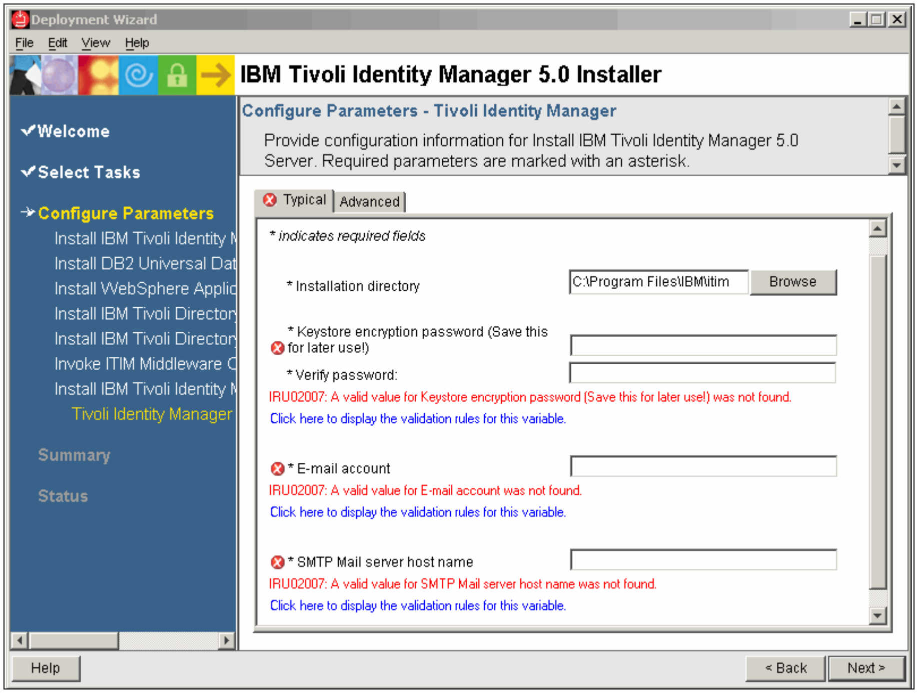
* DB2 database name for Tivoli Identity Manager: itimdb

* DB2 database name for Tivoli Directory Server: ldapdb2

* DB2 database drive for IBM Tivoli Directory Server: C:

Figure B-14 DB2 database settings

14.Next, the configuration window for Identity Manager appears (Figure B-15).



Configure Parameters - Tivoli Identity Manager

Provide configuration information for Install IBM Tivoli Identity Manager 5.0 Server. Required parameters are marked with an asterisk.

* indicates required fields

* Installation directory: C:\Program Files\IBM\itim

* Keystore encryption password (Save this for later use!)

* Verify password:

IRU02007: A valid value for Keystore encryption password (Save this for later use!) was not found.

Click here to display the validation rules for this variable.

* E-mail account

IRU02007: A valid value for E-mail account was not found.

Click here to display the validation rules for this variable.

* SMTP Mail server host name

IRU02007: A valid value for SMTP Mail server host name was not found.

Click here to display the validation rules for this variable.

Figure B-15 Identity Manager configuration settings

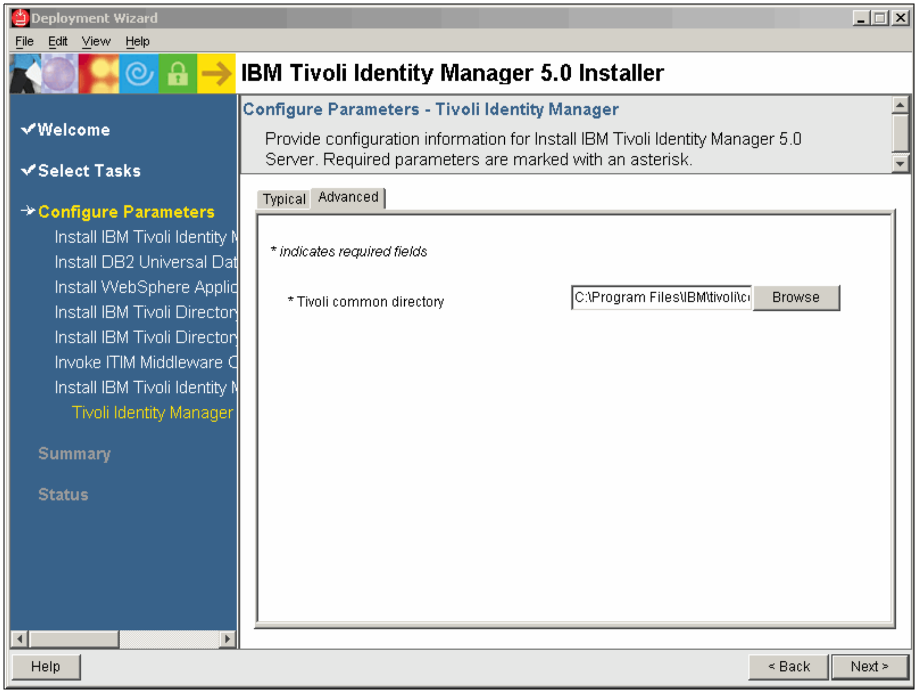
Perform the following steps on the **Typical** tab, which is shown in Figure B-15 on page 248:

- Modify or accept the default settings for the Identity Manager installation path.
- Set the Keystore encryption password.
- Set an administrative E-mail account.
- Set the SMTP Mail server host name.

On the **Advanced** tab (Figure B-16):

- Modify or accept the default settings for the Tivoli common directory.

Click **Next** to continue.



IBM Tivoli Identity Manager 5.0 Installer

Configure Parameters - Tivoli Identity Manager

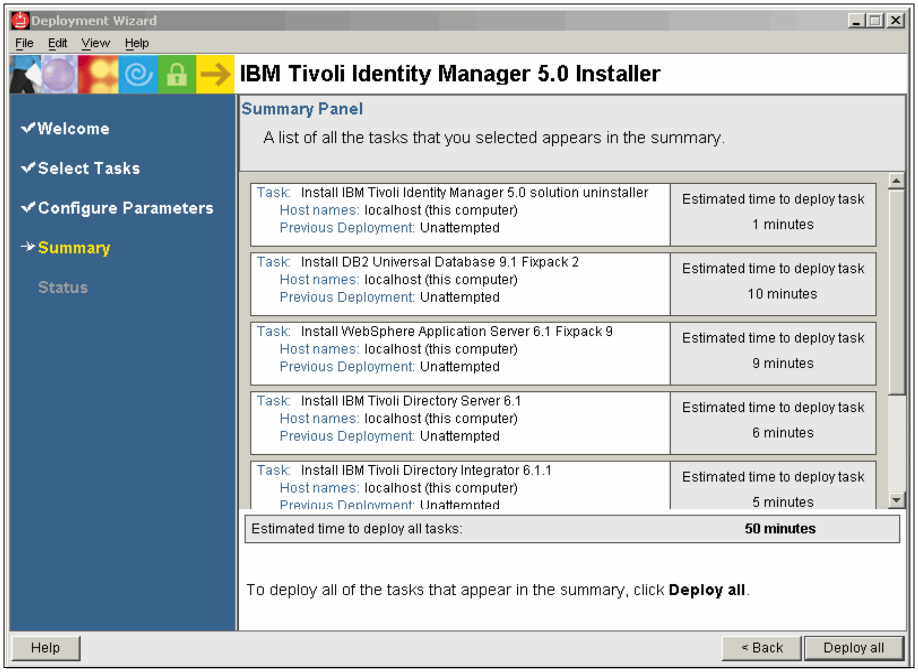
Provide configuration information for Install IBM Tivoli Identity Manager 5.0 Server. Required parameters are marked with an asterisk.

** indicates required fields*

* Tivoli common directory: C:\Program Files\IBM\tivoli\c

Figure B-16 Tivoli common directory setting

15. The next window shows the summary of the installation steps for Identity Manager (Figure B-17 on page 250).



IBM Tivoli Identity Manager 5.0 Installer

Summary Panel

A list of all the tasks that you selected appears in the summary.

Task: Install IBM Tivoli Identity Manager 5.0 solution uninstaller Host names: localhost (this computer) Previous Deployment: Unattempted	Estimated time to deploy task 1 minutes
Task: Install DB2 Universal Database 9.1 Fixpack 2 Host names: localhost (this computer) Previous Deployment: Unattempted	Estimated time to deploy task 10 minutes
Task: Install WebSphere Application Server 6.1 Fixpack 9 Host names: localhost (this computer) Previous Deployment: Unattempted	Estimated time to deploy task 9 minutes
Task: Install IBM Tivoli Directory Server 6.1 Host names: localhost (this computer) Previous Deployment: Unattempted	Estimated time to deploy task 6 minutes
Task: Install IBM Tivoli Directory Integrator 6.1.1 Host names: localhost (this computer) Previous Deployment: Unattempted	Estimated time to deploy task 5 minutes

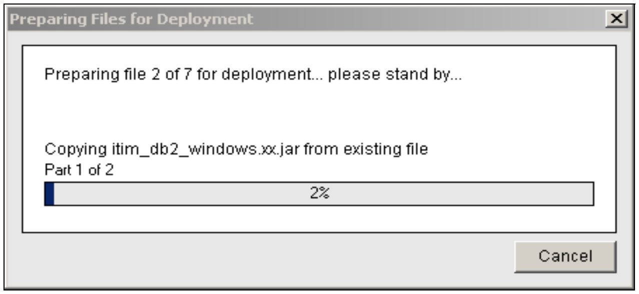
Estimated time to deploy all tasks: **50 minutes**

To deploy all of the tasks that appear in the summary, click **Deploy all**.

Figure B-17 Installation summary

Click **Deploy all** to start the Identity Manager installation, which can last about 50-60 minutes.

16.During the process, the **Preparing files for deployment** window is displayed first (Figure B-18).

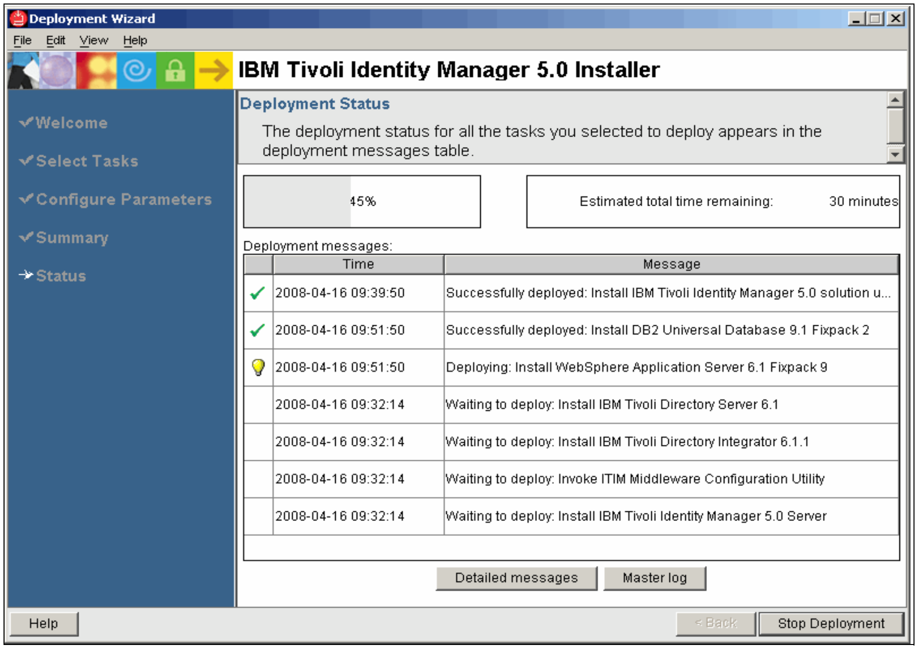


Preparing file 2 of 7 for deployment... please stand by...

Copying itim_db2_windows.xx.jar from existing file
Part 1 of 2

Figure B-18 Preparing the installation

17.After the successful preparation of the installation files, the Deployment status window, depicted in Figure B-19 on page 251, appears. Here, you can monitor the progress of the overall installation.



IBM Tivoli Identity Manager 5.0 Installer

Deployment Status

The deployment status for all the tasks you selected to deploy appears in the deployment messages table.

45%

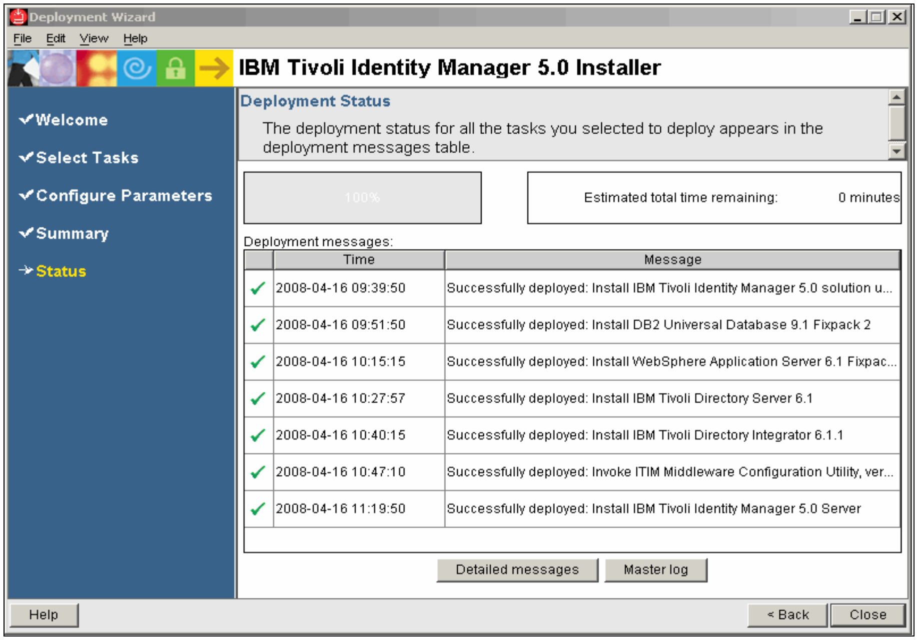
Estimated total time remaining: 30 minutes

Deployment messages:

	Time	Message
✓	2008-04-16 09:39:50	Successfully deployed: Install IBM Tivoli Identity Manager 5.0 solution u...
✓	2008-04-16 09:51:50	Successfully deployed: Install DB2 Universal Database 9.1 Fixpack 2
💡	2008-04-16 09:51:50	Deploying: Install WebSphere Application Server 6.1 Fixpack 9
	2008-04-16 09:32:14	Waiting to deploy: Install IBM Tivoli Directory Server 6.1
	2008-04-16 09:32:14	Waiting to deploy: Install IBM Tivoli Directory Integrator 6.1.1
	2008-04-16 09:32:14	Waiting to deploy: Invoke ITIM Middleware Configuration Utility
	2008-04-16 09:32:14	Waiting to deploy: Install IBM Tivoli Identity Manager 5.0 Server

Figure B-19 Deployment status window

18. After a successful installation of Identity Manager, you see the following final status window (Figure B-20 on page 252).



IBM Tivoli Identity Manager 5.0 Installer

Deployment Status

The deployment status for all the tasks you selected to deploy appears in the deployment messages table.

Estimated total time remaining: 0 minutes

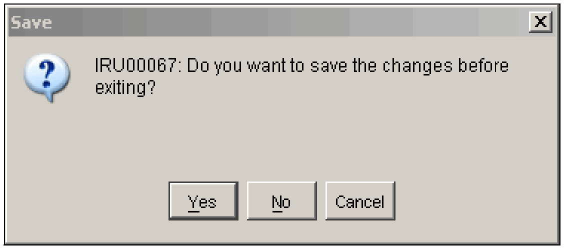
Deployment messages:

	Time	Message
✓	2008-04-16 09:39:50	Successfully deployed: Install IBM Tivoli Identity Manager 5.0 solution u...
✓	2008-04-16 09:51:50	Successfully deployed: Install DB2 Universal Database 9.1 Fixpack 2
✓	2008-04-16 10:15:15	Successfully deployed: Install WebSphere Application Server 6.1 Fixpac...
✓	2008-04-16 10:27:57	Successfully deployed: Install IBM Tivoli Directory Server 6.1
✓	2008-04-16 10:40:15	Successfully deployed: Install IBM Tivoli Directory Integrator 6.1.1
✓	2008-04-16 10:47:10	Successfully deployed: Invoke ITIM Middleware Configuration Utility, ver...
✓	2008-04-16 11:19:50	Successfully deployed: Install IBM Tivoli Identity Manager 5.0 Server

Figure B-20 Window that shows after successful installation of Identity Manager

Click **Close** to finish the installation.

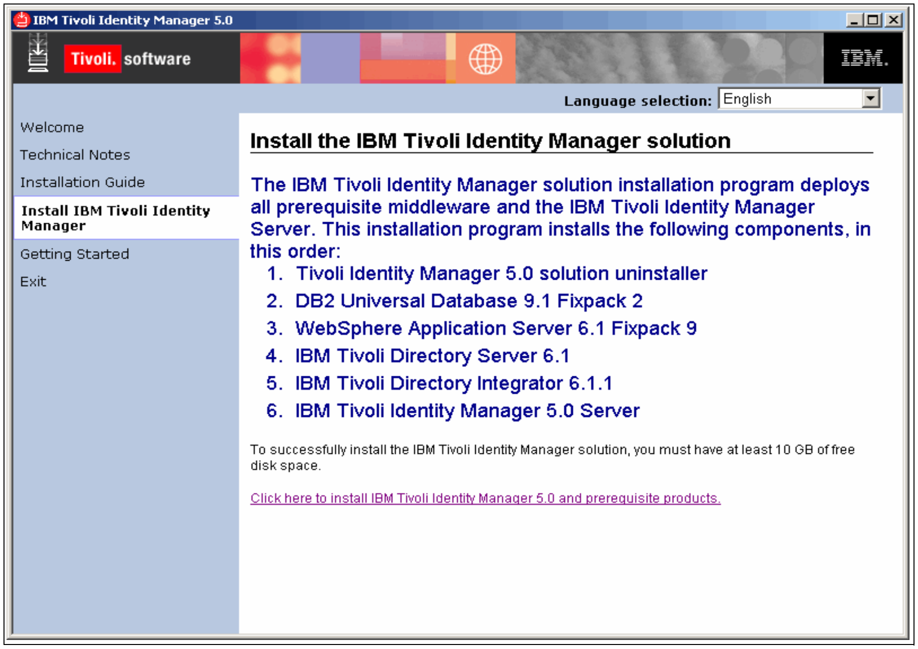
19. In the next window, which is shown in Figure B-21, you can save your changes to the configuration for future use.



IRU00067: Do you want to save the changes before exiting?

Figure B-21 Save installation parameters

20. After exiting from the installation wizard, you return to the introduction window, which is shown in Figure B-22 on page 253.


IBM Tivoli Identity Manager 5.0
Tivoli. software
IBM.
Language selection: English
Welcome
Technical Notes
Installation Guide
Install IBM Tivoli Identity Manager
Getting Started
Exit

Install the IBM Tivoli Identity Manager solution

The IBM Tivoli Identity Manager solution installation program deploys all prerequisite middleware and the IBM Tivoli Identity Manager Server. This installation program installs the following components, in this order:

1. Tivoli Identity Manager 5.0 solution uninstaller
2. DB2 Universal Database 9.1 Fixpack 2
3. WebSphere Application Server 6.1 Fixpack 9
4. IBM Tivoli Directory Server 6.1
5. IBM Tivoli Directory Integrator 6.1.1
6. IBM Tivoli Identity Manager 5.0 Server

To successfully install the IBM Tivoli Identity Manager solution, you must have at least 10 GB of free disk space.

Click here to install IBM Tivoli Identity Manager 5.0 and prerequisite products.

Figure B-22 Introduction window of Identity Manager

21. Now, Identity Manager is ready. Start the administrative login window, as shown in Figure B-23, by selecting **Programs** → **IBM Tivoli Identity Manager**.

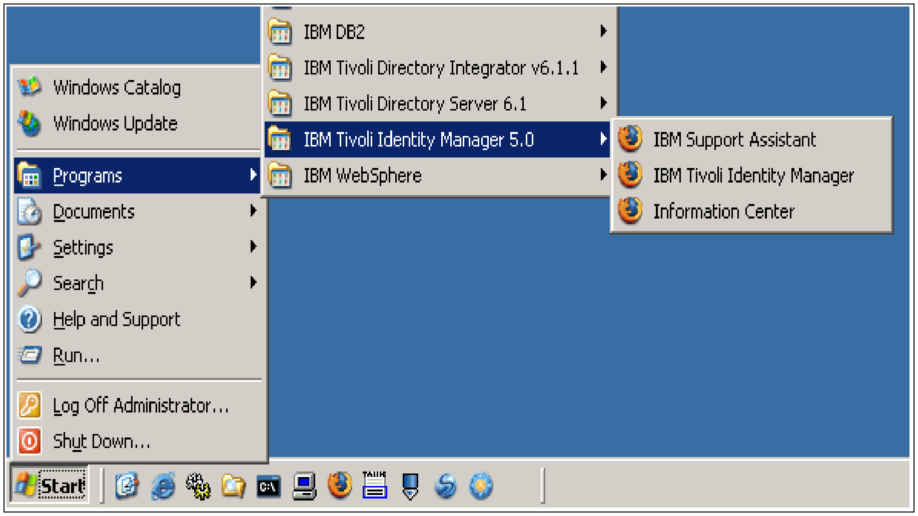
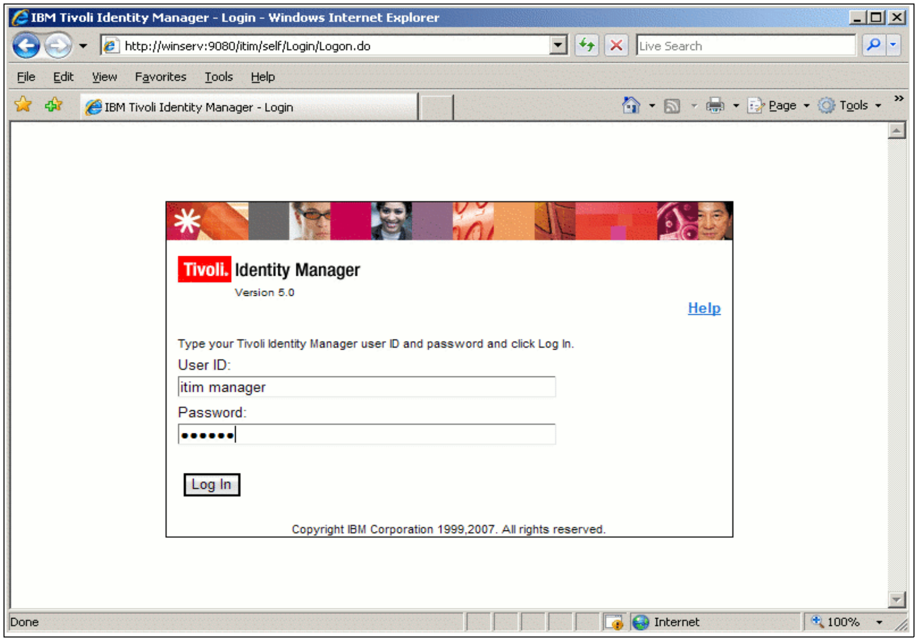


Figure B-23 Start Identity Manager login window

22. After a short time, you are prompted to log in (Figure B-24).


IBM Tivoli Identity Manager - Login - Windows Internet Explorer
http://winserv:9080/itim/self/Login/Logon.do
Live Search
File Edit View Favorites Tools Help
IBM Tivoli Identity Manager - Login
Page
Tools
Tivoli. Identity Manager
Version 5.0
Help

Type your Tivoli Identity Manager user ID and password and click Log In.

User ID: itim manager

Password: ••••••

Log In
Copyright IBM Corporation 1999,2007. All rights reserved.
Done
Internet
100%

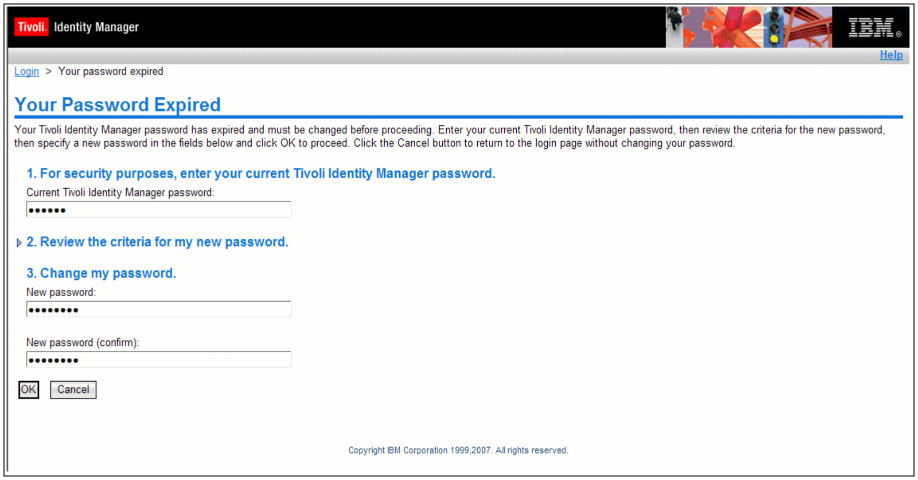
Figure B-24 Identity Manager login

The default login parameters after installation are:

- User ID: `itim manager`
- Password: `secret`

Click **Log In**.

23. Next, you have to change the password, as shown in Figure B-25 on page 255.



Tivoli Identity Manager

Help

Login > Your password expired

Your Password Expired

Your Tivoli Identity Manager password has expired and must be changed before proceeding. Enter your current Tivoli Identity Manager password, then review the criteria for the new password, then specify a new password in the fields below and click OK to proceed. Click the Cancel button to return to the login page without changing your password.

1. For security purposes, enter your current Tivoli Identity Manager password.

Current Tivoli Identity Manager password: ••••••

2. Review the criteria for my new password.

3. Change my password.

New password: ••••••••

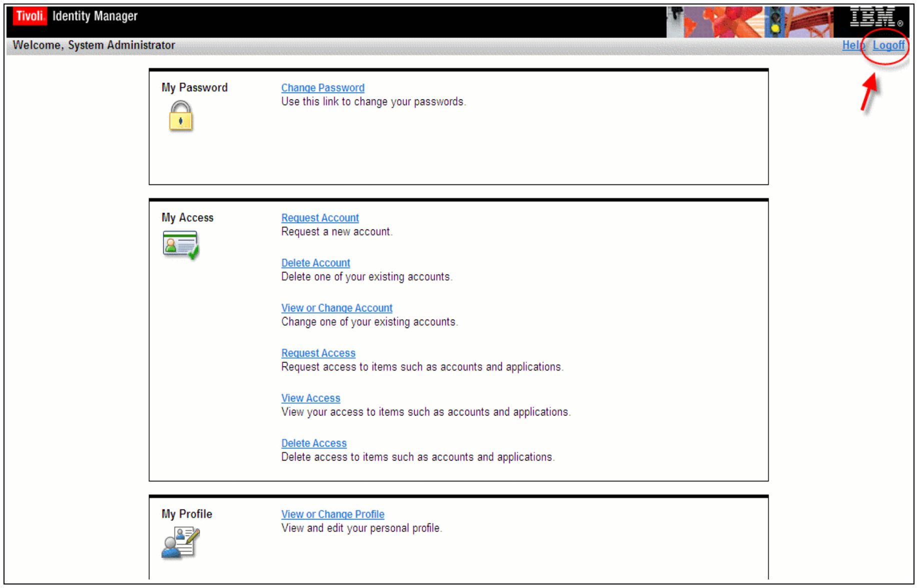
New password (confirm): ••••••••

OK Cancel

Copyright IBM Corporation 1999,2007. All rights reserved.

Figure B-25 Change initial password

24. After changing the password, you are logged in and ready to work with Identity Manager (Figure B-26).



Tivoli Identity Manager

Welcome, System Administrator

Help Logoff

My Password

Change Password
Use this link to change your passwords.

My Access

Request Account
Request a new account.

Delete Account
Delete one of your existing accounts.

View or Change Account
Change one of your existing accounts.

Request Access
Request access to items such as accounts and applications.

View Access
View your access to items such as accounts and applications.

Delete Access
Delete access to items such as accounts and applications.

My Profile

View or Change Profile
View and edit your personal profile.

Figure B-26 Initial Identity Manager window

When you are ready to exit Identity Manager, click **Logoff** in the upper right corner.

C

Import/export

In this appendix, we discuss a new method of transferring data between Identity Manager environments.

Earlier, any transfer of information between test or development installations and production installations of Identity Manager had to occur via LDAP Directory Interchange Format (LDIF) file transfer from one system to another. However, the drawback with this approach was that it required knowledge of the workings of the Identity Manager directory.

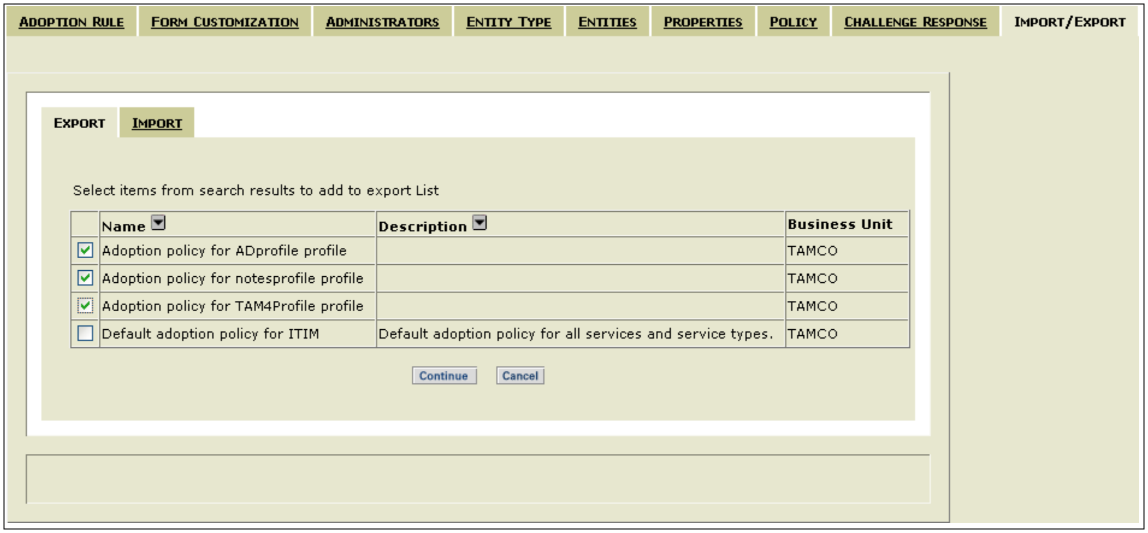
However, the import/export functionality now allows users to more easily transport data from one environment to another environment.

In this appendix, we demonstrate how to first export Identity Manager configuration data and then import it.

Exporting data

As an example of export, we export the adoption rules for Active Directory, Notes, and Access Manager. Follow these steps:

1. Select **Configuration** → **Import/Export** → **Export**.
2. From the Select a type drop-down list box, select **Adoption Rule**.
3. Click **Search**.
4. Select the following adoption rules for export, as shown in Figure C-1:
   - Adoption policy for ADprofile profile
   - Adoption policy for notesprofile profile
   - Adoption policy for TAM4Profile profile



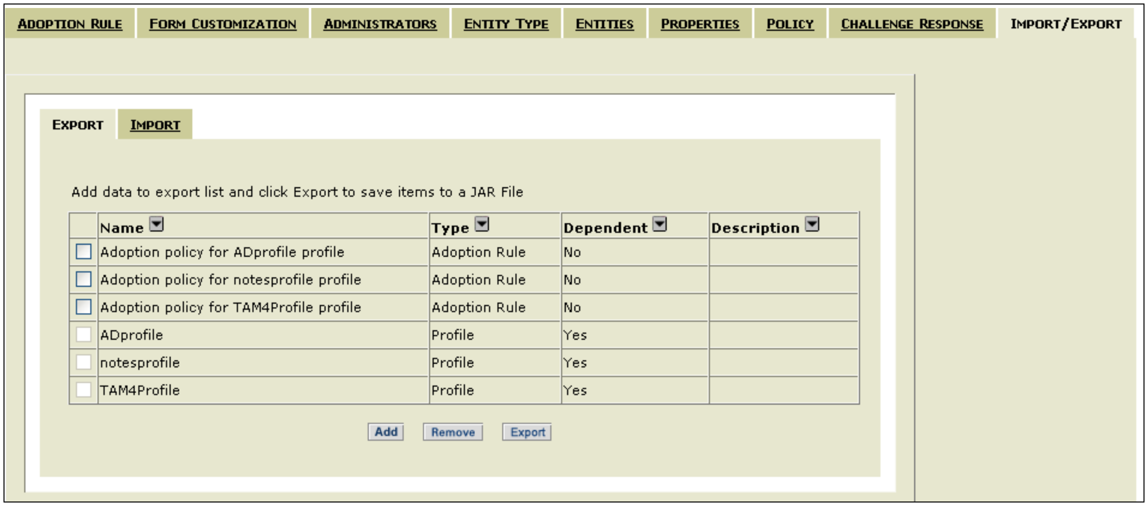
Select items from search results to add to export List

	Name	Description	Business Unit
☑	Adoption policy for ADprofile profile		TAMCO
☑	Adoption policy for notesprofile profile		TAMCO
☑	Adoption policy for TAM4Profile profile		TAMCO
□	Default adoption policy for ITIM	Default adoption policy for all services and service types.	TAMCO

Figure C-1 Selecting the components to be exported

5. After all the components to be exported are selected, click **Continue**.

   Identity Manager automatically adds any dependencies to the list of objects to be exported, which is shown in Figure C-2 on page 259.



Add data to export list and click Export to save items to a JAR File

	Name	Type	Dependent	Description
□	Adoption policy for ADprofile profile	Adoption Rule	No	
□	Adoption policy for notesprofile profile	Adoption Rule	No	
□	Adoption policy for TAM4Profile profile	Adoption Rule	No	
□	ADprofile	Profile	Yes	
□	notesprofile	Profile	Yes	
□	TAM4Profile	Profile	Yes	

Figure C-2 View of selected components and their dependencies

6. Review the list, and click **Export**.
7. After the export completes, click **Continue** to return to the Import/Export menu.

Note: While the Identity Manager export functionality exports all dependencies, that does not mean that it exports everything that you might need.

For example, in this appendix, we export the adoption policies for three profiles, so Identity Manager includes those profiles in the export file. However, it does not include the services that are used in these policies.

Here is a similar example. While exporting a provisioning policy, Identity Manager exports the service that the provisioning policy is using, but loosely related items, such as the identity or password policies, are not automatically included.

Downloading the exported data

After the data is exported, it can be downloaded as a .jar file from the Identity Manager server with the following steps:

1. Navigate to **Configuration** → **Import/Export**.
2. In the Export tab, click **List of completed exports**.

3. Choose the export that you want to download.
4. Click **Download**, which opens your browser's default download interface.

Importing data

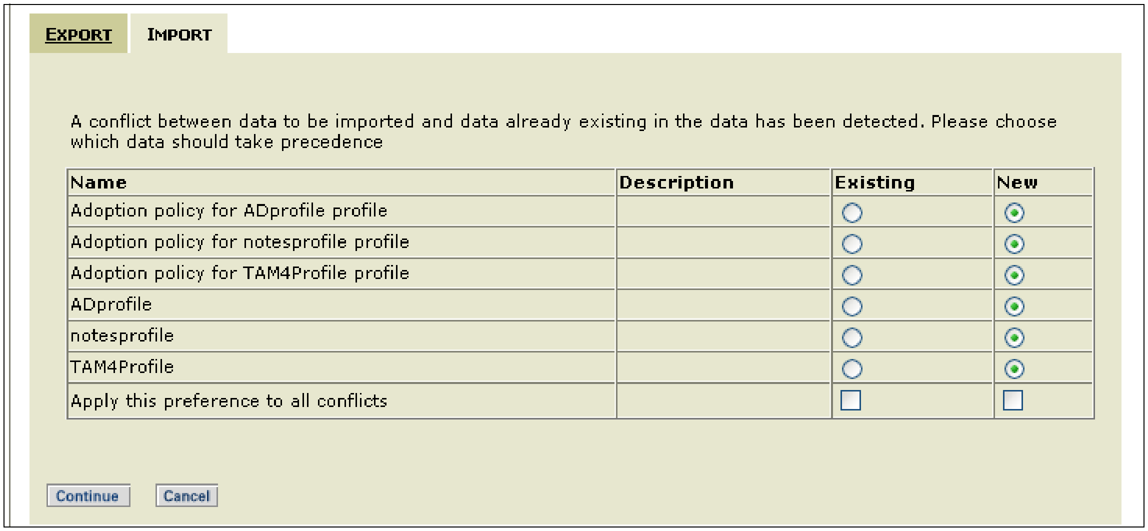
Importing data is handled in a similar manner to installing the profile of an adapter. To import data:

1. Go to **Configuration** → **Import/Export** → **Import**.
2. Click **Browse**, and locate the export file.
3. Click **Import data into Identity Manager**.
4. After the import, click **Continue**.

Updates and conflicts

If you are not importing new configuration data, but updating older pre-existing configuration data, there will be a conflict that Identity Manager asks you to resolve manually.

You are prompted to specify whether to use the existing configuration or the new, imported configuration. This specification can be done on a component by component basis, as shown in Figure C-3.



A conflict between data to be imported and data already existing in the data has been detected. Please choose which data should take precedence

Name	Description	Existing	New
Adoption policy for ADprofile profile		○	●
Adoption policy for notesprofile profile		○	●
Adoption policy for TAM4Profile profile		○	●
ADprofile		○	●
notesprofile		○	●
TAM4Profile		○	●
Apply this preference to all conflicts		□	□

Figure C-3 Selecting components that will overwrite existing components

1. As shown in Figure C-3, select **New** for all of the components, and click **Continue.**
2. After the import finishes, click **Continue** in the summary window.

We have completed our description of Identity Manager's import/export function.

D

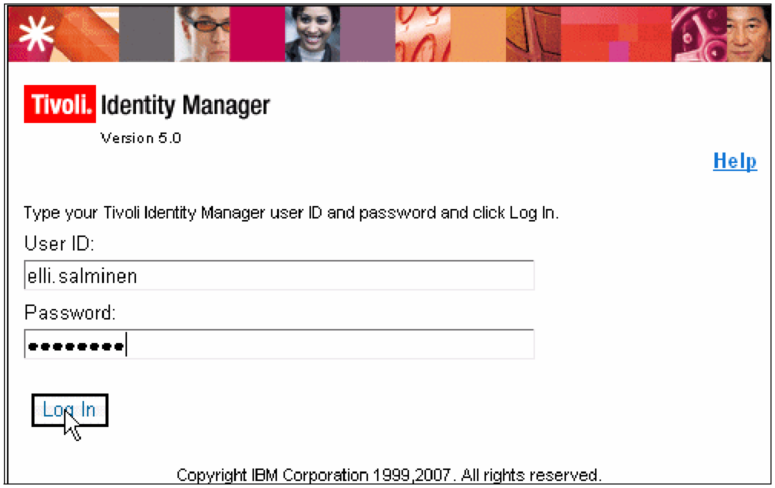
Self-service

Tivoli Identity Manager provides a self-service user interface that allows users to perform basic functions, such as password changes and access requests. In this appendix, we take you through an example of requesting and processing a new resource access.

Requesting access

In order to request a new resource access, perform the following steps:

1. Point your browser to: `http://tamcoitim1:9080/itim/self/Login/Logon.do`
2. Log in as `elli.salminen`, with the password specified in 7.6, “Changing passwords” on page 224, as shown in Figure D-1 on page 264.



Type your Tivoli Identity Manager user ID and password and click Log In.

User ID: elli.salminen

Password: ●●●●●●●●

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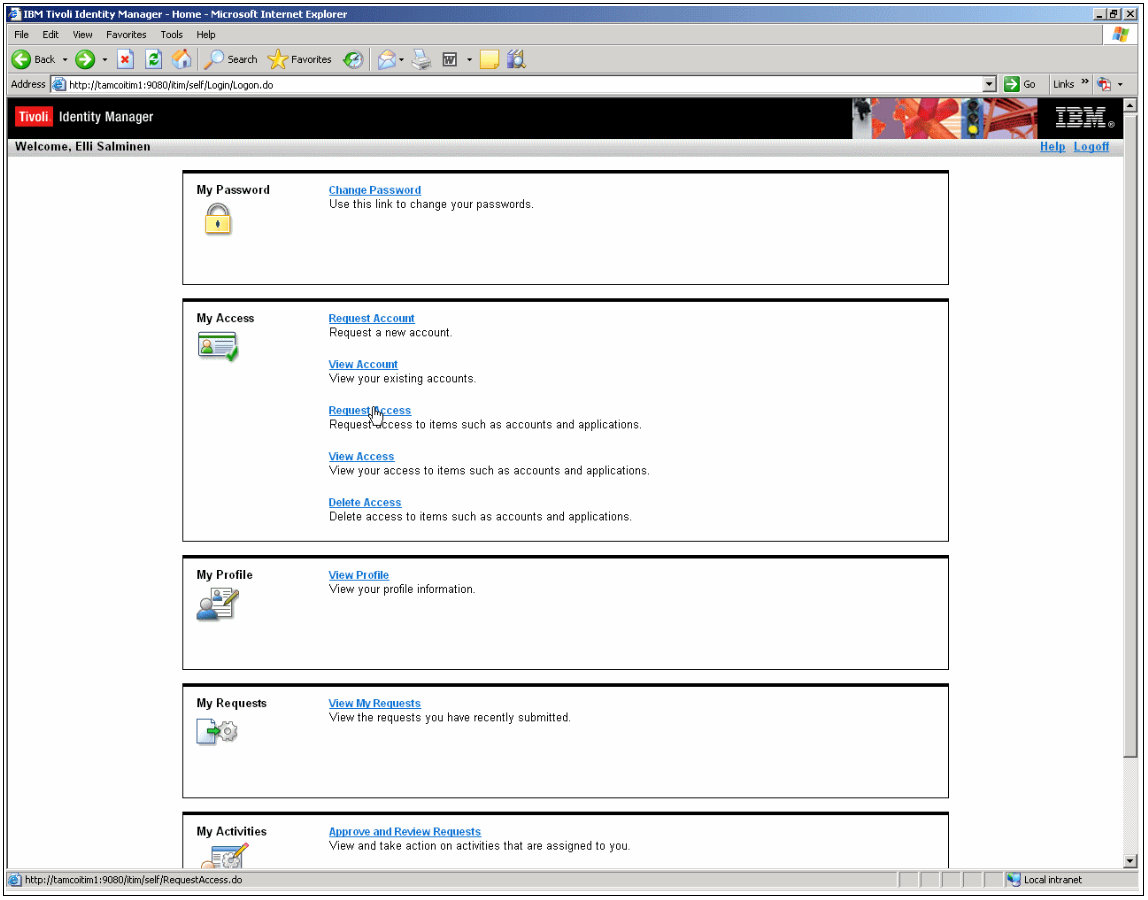
Figure D-1 Self-service user interface login

3. To begin requesting an access, click **Request Access**, as shown in Figure D-2 on page 265.


IBM Tivoli Identity Manager - Home - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://tamcoitim1:9080/itim/self/Login/Logon.do
Go Links
Tivoli Identity Manager
IBM
Help Logoff
http://tamcoitim1:9080/itim/self/RequestAccess.do
Local intranet

Welcome, Elli Salminen

My Password

Change Password
Use this link to change your passwords.

My Access

Request Account
Request a new account.

View Account
View your existing accounts.

Request Access
Request access to items such as accounts and applications.

View Access
View your access to items such as accounts and applications.

Delete Access
Delete access to items such as accounts and applications.

My Profile

View Profile
View your profile information.

My Requests

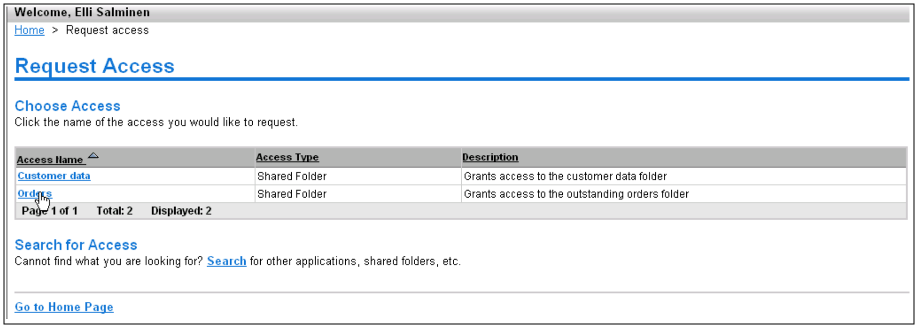
View My Requests
View the requests you have recently submitted.

My Activities

Approve and Review Requests
View and take action on activities that are assigned to you.

Figure D-2 Self-service user interface

4. In the Request Access confirmation window, select **Orders**, as shown in Figure D-3 on page 266.



Welcome, Elli Salminen

Home > Request access

Request Access

Choose Access

Click the name of the access you would like to request.

Access Name	Access Type	Description
Customer data	Shared Folder	Grants access to the customer data folder
Orders	Shared Folder	Grants access to the outstanding orders folder

Page 1 of 1 Total: 2 Displayed: 2

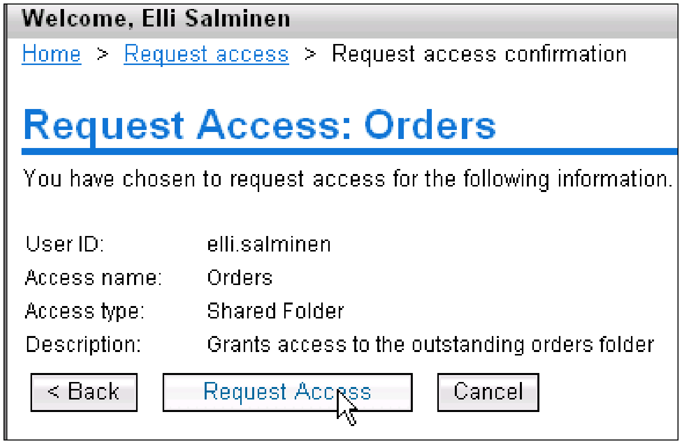
Search for Access

Cannot find what you are looking for? Search for other applications, shared folders, etc.

Go to Home Page

Figure D-3 Request Access window

5. In the Request Access: Orders window, click **Request Access**, as shown in Figure D-4.



Welcome, Elli Salminen

Home > Request access > Request access confirmation

Request Access: Orders

You have chosen to request access for the following information.

User ID: elli.salminen

Access name: Orders

Access type: Shared Folder

Description: Grants access to the outstanding orders folder

Figure D-4 Request Access confirmation

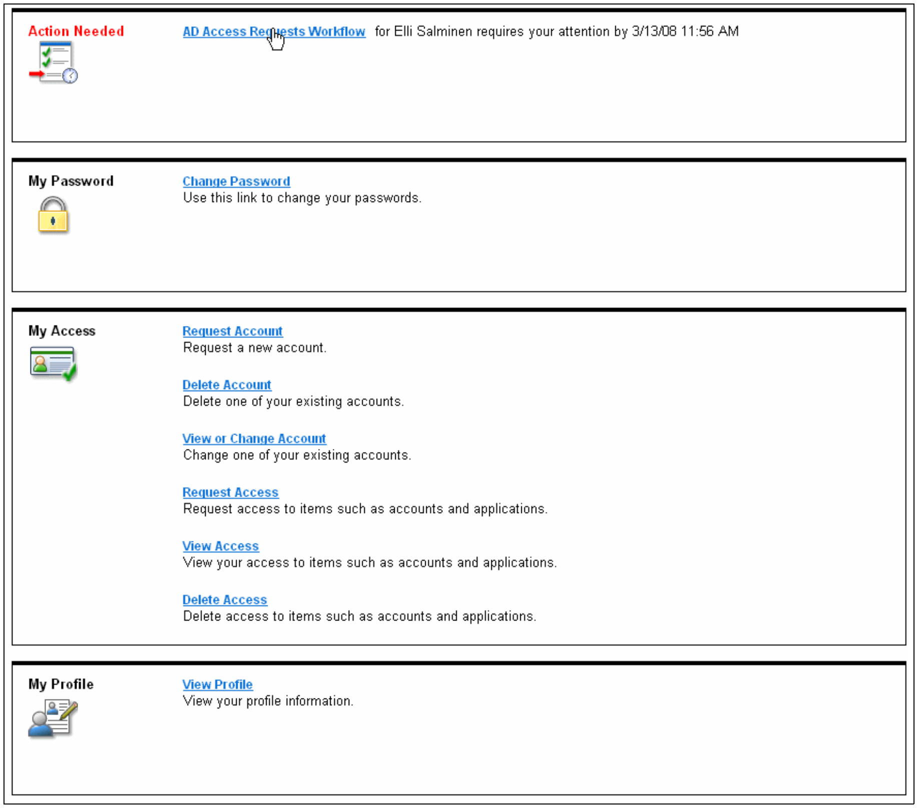
Access to the Active Directory group named Orders has been requested and the user can log off.

Next, we show how the service owner can approve the request.

Processing access requests

After access has been requested, it must be approved by the service owner, Kalle Nieminen. Follow these steps:

1. Log in to the self-service console with `kalle.nieminen/passw0rd`.
2. After you have logged in, select **AD Access Request Workflow** from the Action Needed box, as shown in Figure D-5.



Action Needed

AD Access Requests Workflow for Elli Salminen requires your attention by 3/13/08 11:56 AM

My Password

Change Password
Use this link to change your passwords.

My Access

Request Account
Request a new account.

Delete Account
Delete one of your existing accounts.

View or Change Account
Change one of your existing accounts.

Request Access
Request access to items such as accounts and applications.

View Access
View your access to items such as accounts and applications.

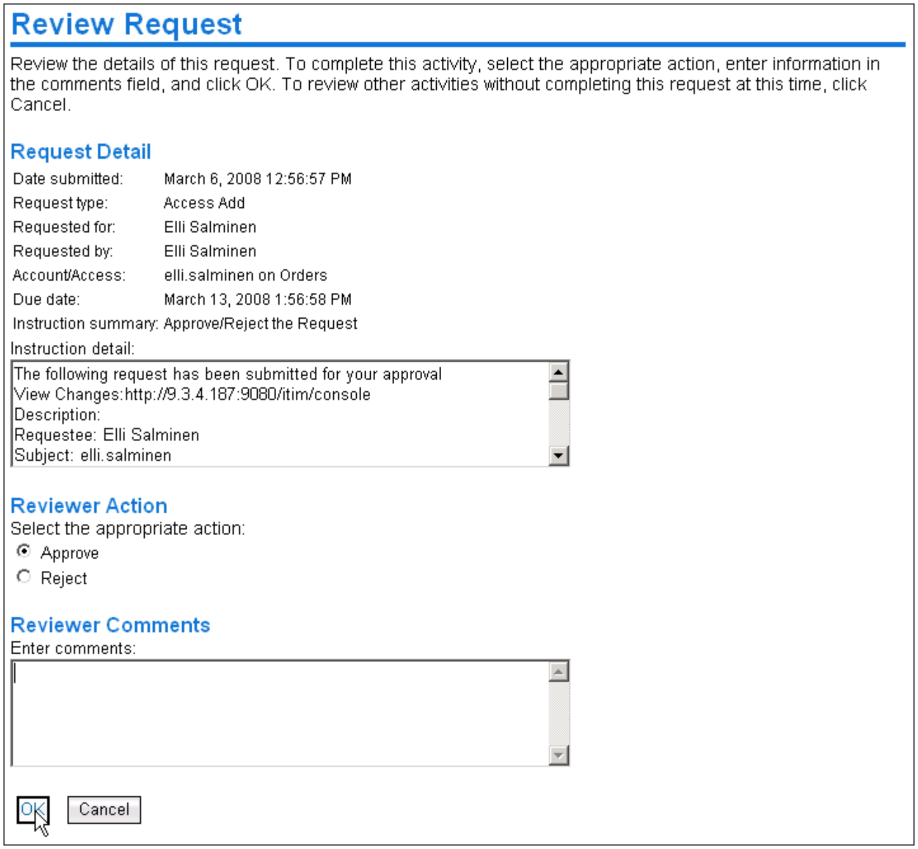
Delete Access
Delete access to items such as accounts and applications.

My Profile

View Profile
View your profile information.

Figure D-5 Self-service user interface

3. In the Review Request window, select **Approve** and click **OK**, as shown in Figure D-6 on page 268.



Review Request

Review the details of this request. To complete this activity, select the appropriate action, enter information in the comments field, and click OK. To review other activities without completing this request at this time, click Cancel.

Request Detail

Date submitted:	March 6, 2008 12:56:57 PM
Request type:	Access Add
Requested for:	Elli Salminen
Requested by:	Elli Salminen
Account/Access:	elli.salminen on Orders
Due date:	March 13, 2008 1:56:58 PM
Instruction summary:	Approve/Reject the Request

Instruction detail:

The following request has been submitted for your approval
View Changes:http://9.3.4.187:9080/itim/console
Description:
Requestee: Elli Salminen
Subject: elli.salminen

Reviewer Action

Select the appropriate action:

● Approve
○ Reject

Reviewer Comments

Enter comments:

Figure D-6 Review Request window

The request is now approved, and the user can be logged off. Elli Salminen will now be automatically provisioned with access to the Orders group.

E

Statement of work

This appendix provides a sample of what you might want to include in your *statement of work* (SOW) contract. We have italicized the places in the text where you can substitute your company name and the customer's company name.

Building a security infrastructure solution

The content of the statement of work must include activities to:

- Assist the customer in researching *role mapping* (if they have not done this research already, it must be done as a matter of priority).
- Assist in the design and implementation of workflows and provisioning based on IBM Tivoli Identity Manager.
- Install and configure IBM Tivoli Identity Manager in development and pilot environments.
- Install a set of adapters to manage back-end applications with IBM Tivoli Identity Manager to the extent necessary to demonstrate product functionality.

Executive summary

This statement of work describes the services to assist the customer with installing and configuring IBM Tivoli Identity Manager in a development environment and demonstrating its functionality through a pilot release.

The *IBM Business Partner* proposes to leverage IBM Global Services Method as the center point of the project development approach. The method uses work products to define "what" are the project artifacts produced during the project lifetime. The method also uses processes to define "how" the work products are produced in a timely manner, and "how" phases, activities, and tasks of the project are performed.

The activities defined in the SOW, as well as the project estimates, are based upon information that is currently available regarding *the customer's* business needs and goals for this project. Progressive elaboration of the details of these business needs and goals is inherent to this type of project and might result in a need to modify estimated task durations and costs and add new tasks in accordance with defined project change control procedures.

The *IBM Business Partner* is pleased to present the attached statement of work to assist *the customer* in this endeavor. Based on our understanding of *the customer's* needs, the *IBM Business Partner* is confident that its approach, qualifications, and experience will help you address your concerns.

Project scope

The *customer* has expressed a desire to implement IBM Tivoli Identity Manager. Due to the importance and sensitivity of the data handled by the Identity Manager application, the *customer* has requested assistance in installing and configuring this new solution. Therefore, the *IBM Business Partner* proposes a plan to complete the product installation and configuration, along with a solution design, which will provide the *customer* with a design for utilizing Identity Manager in provisioning identities to the various corporate systems.

This statement of work describes the services to assist *the customer* with installing and configuring Identity Manager first in a development environment in order to demonstrate its functionality, and then through a pilot release in a production environment. This statement of work also covers the provisioning to two back-end systems.

This document seeks to provide a view of the solution vision, which is common and agreed to by all of the above. It does not address detailed requirements, solution architecture/designs, or deployment plans, other than at a high-level. Such specifics will be discussed within other documents, as appropriate.

At *the customer's* request, the project scope has been divided into four phases (A through D). The phases are:

A. Planning

B. Design: Architecture and Documentation

C. Development & Pilot Deployment

D. Production Deployment

We take a team approach to delivering our services. The team will be comprised of both the *customer* and the *IBM Business Partner* personnel. During the process, we will keep you informed of the progress of our work through frequent status meetings and continuous interaction with the *customer*.

At the conclusion of each phase, the *IBM Business Partner* will complete a Value Assessment. The Value Assessment will consist of a review of the Phase Deliverables between the *IBM Business Partner* and the *customer* Project Manager for acceptance and concurrence to proceed with the next Phase.

Other considerations for inclusion in the Project Scope are:

- Assess *the customer's* computing environment to prepare for the implementation of Identity Manager.

- Assist *the customer* with the definition and creation of the role and entitlement mappings, as well as password and identity policies (if these mappings and policies have not already been created by *the customer*).
- Provide (remote) guidance to *the customer* project team during intermediate deployment.
- Provide product training.
- Add here whatever else is offered to *the customer*.

Additionally, include a description of the different phases of the implementation project if applicable.

Assumptions

The statement of work must also include all assumptions. A few key assumptions you might want to consider for an Identity Manager deployment are:

1. *The customer* will make personnel available for facilitated sessions and meetings as required.
2. *The customer* personnel who will be assigned to this project will have the technical skills necessary to participate in this project.
3. Information Technology (IT) and user personnel will be available as described in *the customer* responsibilities.
4. IBM Tivoli Identity Manager <*Current Release*> will be used. Identity Manager server and its prerequisite components will be implemented on Linux <*or platform chosen*>, where applicable.
5. IBM Tivoli Identity Manager will be deployed using the bundled components using IBM Directory Server, Tivoli Directory Integrator, IBM WebSphere, IBM DB2, and Tivoli-supplied adapters.
6. *The customer* will supply all required hardware for the Tivoli Identity Manager installation and configuration.
7. *The customer* will supply all the required software for the Tivoli Identity Manager installation and configuration.
8. *The customer* will supply the role to entitlement mappings to be used in Tivoli Identity Manager.
9. *The customer* will supply the Human resources (HR) feed data in an XML file.
10. The identity management system will be accessed by only employees. Customers, business partners, and other user types are out of scope during this engagement.

11. *The customer* is required to provide Secure Sockets Layer (SSL) server certificates, as required, within the environment.
12. Tivoli Identity Manager installation will initially take place in a development environment in order to demonstrate functionality through a pilot release.
13. The security infrastructure deployed in a development environment does not require formal change management procedures.
14. In the development environment, Tivoli Identity Manager will be installed in single server environments and will not require high availability.
15. The Tivoli Identity Manager system will be configured to initially manage users in Active Directory and Tivoli Access Manager.
16. Tivoli Access Manager single sign-on integration with Tivoli Identity Manager will be implemented.
17. Role based access control of the selected back-end applications in the production environment will be limited to 10 roles initially. Additional roles will be added by *the customer*, or *the Business Partner* will add them at extra cost.
18. HR data will be integrated to Tivoli Identity Manager from an XML-based export file, the syntax of which will be specified in detailed design.
19. Work will be performed at *the customer's* facility and part of the work might be performed at *the Business Partner's* location.
20. *The customer* will provide services under this statement of work during normal business hours, Monday through Friday, excluding holidays.

In addition to the above assumptions that affect the entire project, assumptions specific to each activity/phase of the project must be included within the section of this statement of work describing each activity.

Note: Insert any additional assumptions about specific security issues that the customer has here.

IBM Business Partner responsibilities

The *IBM Business Partner* responsibilities can be broken down into two or more sections. Project Management and Solution Implementation recommended tasks are listed here. In addition, the *IBM Business Partner* might also be responsible for tasks, such as purchasing software and hardware, general consulting, and negotiating financing options with *the customer*.

Project management

The *IBM Business Partner* will provide project management for the *IBM Business Partner* responsibilities in this statement of work. The objective is to establish a framework for project communications, reporting, and procedural and contractual activity. The *IBM Business Partner* Project Manager will be responsible for this task.

The following subtasks will be performed:

- Be the primary *IBM Business Partner* liaison with the *customer* Project Manager.
- Prepare a project plan, which identifies and assigns tasks to both *IBM Business Partner* and *customer* project participants, identifies major milestones for the efforts of the project team, identifies estimated dates on which they occur, and indicates critical path.
- Review the statement of work, project plan, and the contractual responsibilities of both parties with *customer* Project Manager and project team.
- Review areas of risk and containment plans with the *customer* Project Manager.
- Maintain regular project communications with the designated *customer* Project Manager.
- Measure and evaluate progress against the Project Plan.
- Resolve deviations from the Project Plan.
- Implement the Change Control Procedure in conjunction with *customer* Project Manager.
- Coordinate and manage the technical activities of *IBM Business Partner* project personnel.

Solution Implementation

The *IBM Business Partner* has the following solution implementation responsibilities:

- Install and configure IBM Tivoli Identity Manager V5 servers including all prerequisite software and the networking environment.
- Install and configure additional components according to the Project Plan.
- Configure Tivoli Identity Manager to accept HR feeds and use role based access control to manage users in the specified back-end systems.
- Provide solution documentation.

- Perform testing, if necessary (best practice is to have the *customer* or a third-party person perform testing).

Customer responsibilities

The successful completion of the implementation also depends on the *customer's* participation and full commitment. This section therefore must include *the customer* responsibilities as precisely as possible.

A successful implementation project is predicated upon the following *customer* responsibilities.

Project Management

Prior to the start of a statement of work, a designated person from *the customer* must be assigned. This designated representative or Project Manager will be the focal point for all communication with the *IBM Business Partner* relative to this project and is the individual who will have the authority to act on *the customer's* behalf in matters regarding this project. This person's responsibilities include:

- Managing *the customer's* personnel and responsibilities for the project.
- Serving as the interface between the *IBM Business Partner* and all *customer* departments participating in the project.
- Participating in project status meetings.
- Obtaining and providing information, data, and decisions.
- Resolving deviations from the estimated schedule, project plan, or statement of work.
- Helping to resolve project issues and escalating issues within *the customer's* organization as necessary.

Other responsibilities

Within this section of the statement of work, you must also document that the *customer's* staff is available at the agreed upon time. Also, *the customer* needs to insure that the staff has the appropriate skills and experience.

Accurate information is key for these projects. It must be agreed that all information disclosed to the *IBM Business Partner* will be true, accurate, and not misleading in any material respect.

It also has to be *the customer's* responsibility to make the final selection of the solution and technical architecture. Given this, all prerequisite hardware and software to be used during the project must be supplied by *the customer*.

Specific responsibilities can include:

- Retaining overall responsibility and ownership of the IBM Tivoli Identity Manager Implementation.
- Designating skilled operations personnel to work with the *IBM Business Partner* as appropriate in the installation and testing of Identity Manager.
- Providing the hardware and software prerequisites for setting up Identity Manager development and production environments.
- Providing network connections between Identity Manager and back-end applications, as well as Tivoli Access Manager WebSEAL and Tivoli Identity Manager (for single sign-on (SSO)).
- Appointing technical personnel to participate in Identity Manager education sessions as needed.
- Providing all data and information required for implementation, such as organizational structure model, role mappings, ID policies, and password policies.
- Providing suitable workspace with telephone access for the *IBM Business Partner* team while working on customer premises.
- Providing user IDs, passwords, and IP addresses as required in order to enable the *IBM Business Partner* to perform the service.
- Providing information to allow estimates on current and future system workload and performance expectations.

Laws, regulations, and statutes

The customer is responsible for the identification of, interpretation of, and compliance with any applicable laws, regulations, and statutes that affect the customer's applications or business.

Data file content and security

The customer must be responsible for the actual content of any data file, selection, and implementation of controls on its access and use and the security of the stored data.

Deliverable materials

The following items will be delivered to *the customer* under this statement of work.

- Project Plan
- Biweekly Status Reports

- *Customer* Tivoli Identity Manager Micro Solution Design
- *Customer* Tivoli Identity Manager Solution Test Manual
- *Customer* Tivoli Identity Manager Installation Manual
- *Customer* Tivoli Identity Manager System Administration Guide
- *Customer* Tivoli Identity Manager Stress Test Results (if applicable)

Completion criteria

You need to list the completion criteria here. You have to engage with the customer to get a proper sign-off of the project with an appropriate completion criteria.

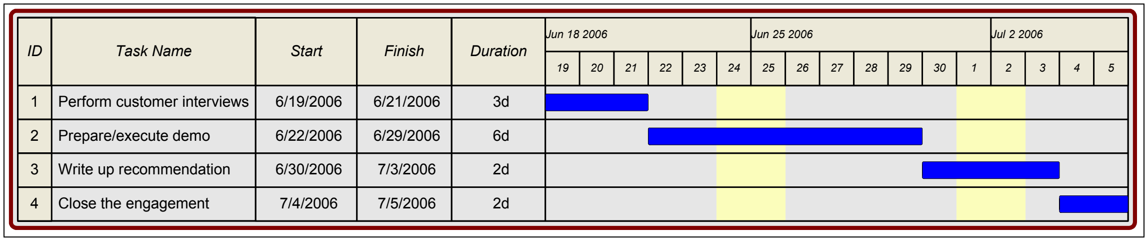
The *IBM Business Partner* will have fulfilled its obligations under this statement of work when any of the following actions occurs:

- The *IBM Business Partner* accomplishes the tasks described in the section "IBM Business Partner responsibilities," including delivery of the materials listed in "Deliverable materials."
- The *IBM Business Partner* provides the number of hours specified in this statement of work or in any subsequent Change Authorization.
- The *customer* or *IBM Business Partner* terminates the Project in accordance with the provisions of the *IBM Business Partner* Customer Agreement.

You can also include specific issues and resolutions explicitly in the completion criteria. You have to be aware of these additional completion criteria for your customer.

Estimated schedule

The services to be performed in this statement of work are estimated to complete within <*NWEEKS*> weeks from the start of this statement of work, requiring a minimum of <*number*> full-time *IBM Business Partner* consultants. Figure E-1 shows a sample project schedule.



ID	Task Name	Start	Finish	Duration
1	Perform customer interviews	6/19/2006	6/21/2006	3d
2	Prepare/execute demo	6/22/2006	6/29/2006	6d
3	Write up recommendation	6/30/2006	7/3/2006	2d
4	Close the engagement	7/4/2006	7/5/2006	2d

Figure E-1 Project schedule (sample)

Charges

This engagement will be conducted on a time and materials basis.

The *IBM Business Partner* will provide up to a total number of <*NHOURS*> hours for this Service at an hourly rate of $*XXX*.

The estimated professional services charges for this statement of work are $*XXX* and are exclusive of any travel and living expenses and any applicable taxes. This price does not include any hardware or software costs associated with the purchase of the customer's selected identity management solution.

The *customer* will be billed actual travel and living costs.

The hours specified above are the *IBM Business Partner* estimate based upon the information available at this time. The *IBM Business Partner* will notify the *customer* as soon as practical of any changes in its estimates.

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this IBM Redbooks publication.

IBM Redbooks publications

For information about ordering these publications, see “How to get IBM Redbooks publications” on page 280. Note that many of the documents referenced here might be available in softcopy only:

- *Enterprise Security Architecture Using IBM Tivoli Security Solutions*, SG24-6014
- *Identity Management Design Guide with IBM Tivoli Identity Manager*, SG24-6996
- *Identity Management Advanced Design for IBM Tivoli Identity Manager*, SG24-7242
- *Deployment Guide Series: IBM Tivoli Access Manager for e-business v6.0*, SG24-7207

Other publications

These publications are also relevant as further information sources:

- *IBM Tivoli Identity Manager Problem Determination Guide Version 5.0*, SC32-1561
- *IBM Tivoli Identity Manager Database and Schema Reference Version 5.0*, SC23-9011
- *IBM Tivoli Identity Manager Tivoli Access Manager Combo Adapter Installation and Configuration Guide Version 5.0*, GC23-8805
- *IBM Tivoli Identity Manager Rapid Install Option Installation and Configuration Guide Version 5*, SC23-9470

Online resources

These Web sites and URLs are also relevant as further information sources:

- The official IBM Tivoli Identity Manager product documentation can be accessed here at the Tivoli Identity Manager Information Center.

  http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/index.jsp?topic=/com.ibm.itim.doc/welcome.htm

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Deployment Guide Series: IBM Tivoli Identity Manager 5.0

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Deployment Guide Series: IBM Tivoli Identity Manager 5.0

Full coverage of planning your identity management project

Complete hands-on installation and configuration guide

Based on best practices

Deploying an identity management solution for a medium size business begins with a thorough analysis of the existing business and IT environment. After we fully understand the organization, their deployed infrastructure, and the application framework, we can define an applicable representation of these assets within an identity management implementation.

This IBM Redbooks publication, intended for IBM Business Partners, takes a step-by-step approach to implementing an identity management solution based on IBM Tivoli Identity Manager. Part 1 discusses the general business context and the planning approach for an identity management solution. Part 2 takes you through an example company profile with existing business policies and guidelines and builds an identity management solution design for this particular environment. We describe how the components can be integrated into the existing environment. Then, we focus on the detailed configuration of identity management integration tasks that must be implemented in order to create a fully functional end-to-end solution. This IBM Redbooks publication does not introduce any general identity management concepts, nor does it systematically explain all of Tivoli Identity Manager's components and capabilities; instead, those details are thoroughly discussed in the IBM Redbooks publications: *Identity Management Design Guide with IBM Tivoli Identity Manager*, SG24-6996, and *Enterprise Security Architecture Using IBM Tivoli Security Solutions*, SG24-6014.

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