A D M I N I S T R A T I O N G U I D E

InterManager™

Version 1.0

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Preface

Welcome to InterManager!

The *InterManager Administration Guide* includes instructions for the operation of InterManager. This document assumes you have a general knowledge of InterMail and of basic Internet messaging.

This manual is supplemented by the InterMail manual set, including the *Integrated Services Directory Guide*, which describes the directory that maintains InterManager objects. For information on InterMail operations, such as setting configuration options, refer to the *InterMail Administration Guide*. For details on InterMail components and configuration keys, refer to the *InterMail Reference Guide*.

Overview of the Manual

The content of this manual is organized as follows:

- Chapter 1 provides an introduction to InterManager, including a summary of the various InterManager administrator types and their responsibilities.
- Chapter 2 gives detailed descriptions of the objects that can be controlled through InterManager, as well the relationships between these objects.
- Chapter 3 discusses getting started with InterManager, including creating the initial service provider's site (ISP's organization) and configuring a site administrator. This chapter also discusses batch loading organizational data, as well as user records for both new and existing InterMail installations.
- Chapter 4 discusses InterManager's web interface, and provides instructions for using the various InterManager form types. Examples for carrying out common InterManager tasks, such as adding users and organizations are also included.
- Chapter 5 covers customization of the InterManager web interface, and provides a detailed list of InterManager files and their purposes.
- Appendix A provides an overview of InterManager architecture. Knowledge of this architecture is not required for successfully implementing and using InterManager, but is useful information for integrating InterManager with other programs.
- Appendix B provides an illustration of the Directory Information Tree (DIT).

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- Optional entries followed by an ellipsis (…) can be repeated. When an ellipsis follows a bracketed set, the expression within the brackets can be repeated.
- {Curly braces} surround a list of options, one of which is required as an argument.
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1

Introduction to InterManager

This chapter is an introduction to the InterManager product, and includes the following information:

- The role of InterManager in the InterMail system
- The user types that can access InterManager data, and the operations that can be performed by each
- A discussion of the security mechanisms used by InterManager to control user access to data.

1.1 Role of InterManager

InterManager is a tool for delegating administration. It allows distributed management of objects in the Integrated Services Directory, which stores all directory data used by InterMail.

Note: *For information regarding the Integrated Services Directory and the data it contains, please refer to the Integrated Services Directory Administration Guide.*

InterManager includes four important features for administering a large-scale e-mail system:

- Easy administration of classes of service for both business and consumer e-mail accounts.
- Ability to create and arrange domain, organization, and user information in an object hierarchy.
- Partitioned administration, which allows the service provider to delegate the management of e-mail accounts and other objects to specific end users.
- A web browser-based user interface, which can be used by all levels of InterManager administrators to manage the objects under their control.

1.1.1Partitioned Administration

InterManager simplifies administration of the InterMail system by providing multiple levels of access. These levels of administration allow you to delegate responsibility for managing a limited set of objects, such as e-mail accounts, while maintaining exclusive control over the system as a whole. InterManager uses a range of user types to enforce this partitioned administration.

For example, you can delegate responsibility for managing the e-mail accounts of a specific company by assigning an organization administrator from that company. This organization administrator can then use InterManager to create, modify, and delete the e-mail accounts for his or her company, freeing the service provider of this responsibility.

The following diagram illustrates the InterManager delegated administration model:

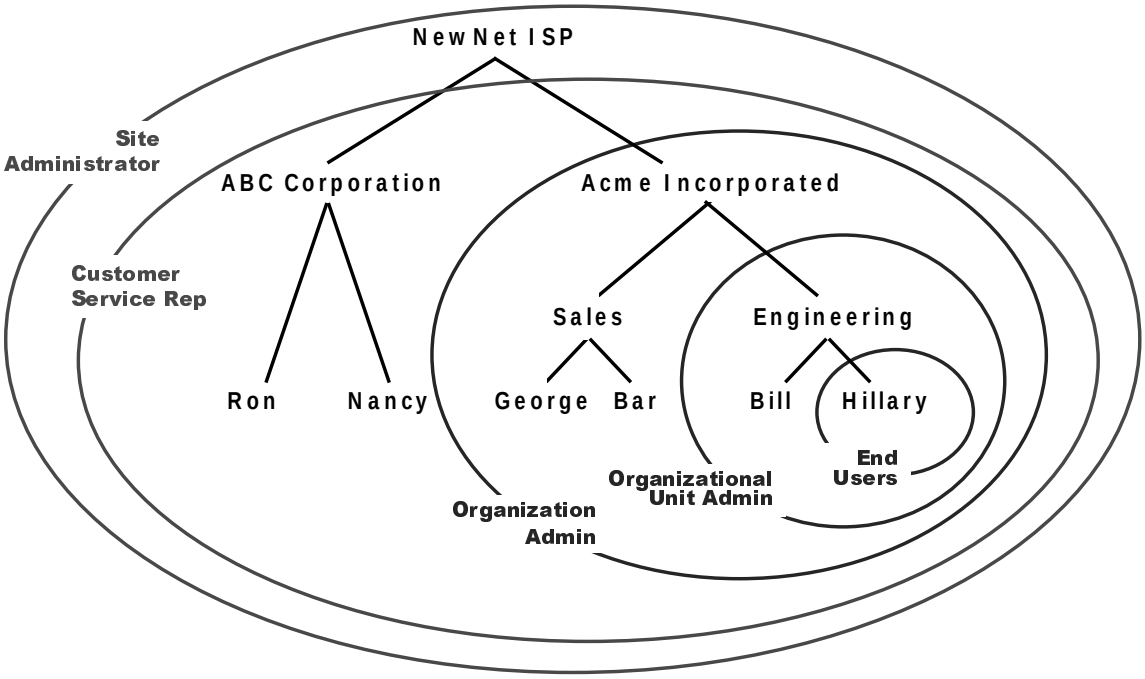

Figure 1. InterManager delegated administration in action.

This example illustrates the range of authority exercised over InterManager data by the respective user types:

- Site administrators can manage all data for the site.
- Customer service administrators can manage all organizations. In this example, the customer service administrator has access to the organizations ABC Corporation and Acme Incorporated, as well as the organization units and users contained therein.
- Organization administrators can manage a particular organization. In this example, the organization administrator for Acme Incorporated can manage the organization units—Sales and Engineering—within the organization, as well as all users within this organization.
- Organization unit administrators can manage a particular unit within an organization. In this example, the organization unit administrator for the Engineering department of Acme Incorporated can manage the users (Bill and Hillary) who are within this department.
- Users (also known as end users) can manage their own email accounts through the InterMail SelfCare interface. In this example, the user Hillary (within Acme Incorporated's Engineering department) has access to certain information associated with her e-mail account.

See Section 1.2 for more information on the InterManager operations that can be performed by these respective administrator types.

1.1.2Web-based Administration

InterManager provides a simple web browser-based user interface for accessing data in the Integrated Services Directory. This interface allows you to easily create, delete, and modify

objects—such as e-mail accounts—by filling out and submitting HTML forms. This interface can be used in its original condition, or can be modified to include customized graphics, form fields, and even new web forms.

For example, the following illustration shows an InterManager web form that displays a list of InterMail domains:

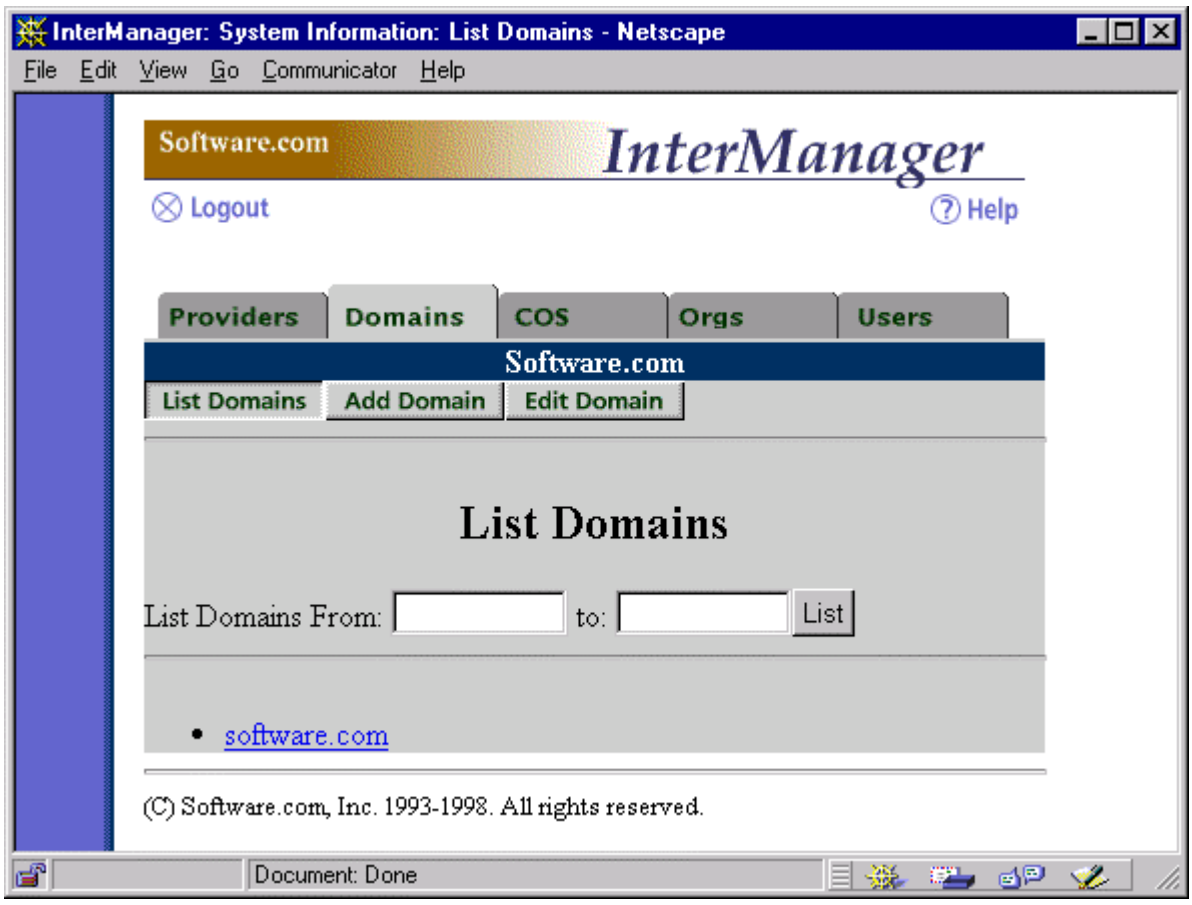

Figure 2. The InterManager List Domains form.

The options available on this form allow you to view all domains or an alphabetical subset. By clicking on a domain name in this form, you can invoke a form for modifying the attributes of the domain. Other forms accessible from this one include forms for creating new domains, viewing classes of service, and assigning administrators. All InterManager objects can be created, viewed, modified, and deleted using similar HTML forms.

Chapter 3 of this manual includes an extensive introduction to the InterManager interface and instructions for using it.

1.1.3Class of Service Management

InterMail allows you to easily manage classes of service, which can be used to bundle features in distinct packages for consumers. For example, a service provider may charge customers one monthly rate for e-mail accounts with a limited range of service options (simple POP3 access,

low mailbox quotas, etc.), and a second rate for e-mail accounts with a larger set of service options (IMAP access, higher mailbox quotas, security features, etc.).

The following diagram illustrates three sample classes of service that a service provider might use to differentiate specific service options. Each of these classes of service has a name, a series of associated service options, and a price to end users:

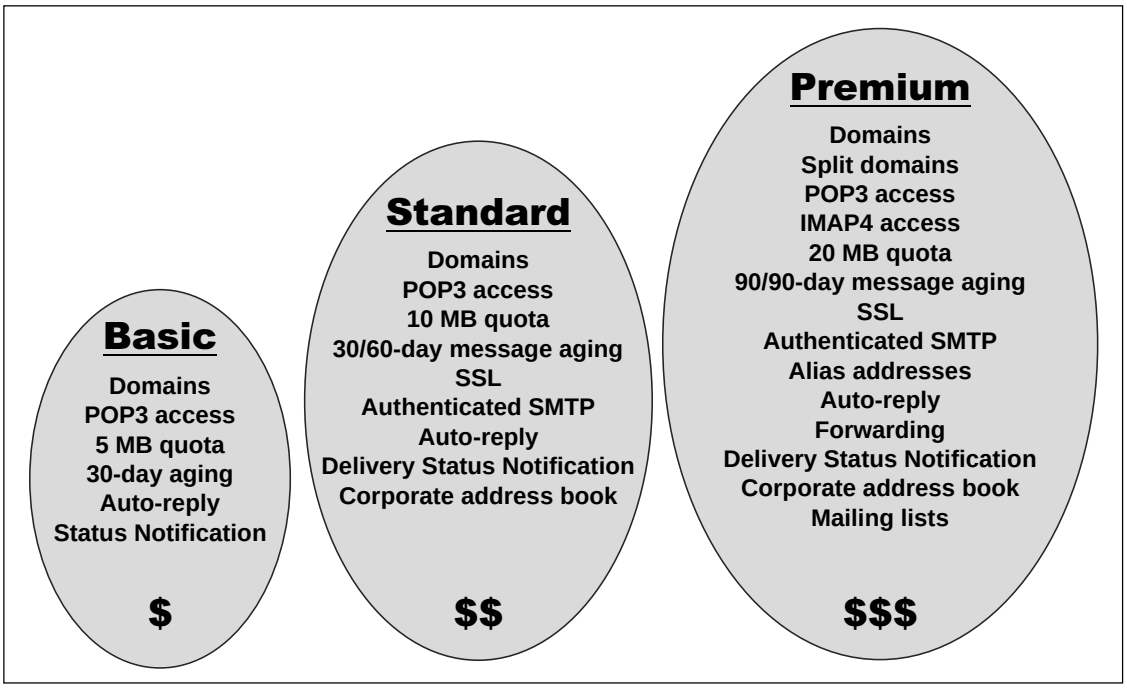

Figure 3: Simple set of classes of service that allows a service provider to provide multiple pricing policies.

In this example, the service provider's customer has a choice of three account levels when purchasing e-mail service:

- The Basic class of service defines e-mail accounts that are allowed only a basic set of service options, such as POP3 access, auto-reply, and delivery status notification. The mailbox of a Basic account is allotted only 5 MB of disk space.
- The Standard class of service defines e-mail accounts that include the features of Basic accounts, but with added service options that provide access to security features (SSL and Authenticated SMTP), as well as corporate address book data. The message aging service option of the Standard class of service allows messages to remain on the server for a longer period of time, and the mailbox quota of 10 MB is twice that of the Basic mailbox quota.

- The Premium class of service defines e-mail accounts that include all of the service options of Standard accounts, but with additional service options: IMAP4 mailbox access, alias addresses, forwarding delivery, and access to mailing lists. The message aging policy and mailbox quota of a Premium account are also increased over the values used by the Standard class of service.

1.2 Administrator Types

All InterManager users are administrators, however different administrator types have varying abilities to view and modify data in the InterManager interface.

Administrator types are hierarchical, with each type having access to all of the operations available to administrator types lower in the hierarchy. For example, an organization administrator has the same access to an organization unit as the organization unit administrator. Both of these user types can manage the organization unit, but the organization unit administrator cannot manage the organization itself.

The InterManager user types, in order of access level from highest to lowest, are as follows:

1. site administrator
2. customer service administrator
3. organization administrator
4. organization unit administrator

Note: *End users who do not have administrative privileges cannot use InterManager, which contains options specific to administrators. However, end users can manage data associated with their individual e-mail accounts through the InterMail SelfCare interface.*

The following sections describe each of the administrator types, and provide a list of InterManager operations that can be performed by users of that type.

1.2.1Site Administrator

A *site administrator* is a "super user" of InterManager, and is a member of the service provider's organization. This user is typically a system administrator who is responsible for maintaining the InterMail system. Site administrators have the ability to create and modify all InterManager objects, and assign all levels of administrative access. However, site administrators typically limit their activities to the few infrequent operations that only they can perform, such as creating new classes of service and assigning customer service administrators.

A site administrator can perform the following InterManager operations:

- Assign other site administrators.
- Assign customer service administrators.
- Create, modify, and delete domains.
- Create, modify, and delete classes of service.

- Create, modify, and delete organizations.
- Assign organization administrators.
- Create, modify, and delete organization units.
- Assign organization unit administrators.
- Create, modify, and delete users.

1.2.2Customer Service Administrator

A *customer service administrator* is typically an employee of the service provider, and is also a member of the service provider's organization. These administrators are responsible for the creation of new organizations and assigning organization administrators. Customer service administrators also have the ability to manage organizations and the e-mail accounts associated with them, but typically delegate these tasks to the organization administrator.

A customer service administrator can perform the following InterManager operations:

- Create and delete domains.
- View classes of service.
- Create, modify, and delete organizations.
- Assign organization administrators.
- Create, modify, and delete organization units.
- Assign organization unit administrators.
- Create, modify, and delete users.

1.2.3Organization Administrator

An *organization administrator* is responsible for managing the organization units and e-mail accounts within an organization. These users are typically mail administrators for companies that purchase internal mail from the service provider. Each organization administrator must be a member of the organization that he or she manages.

The following InterManager operations can be performed by organization administrators for their assigned organizations:

- View the classes of service associated with accounts within the organization.
- Create, modify, and delete organization units within the organization.
- Assign organization unit administrators to manage the organization units within the organization.
- Create, modify, and delete users within the organization.

Note: *Organization administrators can only access data associated with their assigned organization. They have no control over the mail system as a whole, nor do they have access to the data for another organization.*

1.2.4Organization Unit Administrator

An *organization unit administrator* is responsible for managing the e-mail accounts within a specific organization unit. These users are typically managers of individual departments within a company. An organization unit administrator must be a member of the organization unit's parent organization.

The following InterManager operations can be performed by an organization unit administrator:

- View the classes of service associated with accounts within their organization unit.
- Create, modify, and delete sub-organization units within their top-level organization unit.
- Create, modify, and delete users within their organization unit.

1.3 Security Mechanisms

InterManager uses a variety of security mechanisms to confine user access to data. These security features are important to ensure that users can only access the objects to which they have been given administrative access. The principal InterManager security mechanisms are:

- Login name and password authentication required
- Class of service options for controlling login access
- The structure of the InterManager interface, which shows the user only the data over which he or she has authority

The following sections describe these security provisions and how they work together.

1.3.1Username/Password Authentication

To access the InterManager web interface, the user must supply a username and password through the InterManager Authentication form. This form is the “front door” of the InterManager interface, and is shown in the following illustration:

Figure 4. The Authentication form, the “front door” to the InterManager interface.

Once the user submits a valid login name and password with this form, they will be shown additional forms that allow them to view and modify InterManager information. If the user does not enter login information that matches an existing InterMail account with administrative access, they cannot access any other portion of the InterManager interface.

1.3.2Login Service Option

Among the available InterMail class of service attributes is an InterManager login attribute. In order for a user to gain access to InterManager forms, that user’s account must be associated with a class of service that allows InterManager login access.

When a user attempts to log in via the Authentication Form, and the login name and password have been verified, InterManager checks the class of service associated with the user’s account. If the user’s class of service does not allow for the attempted login, the authentication will be rejected. This means that the user can supply accurate login information, but still be denied access.

1.3.3Access to Objects in the Web Interface

When a user logs in to InterManager through the Authentication Form, that user is given access to a specific subset of the InterManager web interface that is appropriate for that user. This ensures that users cannot view or manage data that is outside of their administrative jurisdiction.

For example, the following illustration shows a provider administrator form. The InterManager interface for provider administrators includes five form tabs, which allow the administrator to access data associated with the site as a whole (domains and providers), classes of service, organizations, and users:

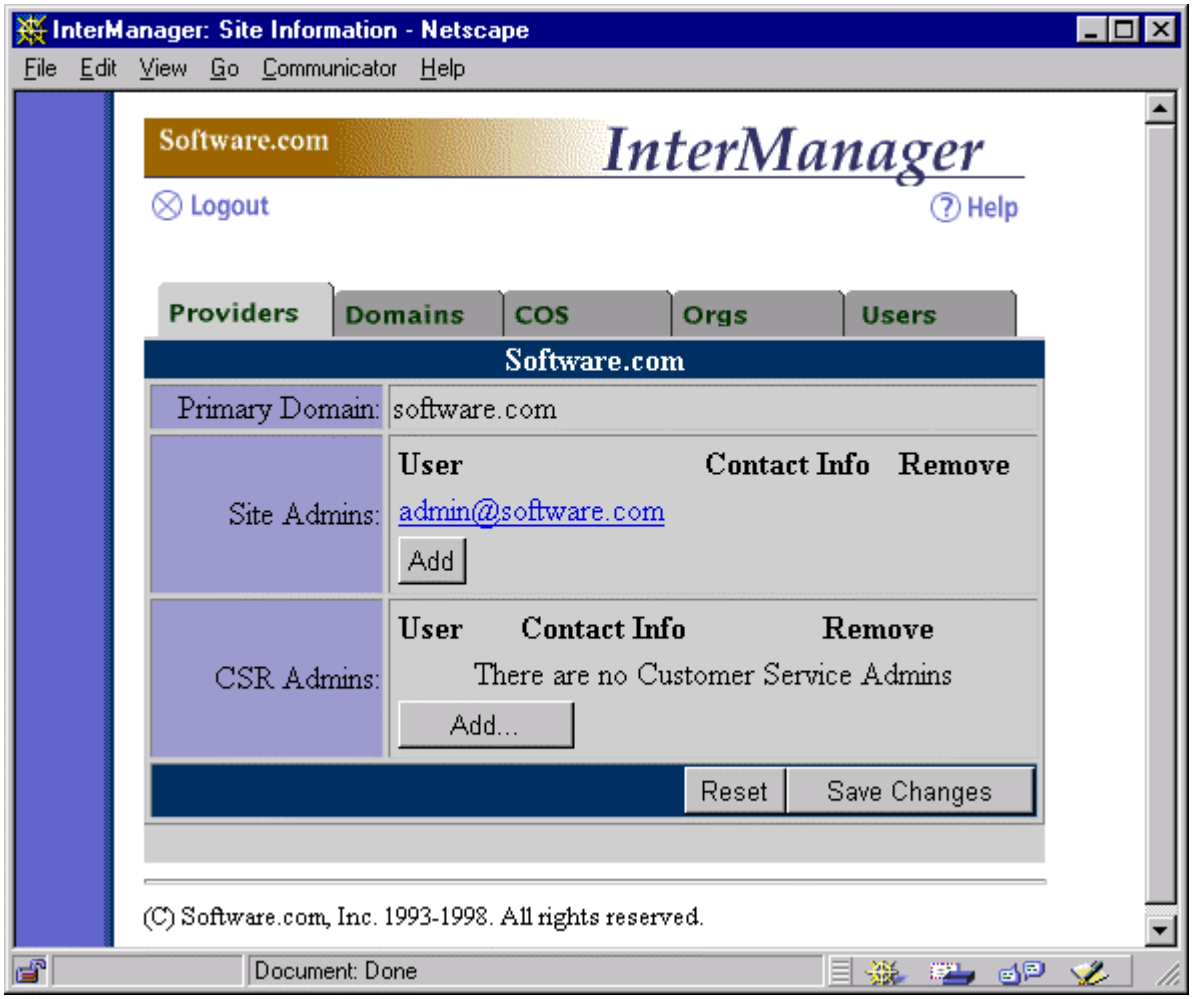

Figure 5. The form tabs available in the site administrator's interface: Site, Classes of Service, Organizations, and Users.

By comparison, organization administrators have access to only two form tabs: one, which accesses data, associated with their organization, and a second to access users within that organization.

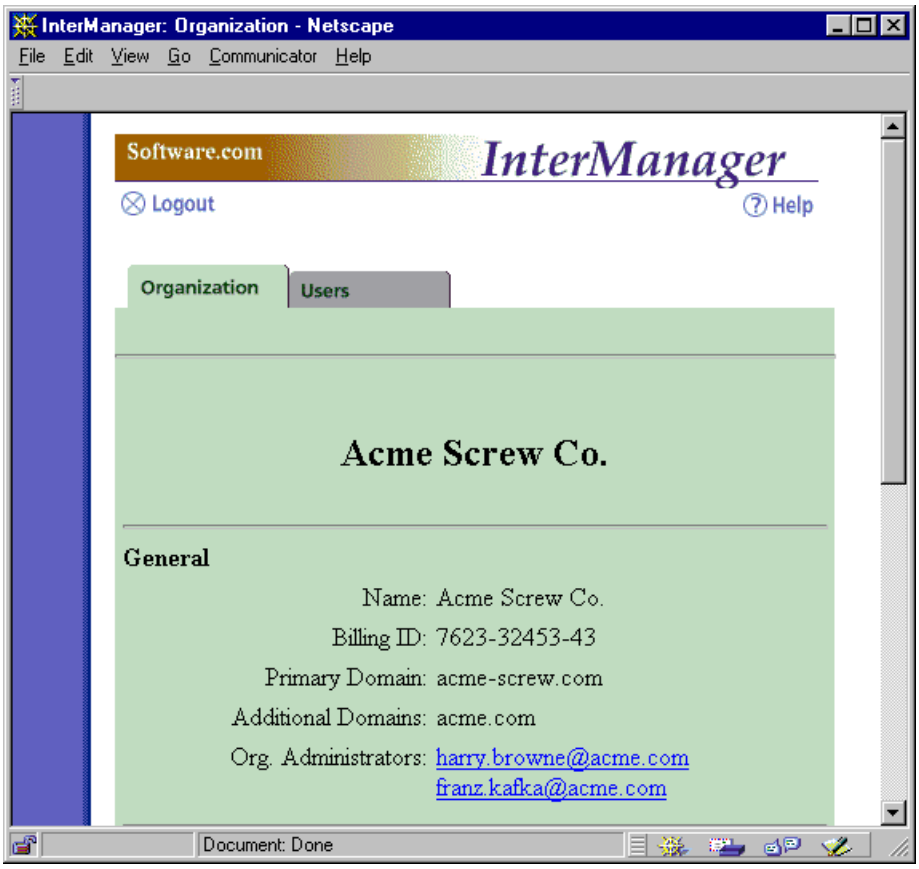

Figure 6. The form tabs available in the organization administrator's interface: Organization and Users.

Because organization administrators do not have the privileges required to edit forms related to domains and classes of service, options related to these objects are hidden from them.

2

InterManager Data Objects

This chapter describes the data objects that are administered by InterManager, as well as the relationships between those objects. The topics covered in this chapter include:

- an overview of the hierarchical relationship between InterManager objects
- detailed descriptions of these objects, including organizations, organization units, domains, users, and classes of service.

An understanding of these objects and their inter-relationships is a prerequisite for all InterManager administrators.

Note: *The data objects and attributes discussed in this chapter are a subset of the data stored in the Integrated Services Directory. Objects and attributes that cannot be modified via InterManager are not described here. Refer to the Integrated Services Directory Guide for complete descriptions of all InterMail directory objects and attributes.*

2.1 Object Hierarchy

InterManager objects are defined in relation to a specific data hierarchy. At the root of this hierarchy is the *site*, which corresponds to the service provider. Subsequent levels of this hierarchy tree include organizations, organization units, and users. The following diagram illustrates the hierarchical relationship between these objects:

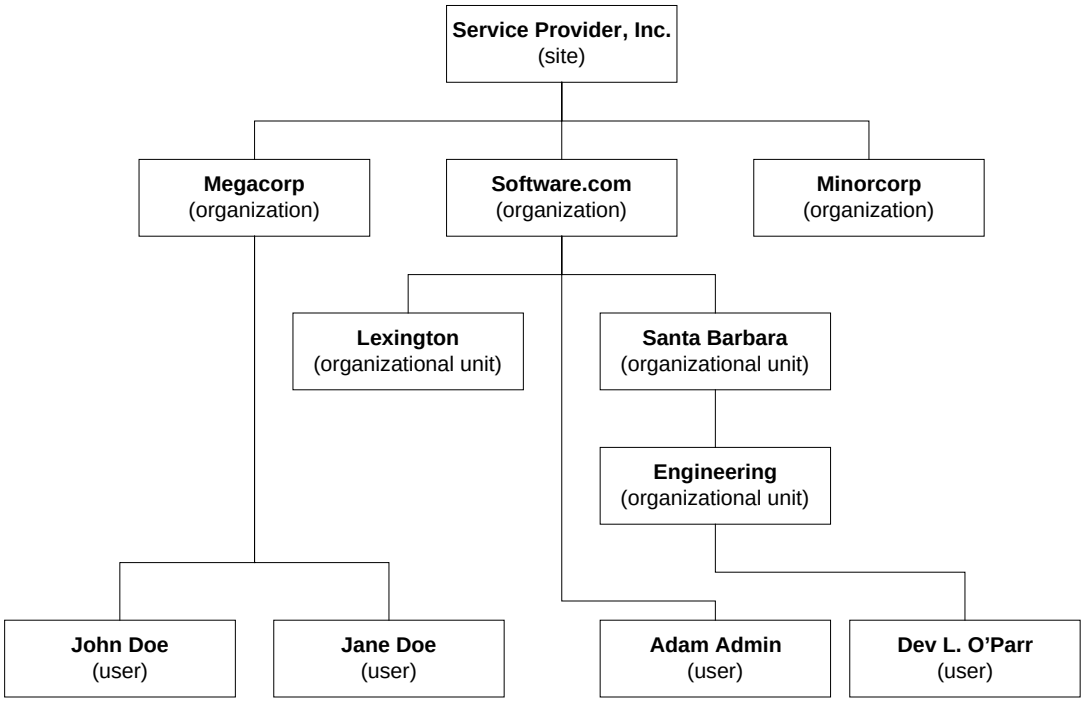

Figure 7. InterManager data hierarchy.

The individual data objects in this tree, as well as other objects controlled by InterManager, are described in the following sections.

2.2 Site

The *site* is an object in the InterManager hierarchy that corresponds to the service provider. The site is an organization object, and has all of the attributes of a standard organization. However, the site organization is distinct from other organizations in several ways:

- The site organization is created during InterManager installation, and cannot be deleted.
- All users who are assigned as site administrators or customer service administrators must be members of the site organization.
- Organization units of type Consumer can be created only in the site organization.

Note: *See Section 2.4.2 for information on Consumer organization units.*

2.3 Organizations

An *organization* corresponds to an entire company or other "top-level" institution. Organizations are typically created when a company purchases an initial set of e-mail accounts and services. Organizations are containers for organization units and users, and are typically managed by an organization administrator.

2.3.1 General Information

InterManager uses the following general information to identify organizations:

- **Name**. The name of the organization.
- **Primary domain name**. The top-level domain for the organization.
- **Billing ID**. A unique ID that can be used by the service provider with its billing system.

2.3.2 Associated Domains

Each organization has one or more associated domains. These are the domains that are used in the e-mail addresses of the organization's accounts. Because an organization corresponds to a company or other top-level institution, the primary domain of an organization is typically a top-level domain that does not include a subdomain or host name. For example, the organization Software.com would have the primary domain

```
software.com
```

and possibly additional domains, such as

```
hardware.com
jupiter.software.com
```

If the organization Software.com includes all of these domains, an e-mail account in this organization can have addresses that include any of these domains, such as:

```
john.doe@software.com
john.doe@hardware.com
john.doe@jupiter.software.com
```

2.3.3 Administrators

Each organization has one or more administrators. These organization administrators are assigned by a site administrator or customer service administrator. The following operations can be performed in the InterManager interface by an organization administrator:

- View the classes of service associated with accounts within the organization.
- Create, modify, and delete organization units within the organization.
- Assign administrators for the organization units within the organization.
- Create, modify, and delete users within the organization

2.3.4 Mailboxes

When organizations are created, they are allocated a specific number of e-mail accounts. Each of these allocations is tied to a specific class of service, and creates a maximum limit on the number of accounts of each class of service that can be created in the organization. These are the mailboxes of each type that have been purchased by the organization.

When new accounts are created for an organization, they are counted against the organization's mailbox limit. When the maximum limit is reached, no new accounts for that class of service can be created in the organization.

For example, the organization Software.com is allocated 500 accounts for the Standard class of service, and 100 accounts for the Premium class of service. The organization administrator of Software.com then creates 100 Premium accounts and 100 Standard accounts. If the administrator now tries to create another Premium account, the operation will fail because the organization has reached its limit of Premium accounts. However, another 400 Standard accounts could still be created.

2.3.5 Default Host

Each organization is associated with the name of an MSS host, which defines the default *Message Store Host* associated with each account in the organization. When an account is created, the location of its mailbox is taken from the default set for its organization. This value can be modified during account creation if needed, but the same host location is typically used for all accounts within an organization.

Note: *When the status of an account is proxy, the Message Store Host field is used to define the account's proxy POP server. See the InterMail Migration Guide for more information on proxy operation.*

2.4 Organization Units

An *organization unit* corresponds to a group within an organization, such as a department within a company. Organization units are simply a convenience for subdividing an organization, and are optional. Each organization unit is a member of a specific organization, and can contain any number of e-mail accounts or sub-organization units.

2.4.1 General Information

The following general information is used to identify an organization unit within InterManager:

- **Name**. The name of the organization unit.
- **Billing ID**. A unique ID that can be used by the service provider with its billing system.

2.4.2 Type

An organization unit within the site organization can be one of two types: **Business** or **Consumer**.

Business organization units define their users as members of a particular organization. These users are typically the employees of companies that purchase e-mail access from the service provider. Meanwhile, consumer organization units define groups of end users who are not associated with a particular company. These are the users who purchase personal or family e-mail access from the service provider.

Note: *Consumer organization units can be created only in the site organization. When organization units are created in other organizations, they are automatically defined as Business organization units.*

Although Consumer organization units are members of the service provider's organization (the site organization), the service provider's organization administrator *cannot* view or modify Consumer organization units. This creates a distinction between users who are employees of the service provider (who are members of a Business organization unit) and the individual consumer users who purchase e-mail access from the service provider (members of the Consumer organization unit).

Consumer organization units are managed by designated organization unit administrators, customer service administrators, or site administrators.

2.4.3 Administrators

Each organization unit has one or more administrators. These administrators can be assigned by a site administrator, a customer service administrator, or the administrator of the parent organization. If the organization unit is a member of a higher-level organization unit, then the administrator of the parent organization unit can assign administrators to the child organization unit.

The following InterManager operations can be performed by an organization unit administrator:

- View the classes of service for accounts within the organization.
- Create, modify, and delete sub-organization units within the organization unit.
- Create, modify, and delete users within the organization unit.

2.4.4 Sub-Organization Units

Each organization unit can have additional organization units defined within it. You can create organization units that are any number of levels deep within an organization, with each having its own administrator. For example, you can use multiple levels of organization units to distinguish between geographical locations, departments, projects, etc.

2.5 Users

An InterManager *user* object is the union of two data objects of the Integrated Services Directory: an InterMail account, and an InterManager person object. As such, user objects include e-mail account information—such as e-mail addresses, delivery instructions, and account status—and also include directory information, such as address book data.

User attributes are defined by the per-user data values described in this section, as well as additional options that are defined by the user's class of service.

2.5.1General Information

Among the data stored for each InterManager user is a set of general information. These are the attributes that uniquely identify the user in InterManager, and determine the user's location in the organization hierarchy.

The general information associated with each user includes the following:

- First Name. The user's first name.
- Last Name. The user's last name.
- Billing ID. A unique ID that can be used by the service provider with its billing system.
- Organization. The name of the organization to which the user belongs.
- Organization Unit. The name of the organization unit to which the user belongs.
- Class of Service. The class of service associated with the user's account. The InterMail, WebMail, and InterManager services that are available to the user are defined by this class of service. (See Section 2.7 for information on account options controlled by classes of service.)
- Contact Info. An optional phone number or other contact information.

2.5.2Login Data

Each account has a **User Login** name and **Password**. This is the authentication data that the user provides via with his or her mail client when retrieving mail from the POP or IMAP server. The user must also enter this data in the Authentication Form to access the SelfCare, WebMail, and InterManager web interfaces.

2.5.3E-mail Addresses

Each user has one or more e-mail addresses. These are the addresses to which e-mail for the user is sent. A user's account can have only a single **Primary SMTP Address**, but can also have multiple **Additional SMTP Addresses**. Each address is equally valid, so mail sent to any of these addresses will be received as if it was addressed to the account's primary address.

2.5.4Address Book Information

Each user has a set of Address Book Information, which is used to publish information about the user to the InterLDAP server. This server provides information to LDAP clients who request address book data.

There are four Address Book attributes:

- **Name**. The name of the user (for example, "John Doe")
- **Phone number**. A phone number for the user
- **State**. The geographic state or province of the user.
- **Locality**. The city (or other locality) of the user.

2.5.5Forwarding

The Forwarding options control the way that e-mail sent to the user is handled by InterMail. There are three forwarding delivery options:

- **Disabled**. This delivery option causes mail forwarding to be disabled. In this case, mail received for the user is stored in his/her mailbox, from which it can be retrieved by a POP3 or IMAP4 client.[1]
- **Forwarding and Local Delivery**. This delivery option causes mail received for the user to be both forwarded and stored in the account's mailbox.
- **Forwarding Only**. This delivery option causes mail received for the user to be resent to the specified forwarding address(es). In this case, no local delivery is performed.

2.5.6Auto-Reply Message

The Auto-Reply Message options control the method of auto-reply for the user's account, as well as the contents of the user's auto-reply message. There are three available modes of auto-reply:

- **Disabled**. This prevents the user from using the auto-reply feature.
- **Reply**. This mode sends the account's auto-reply message every time mail is sent to the account.
- **Echo**. This mode is the same as Reply, but the automatic response includes the sender's original message as a MIME attachment to the auto-reply message.
- **Vacation**. This mode is similar to Reply, but sends only one copy of the auto-reply message to each sender. This means that if a user sends ten messages within a week to a particular account, that sender will receive only one copy of the account's auto-reply message.[2]

2.5.7Security

Each account is associated with a series of security-related features, most of which are defined by the account's class of service.

Status

Each account has an associated **Status**, which defines the current state of the account. There are four possible account status values:

- Active. This is the most common account status, and indicates that the account is in a normal state. An active account is permitted to send and receive messages normally.

---

1 Provided the user's class of service supports the particular message retrieval service option (POP and/or IMAP).

2 The list of senders who have received the account's vacation message can be expired after a specific number of days. This option is set with the `autoReplyExpireDays` configuration key, which is defined in Chapter 11 of the *InterMail Reference Guide*. When this option is used, and the specified expire period has elapsed, a sender who previously received the account's vacation message will receive another copy of the message.

- Maintenance. The maintenance status is used when an account's mailbox is temporarily unavailable. Messages that arrive for accounts in maintenance mode are queued internally, and are delivered normally when the status of the account is reset to active. When requests are made to download mail from the POP or IMAP server, the client is rejected with a message indicating that the account is in maintenance mode and is temporarily unavailable.
- Suspended. The suspended status is used to prevent access to the account's mailbox, and is typically used when the account's user has not paid his or her bill for e-mail access. When an account is suspended, mail sent to that account is returned to sender, and user requests to download mail from the account via the POP or IMAP server are rejected with an unknown username/password error. Normal delivery and client access to a suspended account can be easily restored by setting the status to active.
- Locked. The locked status is identical to the suspended status, preventing user access to the mailbox and returning all mail sent to the account.

Class of Service Attributes

Among the security features defined in an account's class of service are:

- POP3 SSL
- SMTP SSL
- SMTP Authentication

Although these values cannot be defined at the account level in InterManager, the Edit User form displays the current values applied to the account.

Note: *For more information on these and other class of service options, see Section 2.7.*

Junk E-Mail Filter

A final security option defines whether the account uses a **Junk E-Mail Filter** to block unsolicited commercial e-mail. When this option is enabled for an account, and a message which violates one of InterMail's mail blocking is received for that account, the message will not be delivered to that account.

Note: *The mail filtering option is useful only if InterMail's mail blocking policies have been configured to operate on a per-account basis. Refer to the InterMail Operations Guide for information on setting mail blocking policies.*

2.5.8Mail Quotas

All InterMail accounts have an associated set of quotas. These quotas are defined by the user's class of service, and include the following limits:

- **Maximum SMTP Aliases**. This quota limits the number of SMTP alias addresses that can be given to an account.
- **Maximum Mailbox Size**. This quota limits the total storage size of the account's mailbox.

- **Maximum Message Size**. This quota limits the size of the largest message that can be delivered to the account.
- **Maximum Number of Messages in the Mailbox**. This quota limits the number of messages that can be stored in the account's mailbox.

Although these values cannot be defined at the account level in InterManager, the Edit User form displays the current values applied to the account.

Quota Warning Threshold

To prevent users from exceeding the maximum mailbox size quota for their accounts, InterMail sends a **Quota Warning Threshold** notification to users when their mailboxes reach a certain percentage of that limit. This allows you to alert users that their mailboxes are nearly full and that they may reach their limits if action is not taken. The percentage of the maximum mailbox size quota at which this warning message is sent is set individually for each account.

2.5.9Mail Host

Each user's e-mail account is associated with a **Message Store Host,** which is the InterMail MSS host on which the user's mailbox is stored. All of the accounts within an organization typically reside on the same Message Store Host.

2.6 Domains

InterMail domains can be created through the InterManager interface. There are three types of domains:

- Local
- Non-authoritative
- Rewrite

2.6.1Local

A *local domain* is a domain for which InterMail claims exclusive control. If a domain (or subdomain) is defined as a local domain for your site and mail is received for an address within that domain, InterMail considers itself the ultimate destination for that mail. Messages that are addressed to non-existent recipients within a local mail domain are considered undeliverable, and will not be routed to any other host or site.

All local mail domains can have an optional *wildcard account*. A wildcard account is simply a normal e-mail account within the domain that receives all mail that is sent to non-existent addresses within the domain. This allows you to collect all undeliverable mail sent to a particular domain in a single account.

For example, if the account `john.doe@sales.software.com` is defined as a wildcard account for the local mail domain `sales.software.com`, then any message sent to a non-existent address within `sales.software.com` will be delivered to `john.doe@sales.software.com`.

2.6.2Non-Authoritative

A *non-authoritative domain* (also known as a *semi-local domain*) is similar to a local domain, but does *not* define the InterMail system as the definitive destination for all mail addressed to that domain. Non-authoritative domains allow InterMail to accept mail for a domain, but relay it to another mail host if necessary. Non-authoritative domains can be established to define domains for which your site is an MX backup, or used when InterMail is run in parallel with an existing mail system (i.e., during migration of e-mail accounts from a legacy mail system to InterMail).

All non-authoritative domains are associated with the name of a mail host. When mail is received for addresses in a non-authoritative domain, and the recipient is not an account in the Integrated Services Directory, the mail is relayed to the host associated with the non-authoritative domain.

2.6.3Rewrite

Rewrite domains are very different from local and non-authoritative domains. A rewrite domain simply defines a rule for rewriting the recipient address of incoming mail, and must be associated with the name of a local or non-authoritative domain.

When an incoming message is received, and the domain of the recipient address is defined as a rewrite domain, the address is rewritten to include the local or non-authoritative domain associated with the rewrite domain. This allows InterMail accounts to receive messages addressed to the same user in multiple domains without requiring explicit alias addresses for each account.

2.7 Classes of Service

A *class of service* defines a common set of InterMail, WebMail, and InterManager service options that are available to individual users. All e-mail accounts in InterMail are associated with a class of service, which defines certain attributes of the account, such as IMAP access, mailbox quotas, and end user access to the SelfCare web interface.

2.7.1 Available Service Options

Each class of service defines a series of available service options. These service options control the InterMail, WebMail, and InterManager operations that can be performed by users whose accounts are members of the class of service. By enabling or disabling individual service options within a class of service, you can create global policies for groups of users.

Forwarding

The Forwarding service options control end user access to mail delivery options in the SelfCare interface. There are two delivery method service options:

- Allow end user to enable forwarding
- Allow end user to disable local delivery when forwarding is enabled

When these service options are enabled, users in the class of service can define the delivery methods that are used for their accounts.

Retrieval Methods

The Retrieval Methods service options control end user access to InterMail servers that retrieve messages from account mailboxes. There are two retrieval method service options:

- POP3
- IMAP

When these service options are enabled, users in the class of service can access the messages in their mailboxes via the appropriate InterMail server. For example, if the IMAP4 service is enabled, a user can access the InterMail IMAP Server to receive messages from his or her mailbox. If these service options are not enabled, the affected server will reject the user's authentication request.

Auto-Reply Modes

The Auto-Reply Modes service options control end user access to auto-reply options in the SelfCare interface. There are three auto-reply mode service options:

- Reply
- Echo
- Vacation

When these service options are enabled, users in the class of service can select the enabled auto-reply mode(s) used for their accounts. For example, if the Vacation service is enabled, a user can select the Vacation mode of auto-reply for their account through the SelfCare interface.

Mail Account Security Options

The Security Options service options control various security-related features that are enforced on e-mail accounts. There are five Security Options service options:

- **POP3 SSL**. When this service is enabled, the user can retrieve mail from the POP Server only from the secure (SSL) port. This option requires that the user have an SSL-compliant mail client.
- **SMTP SSL**. When this service is enabled, the user can send mail only through the secure (SSL) MTA port. This option requires that the user have an SSL-compliant mail client.
- **SMTP Authentication**. When this service is enabled, the user must give SMTP authentication information before he or she is allowed to send mail to the MTA. This option requires that the user have a mail client that supports authenticated SMTP.
- **System Wide Junk E-Mail filtering**. This service controls the per-account blocking of mail that is sent from a list of blocked systems or users. This feature can be used to prevent the delivery of unsolicited commercial e-mail. When this service is enabled, and a user receives a message sent from a blocked system, domain, or address, the mail will be returned to sender.

  You can also choose whether to allow users to activate and modify these controls.

Note: *The junk e-mail filtering service operates only if the InterMail mail blocking features have been configured to operate on a per-account basis. Refer to the InterMail Administration Guide for more information.*

- Send bounce notifications. When this service is enabled, the user receives a notification message whenever mail sent to his or her account is returned because it would have caused the account to exceed one of its mailbox quotas.

Web Access

The Web Access Control service options control end user access to the SelfCare, WebMail, and InterManager web interfaces. These service options can be used to specify that certain users cannot use this interface to view or modify attributes of their accounts. There are four Web Access Control service options:

- Allow InterManager web access. Controls the ability of the user to log into the InterManager web interface as the administrator of a site, organization, or organization unit. This option should be available only to users who have been designated as the administrator of a site, organization, or organization unit.
- Allow SelfCare web access. Controls the ability of the user to log in to the SelfCare web interface, which allows users to modify certain attributes of their accounts. If this option is not enabled for a class of service, users within that class of service cannot use SelfCare.
- Allow WebMail access. Controls the ability of the user to log into WebMail to access e-mail in his/her mailbox. If this option is not enabled for a class of service, users within that class of service cannot use WebMail.
- Allow user to bypass authentication. This option allows the end user to bypass login authentication when accessing SelfCare or WebMail. If this option is enabled for an account,

user authentication data is saved in a “cookie” on the client system, allowing the end to access SelfCare and/or WebMail directly without providing a login name and password.

2.7.2WebMail Options

The following class of service options and limits control end user behavior within the WebMail client interface:

- **Access to signature option**. This option controls end user access to an option that automatically inserts a user-defined signature in every message sent via WebMail.
- **Access to display width option**. This option controls end user access to an option that defines the formatting of messages in the WebMail interface.
- **Confirm message deletion dialog**. This option causes the end user to be prompted for confirmation before a message is deleted via WebMail.
- **Per-attachment size limit**. This option sets a limit on the maximum size of file attachments that can be sent by the end user via the WebMail client. If the end user attempts to attach to a message a file that exceeds this size limit, the operation is denied.
- **Per-message attachment number limit**. This option sets a limit on the number of file attachments that can be sent with a single message.
- **Per-session attachment number limit**. This option sets a limit on the cumulative number of file attachments that can be sent with messages in a single WebMail client session.
- **Address book entry limit**. This option sets a limit on the number of address book entries that an individual end user may define. When this number of address book entries have been created, no new addresses may be entered until existing addresses are deleted.
- **Address book mailing list limit**. This option sets a limit on the number of e-mail addresses that can be included in a single address book entry. The use of multiple addresses in a single address book entry allows end users to create distribution lists. This option limits the size of those distribution lists.

2.7.3Mailbox Quotas

Each class of service has a set of mailbox quotas. These quotas determine the limits that are enforced on the mailboxes of accounts in the class of service. The quotas defined for a class of service are:

- **Maximum SMTP Aliases**. This quota limits the number of SMTP alias addresses that can be given to an account.
- **Maximum Mailbox Kb**. This quota limits the maximum size (in kilobytes) of an account mailbox. When a mailbox reaches this limit, additional mail will be returned to sender. This limit is important for controlling the amount of disk space required to store mail.
- **Maximum Kb per message**. This quota sets a limit on the largest message that can be received by an account. If a message larger than this limit is sent to an account, it will not be delivered.

- **Quota warning threshold**. This option defines a percentage of the maximum mailbox quota at which the user will be notified of the size of his/her mailbox. This allows you to alert a user that his/her mailbox is nearly full and that it may reach its limit if action is not taken. An additional option allows you to control end user access to setting the quota warning threshold.

3

Getting Started With InterManager

This chapter covers the steps from InterManager installation to operational readiness. The subjects covered include:

- an overview of initial InterManager tasks
- a discussion of required planning
- instructions for initializing the site
- an introduction to site management
- instructions for batch loading user data

3.1 Initial InterManager Tasks

The InterManager software is automatically installed with InterMail. However, installation alone is not sufficient preparation for use. Before operating InterManager, you must:

1. Review site requirements. Decisions must be made regarding the classes of service to be offered, the domains to be supported, and the organization structure desired.
2. Initialize the InterManager site. Standard InterManager access (via a web browser) is not allowed until the site and the initial site administrator have been identified.
3. Add data required for site management. InterManager supports delegated account administration, but before individual accounts can be created, you must create the domains, organizations, and classes of service with which they will be associated.
4. Add account/user data (if required). In a typical InterManager installation, responsibility for account management is delegated to employees of the organizations the mail server supports. However, if immediate creation of a large number of accounts is required, you can use InterManager's batch loading utility to create multiple accounts in a single operation.

The remainder of this chapter discusses the preceding subjects in detail. Please refer to the sections that follow for additional information about each of the operations outlined above.

Note: *If you have not yet installed InterMail on your system, please refer to the* InterMail Installation Guide *for instructions.*

3.2 Implementation Planning

InterManager implementation begins with a review of site requirements. Once requirements have been defined, the site can be initialized and structures established to support the desired implementation.

During review you should:

- identify the clients to be supported,
- develop a site structure that properly partitions data from the different clients and allows sufficient flexibility for expansion within each organization,
- review each client's requirements for mail handling (mailbox quotas, domain names, addressing conventions, etc.), and
- determine the mail system modifications necessary to support those requirements (additional classes of service, new DNS records, etc.).

See the sections that follow for expanded descriptions on each of these operations.

3.2.1Support for Delegated Administration

InterManager supports delegated administration via a flexible hierarchy of organizations, organization units, and users. The specific interpretation of the hierarchy varies based on the unique requirements of each site.

The following illustration indicates the possible relationships between accounts, organizations, and organization units.

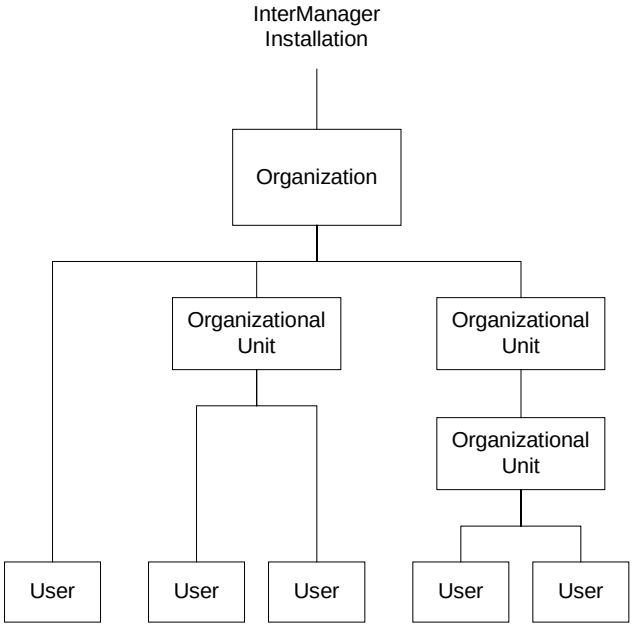

Figure 8. Possible relationships between objects in the InterManager hierarchy.

The top level in the InterManager hierarchy is the organization. Typically, each InterManager organization represents a single company. The first organization established represents the site itself, the service provider running the InterManager application.

Note: *There is no requirement that an organization represent a company. An organization is simply a logical container for a group of accounts that should be administered as a distinct entity.*

Organizations may contain organization units. Organization units (OU) are subdivisions of an organization—smaller groups of users that have certain characteristics in common.

Organization units may be nested within organization units. For example, a large company may be set up as a single organization containing separate organization units for each division, which in turn contain distinct organization units for each department within the division.

Users *must* be associated with an organization or an organization unit, but they may be linked with a container at any level in the hierarchy. Users can be moved between levels in a given organization, however they cannot be moved from one organization to another. (They must be deleted from one and recreated in the other.)

Key Considerations in Modeling Your Installation

Because requirements vary from site to site, it is impossible to document a recommended model for InterManager implementation. Instead, we offer guidelines to assist you in determining the appropriate model for your situation.

Issues to consider include:

- Identification of the host organization. The first organization created is designated as the site. Administrators linked to this organization have access to all account and class of service operations. The identity of the site should reflect the identity of the service provider.
- Identification of clients requiring support. Separate organizations with unique names should be established for each client. By segregating client data into distinct organizations client access can be limited to the appropriate data set.
- Support for existing client structures. The service provider must establish the top level of the organization model (the organizations). Lower levels are typically defined by the clients themselves. However, if you wish to populate the model with initial user data according to a more detailed model, those additional levels of detail should be defined.
- Desired handling of unaffiliated users. The host organization (the service provider) may provide mail service for users who are not affiliated with another client company. By default, such users are grouped into a single consumer organization unit. If you intend to support a large number of consumer users, you may wish to subdivide those users into more manageable groups by establishing additional organization units within the consumer unit.

For an example of implementation planning and the resultant organization model, see the section that follows.

Sample InterManager Installation

Software.com is a service provider that wishes to host mail service for two client companies: Acme Cola and Hardware.com.

Acme Cola is a large organization that requires independent administration of accounts within its two major departments (accounting and marketing). Hardware.com is a smaller company that plans to administer its all accounts in a single group.

In addition, Software.com has its own base of consumer users who purchase e-mail service directly from Software.com.

Figure 9 presents an InterManager installation capable of supporting these requirements.

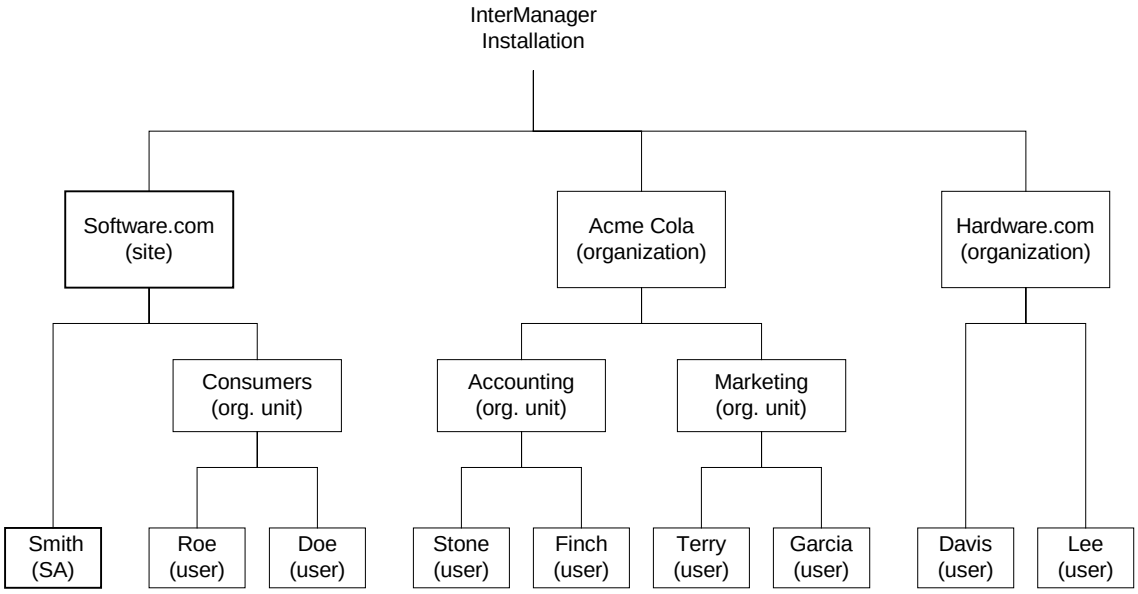

Figure 9. Sample InterManager installation.

The model installation has three organizations: one for Software.com, one for Acme Cola, and one for Hardware.com.

The Software.com organization contains a single organization unit which contains all consumer users. These entities are highlighted in bold to indicate their affiliation with the service provider and the requirement that they be the initial items established.

The Acme Cola organization contains two organization units, one for each of the company's two departments. Acme Cola's users are distributed between these two organization units.

There are no organization units associated with Hardware.com. Instead the all Hardware.com users are directly associated with the Hardware.com organization.

Note: *For consistency, all sample instructions that follow reference this model.*

3.2.2 Other Considerations

Defining the appropriate model for delegated administration is a critical first step in implementing InterManager. Once that model has been established, the following additional issues should be addressed:

- **Class of service definitions.** Classes of service define standard feature sets that can be easily associated with multiple accounts. The number of feature sets defined is up to the discretion of the service provider, but is typically limited in scope. To determine the appropriate number of classes of service and the characteristics associated with each, the requirements of all expected clients should be reviewed.

  Note: *For a complete description of attributes that may be associated with a class of service, please refer to the* Integrated Services Directory Guide.

- **Identification of required domain names.** If clients wish to use e-mail addresses with unique domain names, the service provider must be recognized as the party responsible for mail service to those domains. Accepting responsibility for additional mail domains is a two step process. External recognition is gained by establishing MX records in the Domain Name System (DNS). Internal recognition is achieved by adding domain records to the mail server.
- **Identification of organization administrators.** In order to delegate responsibility for account management back the client companies, the service provider must obtain information about the individual within the company to whom responsibility will be transferred. This individual is then established as the initial organization administrator.
- **Naming conventions.** For ease of reference and to guarantee uniqueness, conventions should be established for user addresses and login strings. In addition, recommended naming conventions for organization units should be created and distributed to the administrators of all client organizations.

3.3 Initializing the InterManager Site

Access to InterManager via the standard interface is not allowed until the application has been initialized with information about the site and the site administrator.

Initialization is a two step process:

- The sample initialization file provided with InterManager must be customized with site-specific information.
- A special utility must be run with the initialization file as input.

Once initialization is complete, the newly identified site administrator can log on and perform all remaining operations through the standard, browser-based interface.

3.3.1Customizing the Initialization File

InterManager is delivered with a sample initialization file called `sitestartup.batch`. This file must be edited to reflect the name of your site and the identity of the initial site administrator.

Note: *The person who initializes the InterManager application is usually designated as the first site administrator. New site administrators can be added and existing administrators deleted once initialization is complete.*

The `sitestartup.batch` file is located in the `$INTERMAIL/lib` directory. It contains fields with sample values in angle brackets (`<sample value>`). To customize the file, simply remove the angle brackets and replace the sample values with real values appropriate for your site.

The file is fully commented to assist you through the editing process. In addition, we've provided the following example to illustrate the ease with which the file can be customized.

Sample Customization Session

The following instructions describe customization of the standard initialization file to support the model InterManager installation outlined in Section 3.2.1.

1. Load the `sitestartup.batch` file in a text editor.
2. Save the sample file under a new name: mysitestartup.batch, for example. Make all your edits to this new file, saving the original as a backup.
3. Read through the first block of comments in mysitestartup.batch until you come to come to the following section:

```
Option:
Error:Abort
```

   The `Error:` option determines the system's response if an error occurs during processing of the initialization file. Possible values are `Abort` and `Ignore`. It is recommended that you leave this option set to `Abort`.

4. Locate the next section in the file. This section creates the site organization (also called a *provider*).

```
IM_Type: Provider
provider: <Provider Company>
domain: <provider.com>
```

   Note: *Lines shown in bold indicate text that must be edited.*

5. Remove the angle brackets and replace the sample values with the service provider's name and associated domain name, as indicated below:

```
IM_Type: Provider
provider: Software.com, Inc.
domain: software.com
```


6. Locate the entry that creates InterManager's default mail policy. Do *not* change this value as it must match the default class of service name, which is `default`.

```
Option:
errorOnNonExist

IM_Type: MailCOS
mailCOS: default
```

> ***Note:*** *The default class of service should already exist as it is automatically created upon installation. If the expected class of service does not exist the system will treat that condition as an error.*

7. Note the next entry which assigns the `default` class of service to the site organization. No modification of this entry is required.

```
COS_Assign: default
```

8. Locate the entry indicated below. This entry creates the site administrator and assigns that user to the service provider's site organization. It also creates the site administrator's e-mail account and associated mailbox.

```
IM_Type: Person
uid: <Jones@provider.com>
userlogin: <Jones>
role: site admin
mailid: 00000000000001
messagestorehost: <msshost>
emailPassword: <mypassword>
mailboxStatus: ACTIVE
mailcos: default
preferredServices: MULTIVALUE
pref_intermanager: 1
END_MULTIVALUE
```

> ***Note:*** *The* `pref_intermanager` *attribute controls access to the InterManager interface. By setting, the value to "1" the site administrator is allowed access.*

9. Edit this section of the file, replacing the sample text as indicated:

   - uid: Replace the sample text <Jones@Provider.com> with the complete SMTP address for the site administrator.
   - userlogin: Replace the sample text <Jones> with the site administrator's user login.
   - mailid: Replace the sample text 00000000000001 with a unique number between 1 and 38 digits in length.
   - messagestorehost: Replace the sample text <msshost> with the message store host on which the site administrator's mailbox will reside.
   - emailPassword: Replace the sample text <mypassword> with the site administrator's actual password.

When complete, the edited record should appear similar to the one below:

```
IM_Type: Person
uid: paul.smith@software.com
userlogin: psmith
role: site admin
mailid: 84909311094004873628
messagestorehost: mercury.software.com
emailPassword: reMedo
mailboxStatus: ACTIVE
mailcos: default
preferredServices: MULTIVALUE
pref_intermanager: 1
END_MULTIVALUE
```

10. Note the next entry which defines the organization unit for consumers. No modification of this entry is required.

```
IM_Type: OrgUnit
ou: consumers
businesscategory: consumer
```

11. The final entry defines the location in the InterManager hierarchy to which new users will be added if they are created via `imdbcontrol` or the C API (utilities that do not offer organization options when adding account data).

```
IM_Type: Entry
dn: cn=config
cn: config
objectclass: top
objectclass: scConfig
key: ispdn#dc=<provider>,dc=<com>
key: consumerourdn#ou=consumers
```

12. Edit the line `key: ispdn#dc=<provider>, dc=<com>` replacing the sample values `<provider>` and `<com>` with the same data used to define the site organization in Step 5.

```
IM_Type: Entry
dn: cn=config
cn: config
objectclass: top
objectclass: scConfig
key: ispdn#dc=software,dc=com
key: consumerourdn#ou=consumers
```

13. Save the changes to mysitestartup`.batch`.

Customizing the Initialization File for Existing Systems

Previously installed InterMail systems may already contain an account and a mailbox for the site administrator. If so, the following entry in the initialization file would cause the initialization process to abort when the site administrator's record was read.

```
Option:
Error:Abort
```

To prevent this, add the line `errorOnNonExist: Person` to the `Option` command so that the entry reads as follows:

```
Option:
Error:Abort
errorOnNonExist: Person
```

As a result of this change, the initialization process will *not* abort when it encounters an existing account; instead, it will abort if the account does not exist. If the process aborts because the site administrator does not have an account, simply add the administrator's account and try submitting the file again.

3.3.2Running the Startup Script

Once the initialization file has been edited, the customized data must be submitted for processing. Processing is accomplished via the `imbatchload` utility provided with InterManager.

To run the utility, type the following command:

```
imbatchload <filename>
```

where `<filename>` represents the name of the customized initialization file (`mysitestartup.batch`, for example).

When the process completes, the newly defined site administrator has access to InterManager and all the operations it supports.

3.4 Accessing the InterManager Interface

Standard InterManager access is provided via the Authentication form.

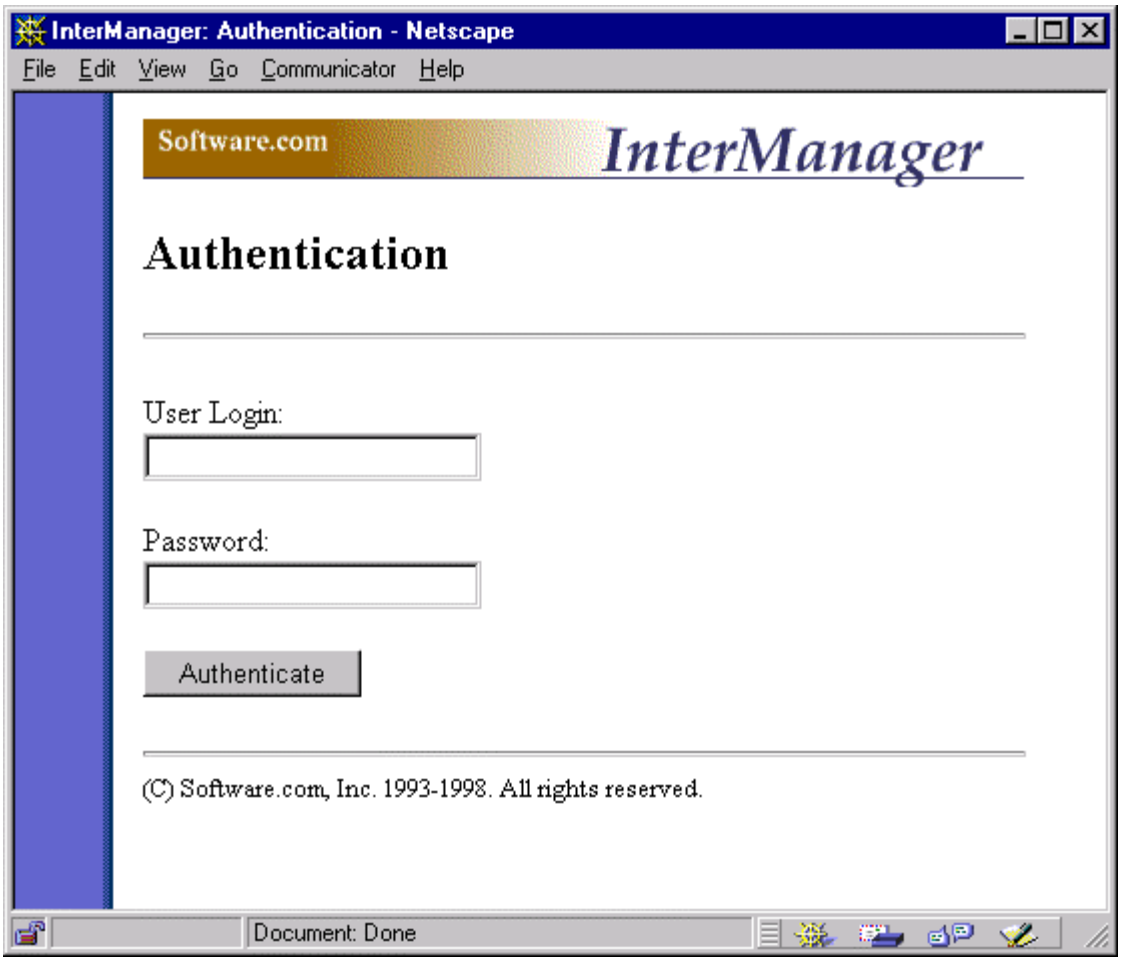

Figure 10. Authentication Information form.

To access the form, launch your web browser and point to the host on which the InterManager application is running. Enter the login name and password for the site administrator, then click on the **Authenticate** button.

As site administrator you have complete access to all InterManager functionality. By working through the system's various forms, you can perform all of the operations described in the following section.

3.5 Establishing Site Structure

Initialization allows you, the site administrator, full access to InterManager. It does not, however, provide the structure necessary to support delegated administration.

Site structure (organizations, accounts, etc.) should be added manually via the InterManager forms. (See Chapter 4 for details). Because there are dependencies between the various structural elements, it is recommended that you execute required operations in the order indicated below:

1. Create necessary classes of service and adjust configuration keys as required to avoid potential conflicts.
   - The checkAuthentication configuration key must be set to true if you wish to create a class of service that includes SMTP authentication.
   - The blockPerAccount configuration key must be set to true if you wish to create a class of service that includes mail blocking as an option. If the key is disabled (set to false), all users will have access to mail blocking, regardless of class of service.
   - The value of the maxMessageSizeInKb configuration key should exceed the value set for any class of service. The maxMessageSizeInKb configuration key takes precedence over the maximum message size for any class of service. Therefore, any class of service limit that exceeds this value will be ignored.

   Note: *For complete information on these configuration keys, see the* InterMail Reference Guide. *For instructions on changing configuration key settings, see the* InterMail Operations Guide.
2. Add domain records required by all clients whose mail service you intend to host.
3. Create all top-level organizations and assign organization administrators.
4. Create organization units (optional).
5. Create accounts within the organizations and organization units (optional).

Note: *InterManager includes a batch loading utility that can be used to create accounts en masse. Site information can also be added via the batch loading utility if desired. See Section 3.7 for details.*

3.6 Adding User Data

Once site structure has been established, account information can be added. With InterManager, account management is typically the responsibility of the organization and organization unit administrators. These administrators can access the system via the standard interface and perform all required account operations.

There are circumstances, however, under which use of the standard interface is inefficient. For example, if a new client company were acquired and hundreds of users need to be added immediately, entering account records one by one through the InterManager web forms would be needlessly time consuming. To assist in situations such as these InterManager provides a batch loading utility.

3.7 Batch Loading New User Records

Multiple accounts can be added in a single operation via InterManager's batch loading utility. This feature is useful:

- When creating (or modifying) a large number of InterManager data objects.
- When it's desirable to verify data and check for errors prior to committing the changes.
- When the data is being provided by a third party in bulk.
- When adding InterManager to an existing InterMail system. The existing InterMail accounts must be loaded into the InterManager data hierarchy before they can be modified via InterManager.

Batch loading of InterManager data is accomplished via the `imbatchload` utility, which imports data from input files into the InterManager data hierarchy.

The syntax for using `imbatchload` is:

```
imbatchload <input file> [<input file> ... ]
```

where:

`<input file>`	Specifies the name of the file containing data entries to be added to InterManager. Multiple input files may be specified in a single execution.

When executed, `imbatchload` takes the contents of the specified input file(s) and imports the data into the InterManager data hierarchy. Because there may be occasions where an entry is specified for naming purposes only, entries are created only if they do not already exist.

3.7.1Format of the Batch Loading Input File

The general form of the `imbatchload` input file is a sequence of records separated by blank lines. The first line of each record specifies the record type.

There are seven record types:

Record	Description
`Context`	Describes a parent context for the records that follow
`IM_Type`	Describes an entry (which may be a domain, a class of service, the provider organization, another organization, an organization unit, or a person)
`COS_Assign`	Assigns a class of service to an organization
`Option`	Describes a processing option
`Defaults`	Describes the default attributes for a class
`ChangeType`	Describes the processing mode for the following records
`Comment`	An arbitrary comment line in the file (these are ignored)

Ordering of Entries in the Input File

The input file describes structure and is context sensitive, therefore the ordering of entries within the file is significant.

When the user batch file is created, the record types must be in the following order:

```
context:
provider: <provider name>
```

The provider's context record must come first. This creates the parent context for the service provider, and becomes the parent record for all subsequent entries. Any customer organizations that follow will be part of the service provider's site.

`IM_Type: Domain`

This record identifies the service provider's domain and follows the context record for the provider.

`IM_Type: MailCOS`

This record type creates a class of service that can (optionally) be assigned to each of the provider's customer organizations. As many `MailCOS` records as required can be created within the provider's organization context.

`COS_Assign: <class of service name>`

This record type is used to assign a class of service to a specific organization. The `COS_Assign` record always apples to the last organization created. In other words, if a `COS_Assign record` is created beneath the record that creates the organization for Acme Cola, then Acme Cola's own organization administrator has the ability to place Acme Cola users in that class of service.

`IM_Type: Org`

This record creates a top-level organization within the site. The record automatically creates a context entry for this organization. Any entries for organization units or users that fall within this context will be part of this organization.

`IM_Type: OrgUnit`

This record is used to create organization units within top-level organizations. To create two or more organization units within a single top-level organization, you must first create

another `IM_Type:Org` record for that organization to reset the context. The second `IM_Type:OrgUnit` record would then be placed beneath the second `IM_Type:Org` record.

If you were to create two organization units for the same top-level organization without first resetting the context with a new `IM_Type:Org` record, the second organization unit would be created nested inside the first. In other words, the top-level organization would be the parent, the first organization unit would be its child, and the second organization unit would be the child of the first organization unit.

`IM_Type: OrgUnit`

This is the record type that creates entries for user accounts. `Person` records will be loaded into the organization or organization unit that was last stipulated in the file.

Summary of Record Sequencing

To summarize, the overall structure for the batch loading input file is as follows:

```
Context

Domain (optional unless Organization is being created)

Organization
    <organization attributes>

OrgUnit
    <organization unit attributes>

[optionally repeat OrgUnit to get child organization units]

Person
    <person attributes>
```

3.7.2Input File Record Types

The record types referenced in the preceding sections are defined in the sections that follow. Examples of each record type are provided.

Entry Records

Each entry is specified as a list of attributes. Each attribute is entered in pure LDIF manner, as in:

```
<attr name>: <attr value>
```

or

```
<attr name>:: <attr value encoded BASE64>
```

Note: *Attribute values may be folded onto extension lines per the LDIF format definition.*

The macrostructure of each entry is as follows:

```
IM_Type: <intermanager class>
      [<entry number>]
      <attributes>
```

where:

`<entry number>` An optional number used strictly to assist in identifying errors in

	the file. ***Note:*** *This number is defined as 32bit unsigned integer.*
`<intermanager class>`	Any one of the following: `Domain`, `Provider`, `Org`, `OrgUnit`, `Person`, `MailCOS`, `MailGroup`, `MailTemplate`. ***Note:*** *`Domain`, `Org`, and `OrgUnit` are structural entries that establish a new parent context for the entry records that follow.*
`<attributes>`	A list of attributes for the entry.

Required Attributes

Each entry record has a set of required attributes. Other attributes may be added, provided they're allowed by the InterManager classes. Required attributes for each entry type are indicated below.

Domain:

```
domain: <domain name>
domainType: <type = LOCAL|REWRITE|NON-AUTH>
```

Provider:

```
provider: <provider name>
domain: <domain name>
```

Organization:

```
domain: <organization's domain name>
o: <organization name>
```

Organization unit:

```
ou: <organization unit name>
```

Person:

```
uid: <smtpAddress>
mailCOS: <class of service>
emailPassword: <password>
passwordType: <type = CLEAR|MD5|UNIX> CLEAR is optional
messageStoreHost: <hostname>
mailboxStatus: <status = ACTIVE|SUSPENDED|MAINTENANCE|LOCKED|PROXY>
```

MailCOS:

```
mailCOS: <class of service>
serviceDef: <multivalue>
```

Context Records

This record establishes the entry to use as the parent for the entry records that follow. Once context established, it remains in effect until a new context established (either by a new `Context` record or by an entry record for a new structural entry).

The format of a context record is a `Context` tag followed by a list of structural entry names, ordered from the most significant to the least.

Example

The entry below indicates that all records that follow pertain to Software.com's Engineering organization unit.

```
Context:
o: Software.com, Inc.
ou: Engineering
```

Class of Service Assignment Records

This record is used to assign a class of service to an organization. The class of service and the organization must exist. The current parent context must be the organization that will have the class of service assigned. The `COS_Assign` record(s) must either follow the organization's create (`IM_Type`) record, or there must be a `Context` record preceding the `COS_Assign`(s).

The `COS_Assign` must contain at least the `maxusers` attribute. It may also have the following attributes: `messagestorehost`, `alternatehost`, and `description`.

Example

The entry below sets Software.com's organization as context. As a result, the entry that follows is understood to assign the `SiteAdmin` class of service to the Software.com organization.

Engineering organization unit.

```
Context:
o: Software.com, Inc.

COS_Assign: SiteAdmin
maxusers: 10
messagestorehost: venus.software.com
alternatehost: pluto.software.com
```

Option Records

An option record invokes a processing option. The option remains in effect until explicitly changed.

The following options set error handling:

Option	Description
`ErrorAbort`	Terminate import on error
`ErrorContinue`	Continue import on error
`ErrorDefaults`	Restore error handle to defaults (or command line)
`ErrorOnExistAccount`	Report error if the account exists
`ErrorOnExistDomain`	Report error if the domain exists
`ErrorOnExist<entry>`	Report error if specified LDAP entry exists
`ErrorOnNonExistAccount`	Report error if account doesn't exist
`ErrorOnNonExistDomain`	Report error if domain doesn't exist
`ErrorOnNonExist<entry>`	Report error if specified LDAP entry does not exist
`IgnoreExistAccount`	Don't report existing account

Option	Description
`IgnoreExistDomain`	Don't report existing domain
`IgnoreExist<entry>`	Don't report existing LDAP entry
`IgnoreNonExistAccount`	Don't report non-existing account
`IgnoreNonExistDomain`	Don't report non-existing domain
`IgnoreNonExist<entry>`	Don't report non-existing LDAP entry

Note that the `<entry>` referenced above can be an organization, organization unit, or person. The defaults for the various entries are as follows:

- organization (IgnoreExistOrganization, IgnoreExistDomain)
- organization unit (`IgnoreExistOrgUnit`)
- person (ErrorOnExistPerson, IgnoreExistAccount)

Note: *The `ErrorAbort` and `ErrorContinue` options apply to all errors, not just errors indicating that an item does or does not exist. For this reason, `ErrorContinue` should be used with caution.*

Default Records

A default record is used to specify the default values for the attributes of an InterManager class. It is specified in the same form as an entry record, except no name attribute is required.

A default setting remains in effect until another default record of the same class is specified.

Example

The entry below sets the default attributes so that each person record that follows is automatically associated with the `MegaBasic` class of service, assigned a password protected by MD5 encryption, and given a locked mailbox.

```
Default: Person
mailCOS: MegaBasic
passwordType: MD5
mailboxStatus: locked
```

Change Records

The `ChangeType` record alters the processing of entry records. Available change types are:

Type	Description
`add`	Add the record (the default)
`delete`	Delete the specified entry records. Note that this should be specified *after* the organization, organization unit context.
`newParent`	The following records will be moved to a new parent. Note this also should be specified *after* the organization, organization unit context.
`modify`	Modify an existing record.

Example

The entry below modifies the person record for John Doe: adding zip code information, changing his billing ID, and deleting his Telex number.

```
ChangeType: Modify

IM_Type: Person
uid: john.doe@software.com
add: postalCode
postalCode: 98004
-
modify: billingId
billingId: 0
-
delete: telexNumber
-
```

Comment Record

A comment record is used to annotate a file for human reading. Comments are ignored by the batch loading utility.

3.7.3Sample Batch Loading Input File

This section defines the batch loading input file required to create the site structure illustrated in Figure 9. It includes all data required to establish the Software.com site and all related organizations, organization units, and classes of service. It also contain records for two users in Software.com's consumer unit, one each for Acme Cola's Accounting and Marketing departments, and one for Hardware.com's organization.

Note: *User batch files must be created with UNIX editors. Other text editors may insert extraneous characters that will cause problems for the batch loading utility.*

The commented text (#) above each entry explains the purpose of that entry. The entries themselves are shown in bold.

```
option:
error: abort

# 1) The context record establishes the provider's organization as Software.com, Inc.
context:
provider: Software.com, Inc

# 2) This record creates the "basic" class of service for use with InterManager.

#Note that the class of service attributes shown are just a few examples. For a
#complete list of all the COS attributes, consult the samplescript.batch file, which
#is located in the $INTERMAIL/lib directory.

IM_Type: MailCOS
mailCos: basic
pref_quotaTotMsgs: 5000
pref_quotathreshold: 75
pref_webmailMsgAttachLimit: 1

# 3) This record creates a class of service called "acctcos" for use by members
#of Acme Cola's accounting department.

IM_Type: MailCOS
mailCos: acctcos
pref_quotaTotMsgs: 7500
pref_quotathreshold: 75
pref_webmailMsgAttachLimit: 2

# 4) This record creates a class of service called "mktcos" for use by members
#of Acme Cola's marketing department.

IM_Type: MailCOS
mailCos: mktcos
pref_quotaTotMsgs: 15000
pref_quotathreshold: 75
pref_webmailMsgAttachLimit: 6

# 5) This record creates a class of service called "super".

IM_Type: MailCOS
mailCos: super
pref_quotaTotMsgs: 20000
pref_quotathreshold: 70
pref_webmailMsgAttachLimit: 12
```

```
# 6) This record assigns the "basic" class of service to the previously defined
#organization, which is Software.com, inc. It specifies a maximum of 5000 users for
#this class of service and says that their mail boxes will reside on the message store
#host called "venus." Venus will be part of the software.com domain, e.g., it will
#actually be venus.software.com.

#Note that messageStoreHost is optional for Cos_Assign. However, if it is not used
#here, it must be added to every person record associated with this class of service.

COS_Assign: basic
maxusers: 5000
messageStoreHost: venus

# 7) This record creates an organization unit for Software.com's users. The
#organization unit will be contained within Software.com, Inc's organization,
#since the site organization was the last one defined—i.e., it is still within the
#"context" of the software.com site organization.

IM_Type: OrgUnit
ou: consumers

# 8) The next two records are "person" records that create the users that will be
#loaded into the consumer unit.

#Note that there are no entries for messageStoreHost. This is because the
#messageStoreHost has already been defined in the COS_Assign record. If it were not
#defined in COS_Assign, then a messageStoreHost entry would be required for every
#account (person) record associated with this class of service. If there is a
#messageStoreHost entry defined in a person record, then it takes precedence over the
#messageStoreHost entry defined in COS_Assign.

IM_TYPE: Person
uid: mary.roe0@software.com
mailCOS: basic
mailid: 10003040054058548

IM_TYPE: Person
uid: john.doe@software.com
mailCOS: basic
mailid: 10003040054058549

# 9) This record creates the organization for Acme Cola. A new top-level organization
#requires a new context record. "O" defines the context as an organization.

IM_Type: Org
O: Acme Cola, inc.
Domain: acmecola.com

# 10) This record assigns the "mktcos" class of service to the previously defined
#organization, which is Acme Cola. It specifies a maximum of 125 users for this class
of service and says that their mail boxes will reside on the message store host called
"neptune." neptune will be part of the acmecola.com domain, e.g., it will actually
#be neptune.acmecola.com.

COS_Assign: mktcos
maxusers: 125
messageStoreHost: pluto

# 11) This record creates an organization unit for Acme Cola's accounting users. The
#organization unit will be beneath Acme Cola's organization, since that #organization
was the last one defined—i.e., it is still within the "context" of the Acme Cola
organization.

IM_Type: OrgUnit
ou: accounting
```

```
# 12) This record assigns the “actcoss” class of service to the previously defined
#organization, which is Acme Cola. It specifies a maximum of 250 users for this class
#of service and says that their mail boxes will reside on the message store host
#called “pluto.” pluto will be part of the acmecola.com domain, e.g., it will
#actually be pluto.acmecola.com.

COS_Assign: acctcos
maxusers: 250
messageStoreHost: pluto

# 13) The next person record creates a user who will be loaded into the Accounting
organization unit for Acme Cola.

IM_TYPE: Person
uid: lori.stone@acmecola.com
mailCOS: acctcos
mailid: 25773708

# 14) This record creates an organization unit for Acme Cola’s marketing users. The
#organization unit will be beneath Acme Cola’s organization, since that #organization
was the last one defined—i.e., it is still within the “context” of the #Acme Cola
organization.

#At this point context is ou=accounting. To create ou=marketing below the organization
#Acme Cola, inc, the context should be changed to Acme Cola by including the following
#context record”)

context:
O: Acme Cola, inc.

IM_Type: OrgUnit
ou: marketing

# 15) The next person record creates a user who will be loaded
#into the Marketing organization unit for Acme Cola.

IM_TYPE: Person
uid: tom.terry@acmecola.com
mailCOS: mktcos
mailid: 52384575

# 16) This record creates the organization for Software.com Inc’s other client,
#Hardware.com, Inc. Once again, there is a new context record to start the new
#organization.

IM_Type: Org
O: Hardware.com, inc.
Domain: hardware.com

# 17) This record assigns the “super” class of service to the previously defined
#organization, which is Hardware.com, inc. It specifies a maximum of 35 users for this
#class of service and says that their mail boxes will reside on the message store host
#called “jupiter.” jupiter will be part of the hardware.com domain, e.g., it will
#actually be jupiter.harcom.com.

COS_Assign: super
maxusers: 35
messageStoreHost: jupiter

# 18) This record creates a user who will be loaded into Hardware.com’s top level
#organization (there are as yet no organization units defined for Hardware.com).

IM_TYPE: Person
uid: mike.davis@harcom.com
mailCOS: super
mailid: 1234567
```

Figure 11. Sample batch loading input file.

Note: *The* `IM_Type: organization` *and* `IM_Type: orgUnit` *records create their respective objects and also change the context automatically.*

3.7.4Loading the Input File

Now that the input file for Software.com, Inc. has been created, the information can be loaded into InterManager.

To load this batch file, type the following command:

```
imbatchload <batchfilename>
```

The `imbatchload` utility will create the entire Software.com, Inc. site, along with domains, organizations, organization units, and classes of service. The user records listed will be added to the correct organizations and organization units.

The Batch Loading Utility

The `imbatchload` utility is used to import data into InterManager's data hierarchy. When executed, this utility takes the contents of the specified input file(s) and imports the data into InterManager. Entries are created in the Integrated Services Directory only if they do not already exist.

The `imbatchload` utility is most commonly used to import the `sitestartup.batch` file (discussed in Section 3.3.1) and also the user batch files (discussed in Sections 3.7 and 3.8).

The syntax for using `imbatchload` is

```
imbatchload <input file> [<input file> ... ]
```

where:

`<input file>`	Specifies the name of the file that contains data entries to be added to InterManager. Multiple input files may be specified in a single execution.

3.8 Converting Data from Existing Mail Accounts

Existing InterMail customers already have mail account information stored in the Integrated Services Directory. Where InterMail account data already exists, it is possible to extract this information and use it to populate InterManager's data tables.

Adding InterMail user records to InterManager is a four-step process. The administrator must:

1. Initialize the InterManager site.
2. Extract existing InterMail account data from the Integrated Services Directory.
3. Edit the extracted data adding information to support the desired site structure.
4. Load edited data back into the Integrated Services Directory to populate the InterManager data tables.

3.8.1Understanding the Data Extraction Utility

The `imbatchextract` utility creates a text file of user information drawn from InterMail's database tables. This information is presented in a format that can be read by the `imbatchload` data loading utility.

The syntax for `imbatchextract` is as follows:

```
imbatchextract -f <output file name> [-o <object type>]
[-d <domain name>]
[-p <page size>]
[-s <starting username part of the primary SMTP address>]
[-t <till username part of the primary SMTP address>]
[-h Prints usage]
```

Where

`-f`	Specifies the name of the output file.
`-o`	Specifies the object type to be dumped. Valid object types are accounts and classes of service. The parameter used by `–o` should be a valid account or class of service name. For example, `-o premium`, would produce records for the premium class of service. If no object type is specified, then information about all accounts and classes of is listed in the output file.
`-d`	Specifies the domain name for accounts which are to be listed. For example, `-d acmecola.com` would list accounts belonging to Acme Cola's domain.
`-p`	Specifies the page size to be used while extracting account information. Too small a page size makes the extraction process too slow. Too large a page size requires greater amounts of memory. The default page size is 1000.
`-s`	Specifies the starting point for the username part of the primary SMTP address. The indicated parameter is excluded. For example, `-s g` means that the data dump will begin with accounts whose primary SMTP address begins with the letter `h`.
`-t`	Specifies the ending point for the username part of the primary SMTP address. The indicated parameter is excluded. For example, `-t l` means that the data dump will end with accounts whose primary SMTP address begins with the letter `k`.
`-h`	Prints the usage statement.

Note: *The arguments `–d`, `-p`, `-s` and `–t` are allowed only when the object type is `account`.*

3.8.2Creating a Targeted User Batch File

Using the syntax and arguments described in the previous section, it is possible to create user batch files that are very narrowly defined.

For example, the following syntax would create an output file named `acme_h-k` for all accounts whose primary SMTP addresses *begin with* the letter `h` through the letter `k`.

```
imbatchextract –f acme_h-k –s g –t l
```

This might be useful if you wanted to create smaller organization units for Acme Cola in order to reduce the workload on a single organization unit administrator. You might, for example, want to divide the one of the organization units for Acme Cola into three smaller organization units that are simply based on an alphabetical range of SMTP addresses—a-e, f-l, and m-z. The ability to specify a specific range of accounts for your `imbatchextract` output file makes it easy to batch load a narrow range of accounts into a specific organization or organization unit.

3.8.3Sample Scenario

The scenario that follows describes how to extract existing InterMail account information, supplement it with additional data, then load it back into the Integrated Services Directory for use with InterManager.

Our sample InterMail system services six users. Two are Software.com employees. The other four are employed by Megacorp. Having recently installed the InterManager application, we wish to divide these users into two distinct groups for ease of account management and eventual delegation of account management responsibility.

The desired arrangement of accounts is illustrated in
Figure 12 below.

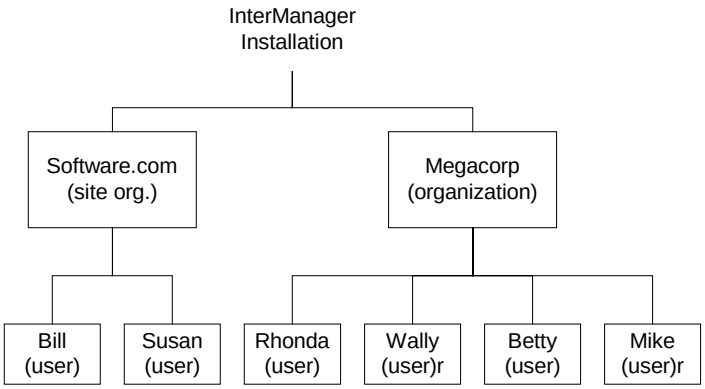

Figure 12. Desired organization of accounts extracted from existing InterMail data.

Note: *To simplify this example the number of accounts involved is artificially small, however the process can be applied to InterMail installations of any size.*

Prior Preparation

This example assumes that the InterManager application has been initialized for use. It also assumes that the site administrator has already created the organizations into which these users will be placed.

Step 1: Extract the Data

To extract existing account data, issue the following command:

```
imbatchextract -f myusers
```

This will create a batch file called `myusers`, which contains all account and class of service data extracted from InterMail.

The resulting output file (`myusers`) is shown in the following illustration:

```
option:
error: abort
erroronnonexist: account
erroronnonexist: cos

context:
provider: <provider Org name>

IM_Type: MailCOS
mailCos: default

IM_Type: MailCOS
mailCos: basic

IM_Type: MailCOS
mailCos: premium

COS_Assign: default
#maxusers: <number>
messageStoreHost: <message store host>

COS_Assign: basic
#maxusers: <number>
messageStoreHost: <message store host>

COS_Assign: premium
#maxusers: <number>
messageStoreHost: <message store host>

IM_TYPE: Person
uid: bill@software.com
mailCOS: default

IM_TYPE: Person
uid: susan@software.com
mailCOS: default

IM_TYPE: Person
uid: rhonda@megacorp.com
mailCOS: basic

IM_TYPE: Person
uid: wally@megacorp.com
mailCOS: premium

IM_TYPE: Person
uid: betty@megacorp.com
mailCOS: premium

IM_TYPE: Person
uid: mike@megacorp.com
mailCOS: premium
```

Figure 13. The `myusers` output file with empty templates.

The `myusers` batch file extracted from InterMail lists the established classes of service (default, basic, and premium) and provides information on all six existing mail accounts. In addition, a series of empty templates are presented indicating additional information required by the InterManager application. (The empty templates are shown in bold in Figure 13.)

Step 2: Edit Extracted Data

Before the file can be accepted as input to InterManager's batch loading utility, real data must be substituted for the placeholders indicated.

To edit the file, do the following:

1. Load the `myusers` file into any text editor.
2. In the `context` template, enter the service provider's name, `Software.com, Inc`.
3. Fill in the three `Cos_Assign` templates with the maximum number of users allowed for each class of service and the message store hosts on which those users mailboxes will reside
4. Add a new `context` record for Megacorp just before the user (`person`) records whose accounts belong to Megacorp's organization. This indicates a change of organization context for the records that follow.

   Note: *If you did not include a new `context` record for Megacorps's organization, all six users would be placed in Software.com, Inc's organization.*

5. Save the changes to `myusers`.

The `myusers` file with its completed templates and new `context` record, is shown in Figure 14.

```
option:
error: abort
erroronnonexist: account
erroronnonexist: cos

context:
provider: Software.com, Inc.

IM_Type: MailCOS
mailCos: default

IM_Type: MailCOS
mailCos: basic

IM_Type: MailCOS
mailCos: premium

COS_Assign: default
maxusers: 100
messageStoreHost: venus

COS_Assign: basic
maxusers: 250
messageStoreHost: neptune

COS_Assign: premium
maxusers: 25
messageStoreHost: mercury
```



```
IM_TYPE: Person
uid: bill@software.com
mailCOS: default

IM_TYPE: Person
uid: susan@software.com
mailCOS: default

IM_Type: Org
O: Megacorp, Intl
Domain: megacorp.com

COS_Assign: basic
maxusers: 250
messageStoreHost: neptune

COS_Assign: premium
maxusers: 25
messageStoreHost: mercury

IM_TYPE: Person
uid: rhonda@megacorp.com
mailCOS: basic

IM_TYPE: Person
uid: wally@megacorp.com
mailCOS: premium

IM_TYPE: Person
uid: betty@megacorp.com
mailCOS: premium

IM_TYPE: Person
uid: mike@megacorp.com
mailCOS: premium
```

Figure 14. The `myusers` output file with completed templates.

Step 3: Load Edited Data

To load the completed batch file, type the following command:

```
imbatchload myusers
```

The `imbatchload` utility loads the six users into the appropriate organizations. Now all InterMail accounts are accessible via the InterManager interface.

4

Using the Web Interface

This chapter provides a tour through the InterManager interface, and includes information on the following topics:

- Logging in to InterManager
- Logging out of InterManager
- Using the respective form types
- Getting online help
- Examples for using InterManager to create organizations and users

4.1 Logging In

The first operation that all users must perform in InterManager is to log in via the Authentication form. This form was introduced in Chapter 1, and is shown in the following illustration:

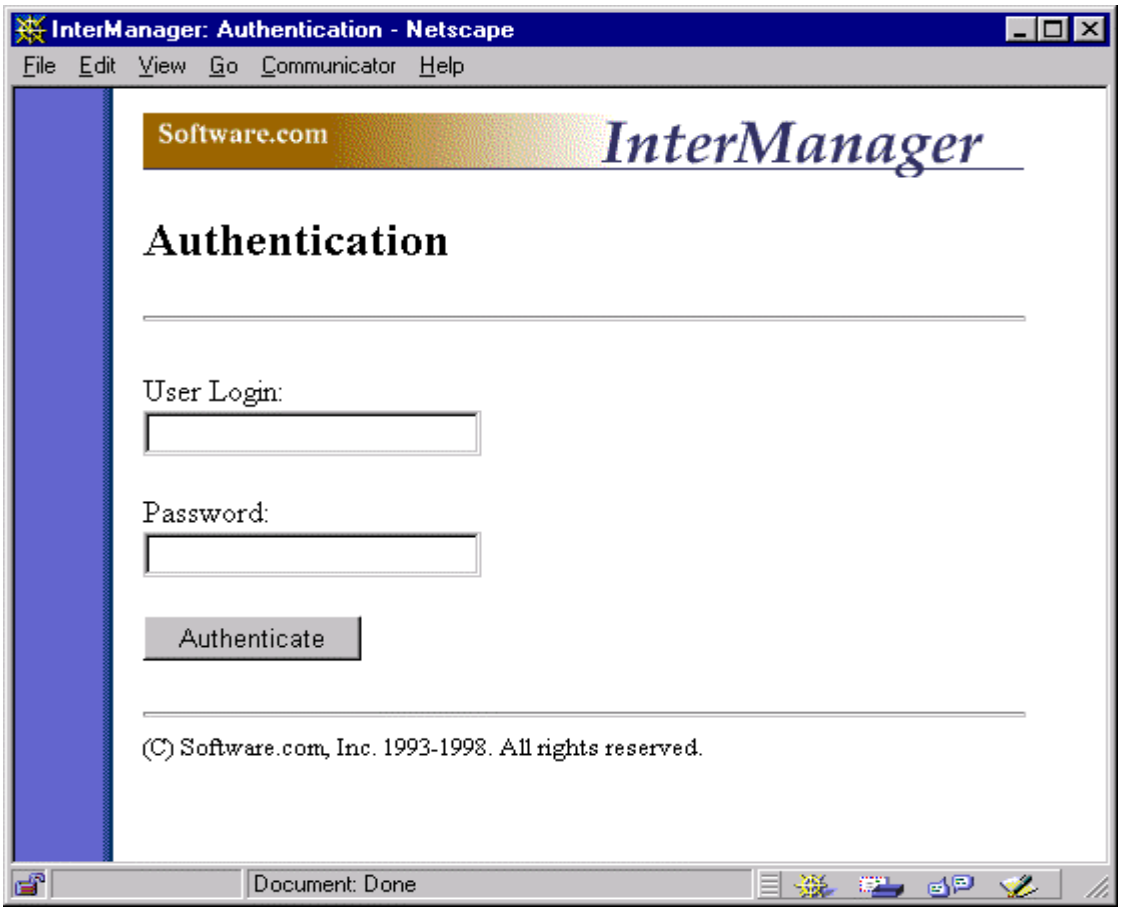

Figure 15. Authentication Information form.

To log into the interface, the user enters his or her login name and password in this form, and then clicks the **Authenticate** button. If the login information is valid, InterManager displays forms that are appropriate for the access level of the user.

For example, if the user is a customer service administrator, InterManager initially displays a form for searching organizations:

Figure 16. The customer service administrator's Find Organization form.

The tabs and buttons on this form are specific to customer service administrators and reflect the InterManager operations that they can execute. Other forms (not shown here) display options specific to site administrators, organization administrators, and organizational unit administrators.

4.2 Logging Out

Once you have logged in to InterManager, your session remains active until you request to log out, or until 30 minutes have elapsed since you last requested a form. For security purposes, administrators should always terminate their sessions by manually logging out; this prevents non-administrators from accessing InterManager via a session that was left running by an administrator.

To log out of the InterManager interface, click the 

image button at the top of any form.

When you click on the Logout button, your InterManager session is immediately terminated and the Authentication Form is displayed. You can use the browser's "back" button to access the InterManager forms that you were using before logging out, but you will be unable to execute any operation in those forms. You must re-authenticate to execute subsequent InterManager operations.

4.3 Form Types

Before using the InterManager interface, you should understand the basics of using its respective form types. There are two types of InterManager forms:

- *Administrative forms*, which allow administrators to create, modify, or delete objects under their jurisdiction.
- *Administrative search forms*, which allow administrators to search and display lists of objects, such as organizations and users.

The following sections offer examples of each of these form types, as well as instructions for using each type.

4.3.1Administrative Forms

The following illustration shows a typical InterManager administrative web form. This particular form is used by site administrators to create new domains, but it demonstrates features that are common to the forms used by all administrators:

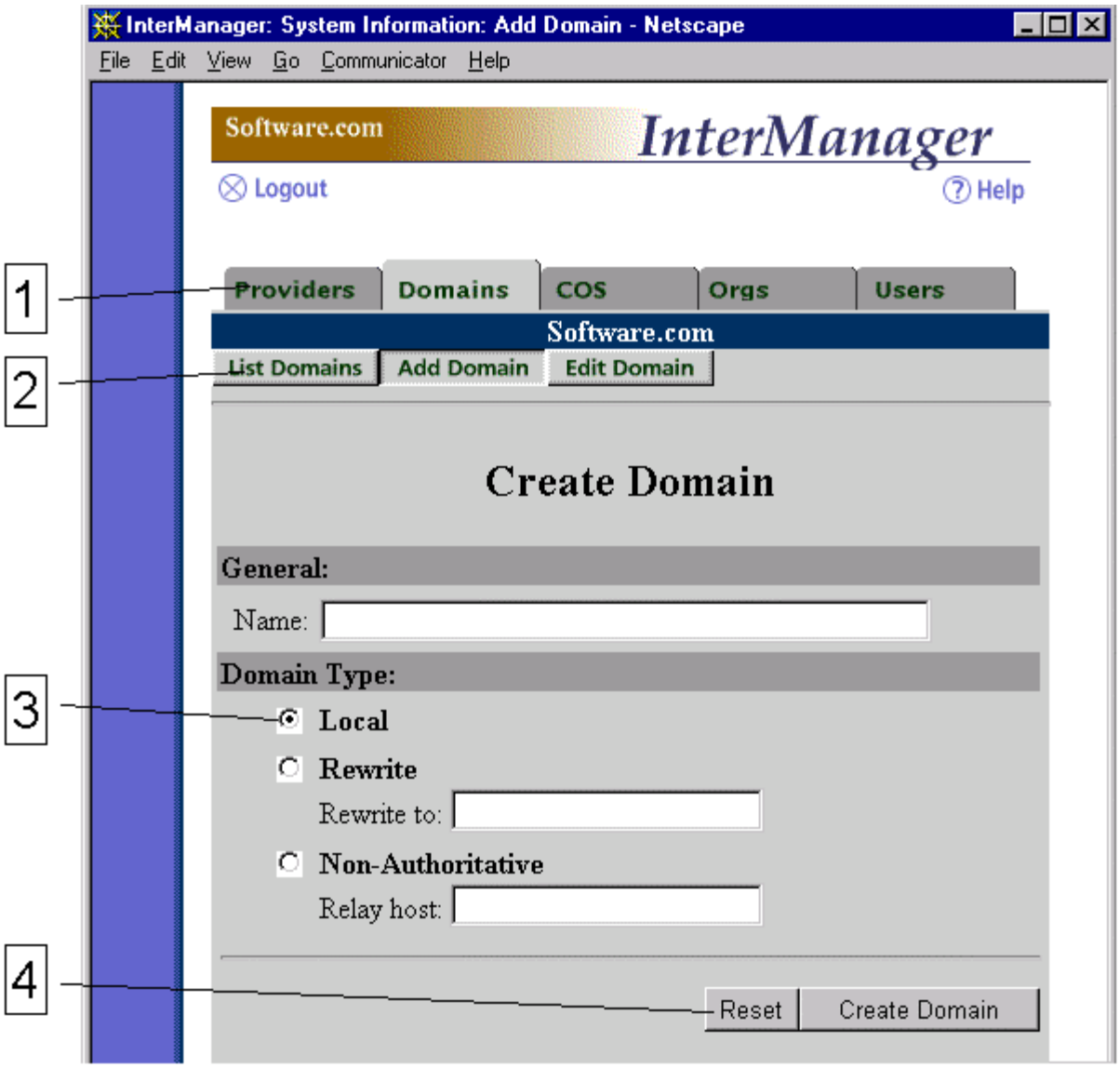

Figure 17. Create Domain form of the site administrator's interface.

Among the characteristics of InterManager web forms shown in this illustration are the following:

1. Separate tabs at the top of the form allow users to switch between forms that deal with particular data types. By clicking on one of these tabs, the user can switch from one group of forms to another. For example, clicking on the Orgs tab causes InterManager to display a menu for selecting organizations.

2. Buttons below the tabs allow users to display specific forms. By clicking on one of these buttons, the user invokes a form for carrying out a particular operation. For example, the Create Domain form is displayed when the user clicks the Add Domain button within the Domains tab. Similarly, clicking on the List Domains button displays a form for searching through existing domains.
3. Form fields allow data to be defined or modified. These fields contain the actual data that is stored in the Integrated Services Directory. By modifying the values of these fields and submitting the form, the user can commit changes to the Integrated Services Directory. For example, entering a domain name in the Name field of the Create Domain form and then submitting the form causes a domain of that name to be created in the Integrated Services Directory.
4. Execution buttons at the bottom of the form allow the user to commit changes to the Integrated Services Directory. Some execution buttons also allow changes to be discarded, or cause objects to be deleted. No objects are created, modified, or deleted in the Integrated Services Directory until the user clicks an appropriate execution button. For example, by clicking on the Create Domain button in the Create Domain form, the administrator creates a new domain in the Integrated Services Directory that has the attributes defined for it in the fields of this form.

4.3.2 Administrative Search Forms

A variation of administrative forms are search forms, which allow you to generate lists of objects based on search criteria. The following illustration shows the List Domains form, which can be used to generate a list of domains within a specific alphabetical range:

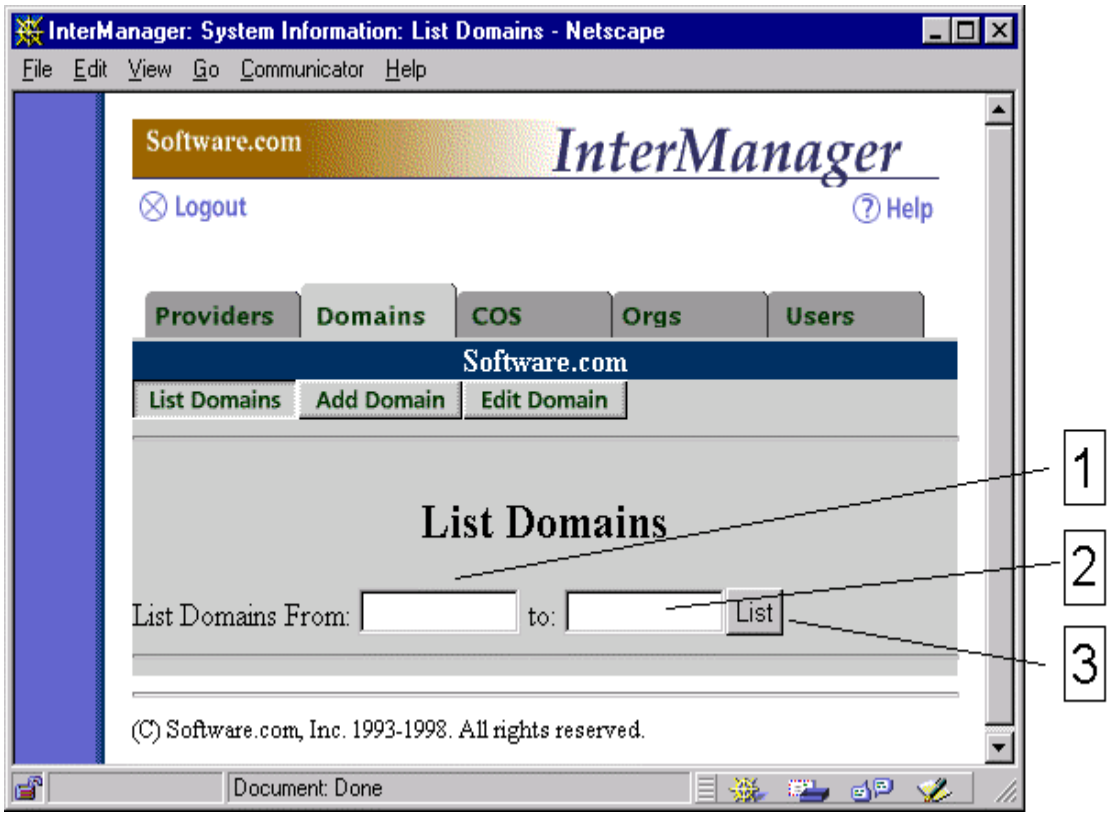

Figure 18. List Domains form of the site administrator's interface.

This form demonstrates the fields available in search forms:

1. The first search criteria field allows you to define the start of the search range. You can specify the name of a particular object in this field, or use a wildcard (*) to search for partial matches.
2. The second search criteria field defines the end of the search range.

> ***Note:*** *Not all search forms have two fields for defining search criteria. Some, such as the List Organizations form (not shown), have only a single search field.*

3. A **List** button executes the search with the given criteria. After this button is clicked, InterManager generates a list of objects whose names match the specified search criteria.

Although some InterManager objects will be few in number, most of them—including domains, organizations, and users—will number in the hundreds or thousands. Building a list of thousands of objects can take a long time in the InterManager interface. Therefore, you should always make your search criteria as specific as possible.

> ***Note:*** *To search for users across all organizations, the search should be initiated from the Users Form.*

4.4 Getting Help

Each InterManager form includes an online help link. Users can click on a help link at any time to get information about the form and the operations that are performed with it. The online help link is displayed at the top of the form, and looks like this:

When a user clicks an online help link, InterManager displays a page of help information for the form.

4.5 Sample Session: Adding a New Organization

In this section, we'll walk through the InterManager web interface to perform a common activity: adding a new organization. This operation is typically carried out by a customer service administrator when a company purchases e-mail access from the service provider. Although this example focuses on specific customer service administrator operations, the principles of these operations are similar for all administrative operations.

There are three steps that must be carried out to create a new organization:

1. The organization must be created.
2. The user who will administer the organization must be created.
3. The new user must be assigned as the organization's administrator.

The following sections illustrate the InterManager forms that are used to perform each of these steps.

4.5.1Step 1: Create the Organization

The first step in adding a new organization is to create the organization object itself. A customer service administrator can do this by clicking on the **Organizations** tab, and then clicking on the **Create** button. This displays the Create Organization form:

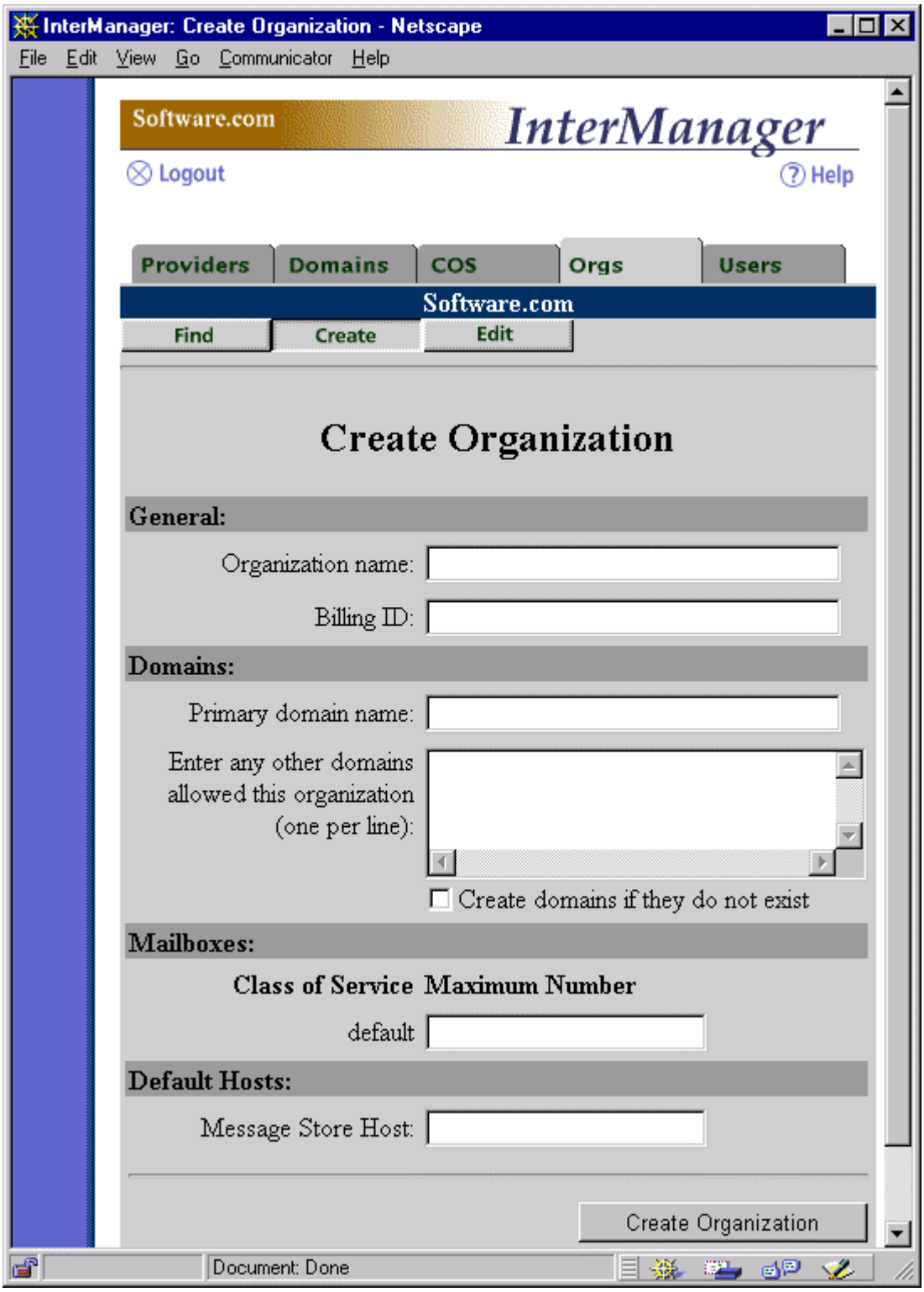

Figure 19. The customer service administrator's Create Organization form.

To create the organization, the customer service administrator enters the following information:

- The name of the organization.

- The ID number used to identify this organization in the service provider's billing system.
- The primary domain of the organization.
- Additional domains associated with the organization (if any).
- The number of e-mail accounts from each available class of service that are allocated for the organization.
- The name of the InterMail MSS host on which the organization's mailboxes will be stored.

Once this information has been entered, the customer service administrator clicks on the **Create Organization** button at the bottom of the form. This creates the organization in the Integrated Services Directory. If the user enables the option labeled **Create domains if they do not already exist**, any new domains specified for the organization will also be created.

4.5.2Step 2: Create the Administrator's Account

Although an organization can be managed by a site administrator or customer service administrator, it is typically managed by an organization administrator. This organization administrator must be a user within the organization, which means that his or her account must be created before that person can assume responsibility over the organization. Therefore, the second step required to add an organization is to create the user who will manage it.

To create a user within an organization, the customer service administrator must invoke the Create User form for the organization. To get to this form, the customer service administrator first clicks the **Find** button on the **Organization** tab. This displays the Find Organizations form:

Figure 20. Find Organizations form.

After typing in the name of the new organization in the search field, the customer service administrator clicks the **Find** button.

This displays the Organization Info form for the selected organization, which includes the links shown in the following illustration:

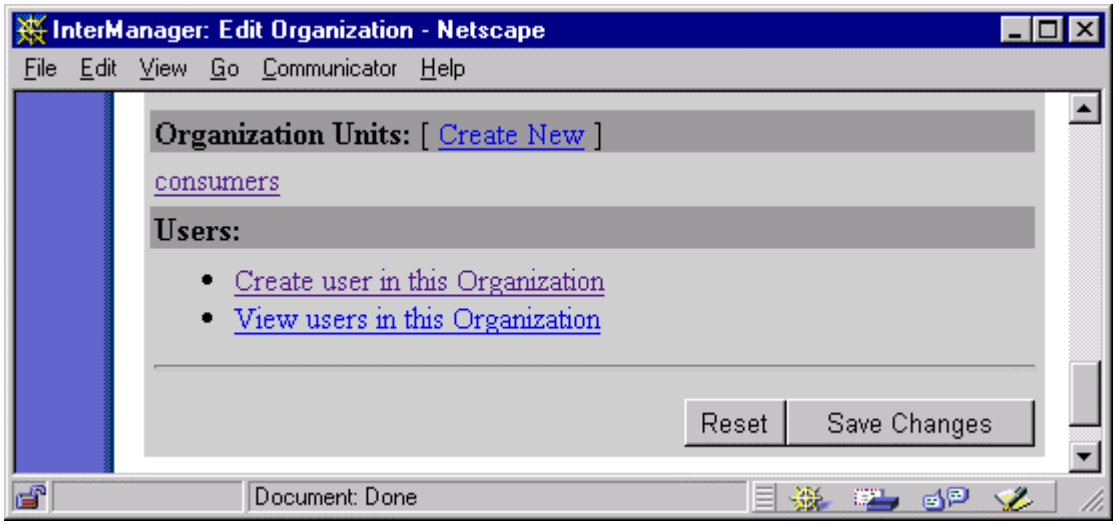

Figure 21. The bottom of the Organization Info form (complete form not shown here).

The user clicks the link labeled **Create user in this Organization**.

This displays the Create User Form, as shown in the following illustrations:

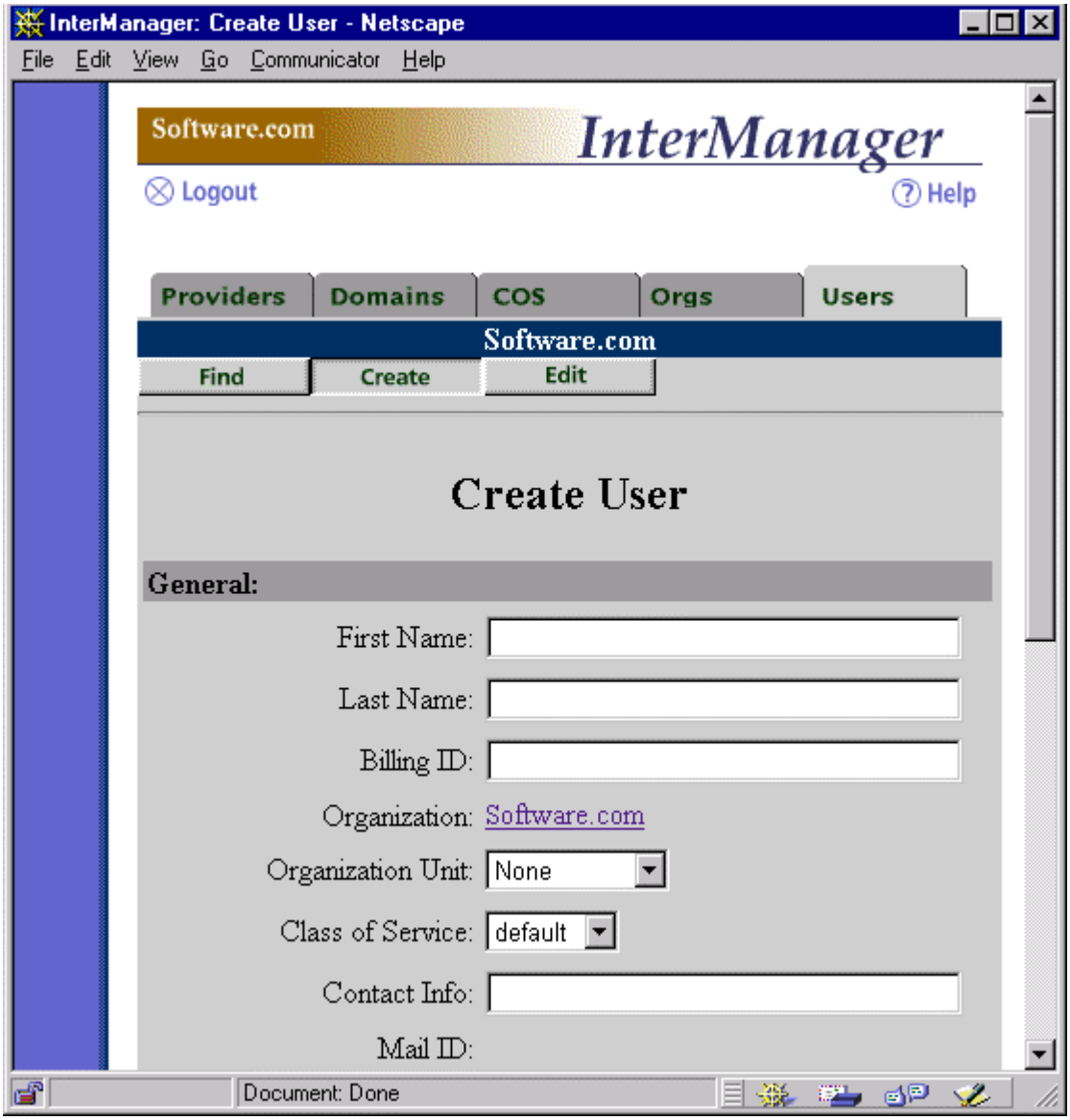

Figure 22. Create User form (part 1 of 2).

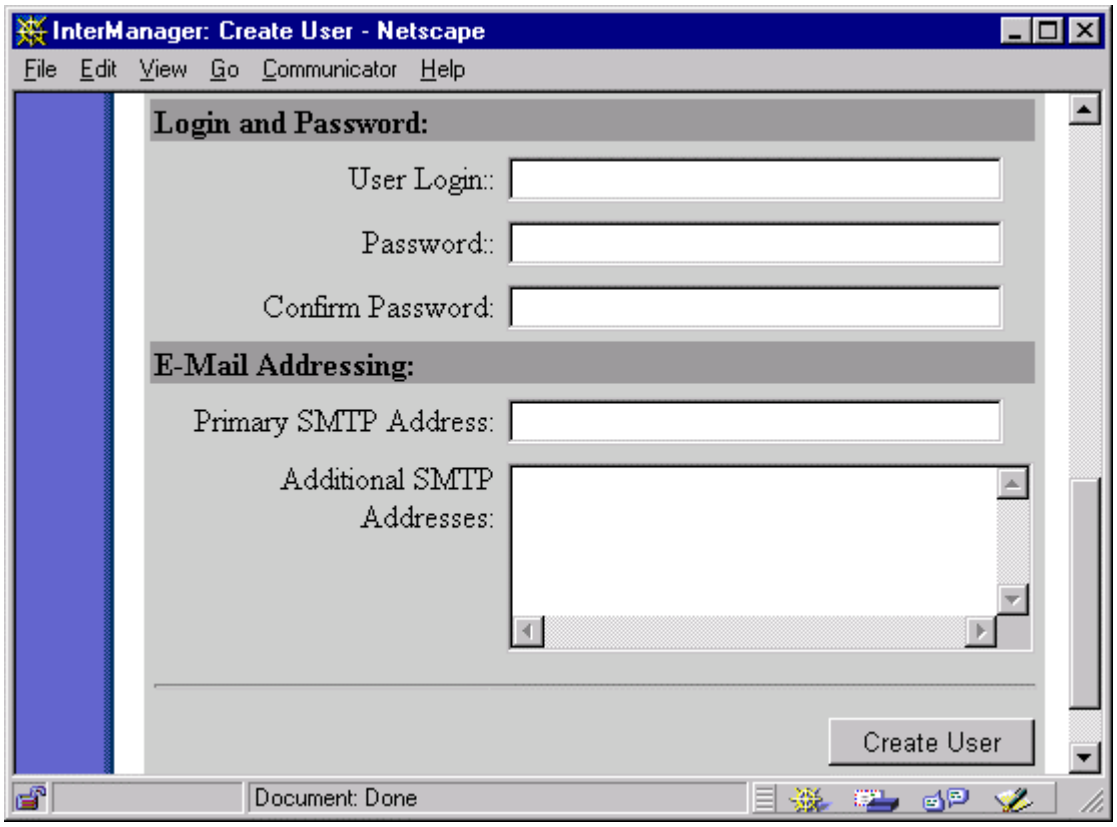

Figure 23. Create User form (part 2 of 2).

To create the user, the customer service administrator enters the following information:

- The first and last names of the user.
- The ID number used to identify this user in the service provider's billing system.
- The class of service for the user's account.

> ***Note:*** *In order for an organization administrator or organization unit administrator to be able to log in to InterManager, that administrator must be in a class of service that permits InterManager access, i.e.,* pref_intermanager *must be set.*

- A phone number or other contact information for the user.
- The user's login name and password.
- The user's primary e-mail address.
- Additional e-mail addresses (if any).
- The name of the InterMail MSS host on which the user's mailbox will be stored.

After entering this information, the customer service administrator clicks on the **Create User** button at the bottom of the form. This creates the user and its account in the Integrated Services Directory.

4.5.3Step 3: Assign the Organization Administrator

The final step in adding an organization is to assign the new user as the administrator of the organization. To do so, the customer service administrator returns to the Organization Info form for the organization:

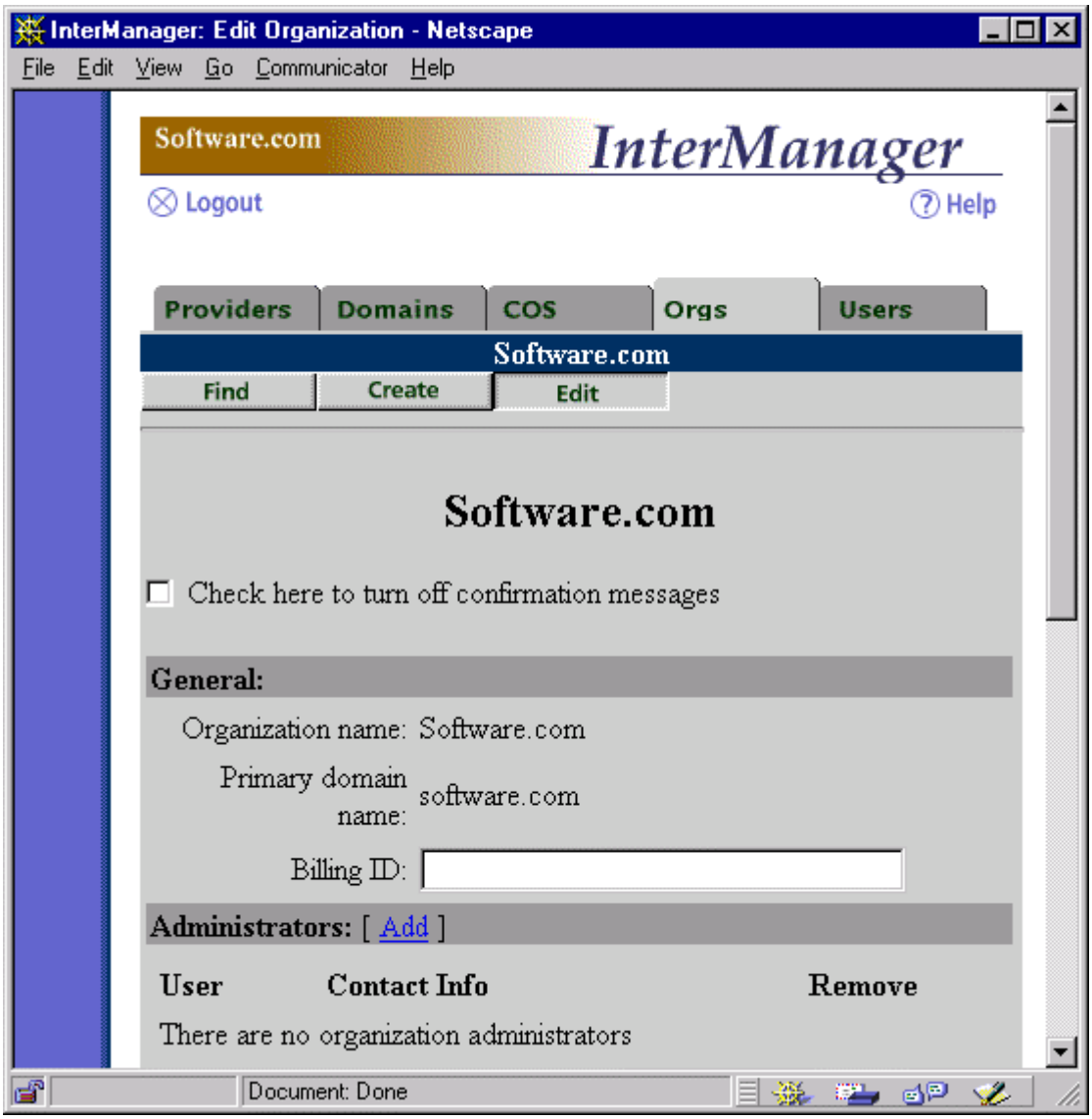

Figure 24. Organization Info form.

To assign a new administrator, the customer service administrator locates the administrator's section of the form and clicks the **Add** link. This displays an Add Administrator form:

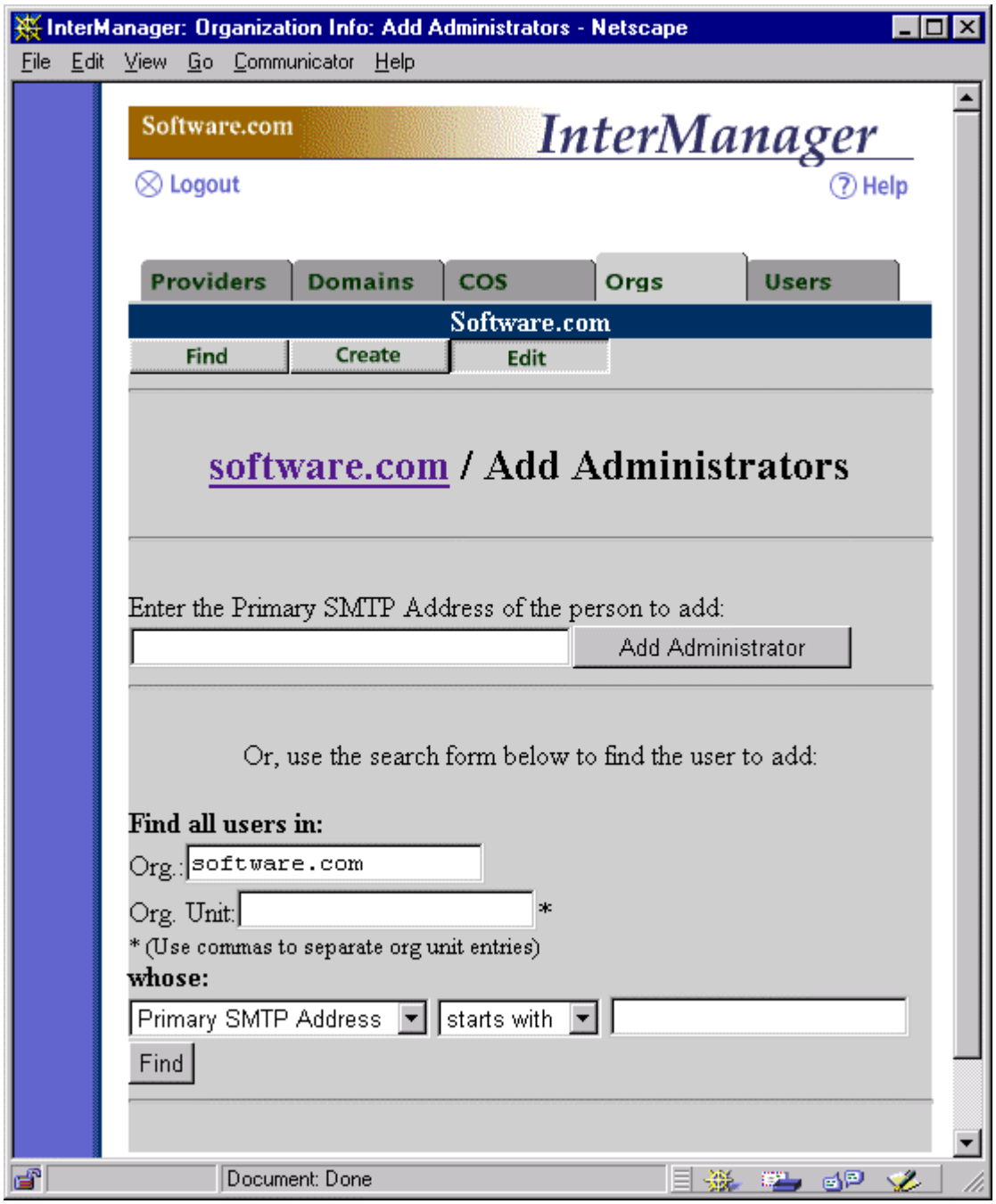

Figure 25. Add Administrator form.

To assign the new user as an organization administrator, the customer service administrator enables the check box next to the user's name on this form, and then clicks the execution button labeled **Add selected users as Organization Administrators**.

5

Customization

This chapter provides information on customization of the InterManager user interface. The topics covered in this chapter include:

- Introduction to the types of customizations available
- Examples of implementing each type of customization
- A complete list of InterManager files

5.1 Interface Customization

Customization is the process of modifying the implementation of the InterManager user interface to provide a desired look and feel. There are many different levels of changes that are possible, depending on the amount of development, maintenance and future integration that you are willing to undertake.

The InterManager interface is designed to be easily customized. The directions provided in this section provide guidelines for how to customize the interface, but they are not detailed instructions. *Customizing the interface requires expert knowledge of Perl.*

Warning! We strongly recommend that you undertake customizing the product only if it is necessary for the success of the product. You must also plan for maintenance and integration work with future versions of InterMail.

The general types of customizations that can be performed are:

- Branding
- User interface presentation
- Form text modifications
- Adding new form fields

These customization techniques are described in the following sections.

5.1.1Branding

Branding of a user interface involves the representation of names and logos of the product and its provider. A common branding operation is replacing the initial product logo graphics with the service provider's name and logo. Branding typically does not require editing of the scripts that define the InterManager interface forms, and is therefore the easiest type of customization.

Branding is carried out by replacing graphic files in the InterManager `images` directories with graphic files created by the service provider.

Example

In this example, we want to replace the default background image used by InterManager organization administrator forms with a site-specific graphic that includes the service provider's logo. To make this change, execute the following steps:

1. Locate the httpd/`htdocs/OA/images` directory. This is the directory that contains the images for the InterManager interface for organization and organization unit administrators.
2. Move (or rename) the file `background.gif`. This is the background image used for organization and organization unit administrator forms.
3. Create your custom graphic, and save it as `background.gif`.
4. Copy your graphic file to the `httpd/htdocs/OA/images` directory.

After these changes are made, all organization administrators will see the new background image when viewing InterManager forms.

Note: *When replacing graphics, the new file must have the same name (including case) as the replaced file. It is also highly recommended that the new graphic be the identical size (height and width) as the replaced graphic.*

5.1.2User Interface Presentation

User interface presentation customization involves modifications to the way that information is presented in the InterManager web forms, but not the information itself. This type of customization typically involves changes to the form layout. For example, you may want to change the location of the execution buttons on a form.

Some form components—such as the width of the tab bar—are very easy to change. Others are more complicated, such as replacing the tabs with frames. The code that defines the form presentation is separate from the code used to process input and output, so it is relatively easy to make presentation-related changes.

To make these types of presentation changes, you must edit Perl modules named `OA.pm` and `SA.pm`, which contain the presentation-related code used in the interface. By modifying the contents of these files, you can change the user interface presentation for all InterManager forms.

Example

In this example, we want to remove the folder tabs at the top of InterManager forms for organization and organization unit administrators and replace them with navigation buttons on the left side of the screen:

1. Mock up the new layout using the HTML editor of your choice. You should encapsulate the navigational elements from the rest of the document, which makes the process simpler.
2. Make the appropriate changes to `OA.pm`. These changes require editing the following functions:
   - `print_formatting_top()`. Replace the current default background graphics and/or colors with your own. Make any necessary modifications to the HTML table so that your new layout will fit in correctly.
   - `print_navigation()`. Replace the contents of this function with your own HTML code that includes the navigation buttons.
   - `print_formatting_bottom()`. Close up any tables you opened in the first two functions, and generally wrap things up (including the closing `</HTML>` tag).

If you view the source code to any of the InterManager web forms (after they have been processed and returned to your browser), you will see a series of comments that indicate where each of these functions has begun and ended its work. For example:

```
<!-- Begin print_formatting_top() -->
<!-- End print_formatting_top() -->
... etc.
```

From this, you can get a good idea of how the pages are laid out, and you will see how the entire look of the web pages can be changed by modifying these routines.

5.1.3Form Text Modifications

Another common method of interface customization is *form text modifications*. This type of customization involves modifying the text that is shown in the InterManager interface, but not the structure or layout of the forms themselves. Form text modifications are useful for providing additional user help, site-specific information, or translating the InterManager interface into other languages.

All InterManager form text—including field labels, error messages, and `ALT` text shown in place of images—is defined in a pair of files (`OA_msgs.pl` and `SA_msgs.pl`). Changing form text is as simple as editing these files, which contain separate sections for each form script and message type.

Each line in these files contains a variable definition like the following:

```
$msg_DefaultWindowTitle = 'InterManager';
```

The first part of each line (in this case, `$msg_DefaultWindowTitle`) specifies the name of a variable contained in a InterManager form script. When a script is executed, each variable contained in the script is replaced by the value defined for it in `OA_msgs.pl` or `SA_msgs.pl` (in this case, `'InterManager'`).

Example

In this example, we want to add site-specific technical support information to the message shown to organization administrators who enter incorrect login data. To make this change, execute the following steps:

1. Open `OA_msgs.pl` in a text editor.
2. Locate the section of the file that is preceded by the line

   ```
   # General Messages
   ```
3. Locate the variable named `$msg_AuthFailed` in this section.
4. Modify the value of the variable to include your site-specific information. For example, you might change the default entry

   ```
   $msg_AuthFailed = 'Authentication failed; please try again.';
   ```

   to

   ```
   $msg_AuthFailed = 'Authentication failed, please try again. If this
   problem continues, contact Mega-ISP Technical Support at 805-555-
   1234.';
   ```
5. Save and close the file.

After these changes have been made, all subsequent organization administrators who enter incorrect login data will see the new message.

5.1.4Adding New Form Fields

The InterManager user interface is designed to be easily extended to include new form fields. There are two types of data fields that can be added with minimal changes:

- Class of service attributes
- LDAP person attributes

Class of Service Attributes

To add a new class of service attributes to InterManager, copy the file `customCos.pl` (in the `SA` directory) to `customCos_local.pl`. This file contains a data structure that is used to describe any custom class of service attributes that you want to display in the GUI. The format of this information is:

```
%SA::CustomCOS = (
                ...
                attribute_name => {type => { boolean | data },
                                   description => "Descriptive text"},
                ...
                    );
```


For example, say you have created a new class of service attribute that controls whether a user receives your weekly e-mail newsletter. We will assume that you follow InterMail conventions and have named this attribute `pref_sendnewsletter`. The associated permission attribute that controls the end user's ability to set this option would therefore be named `perm_sendnewsletter`. To add these attributes to the InterManager interface, insert the following text into `customCos_local.pl`:

```
%SA::CustomCOS = (
     'pref_sendnewsletter' => {'type'=>'boolean',
                               'description' =>"SendNewsletters"},
     'perm_sendnewsletter' => {'type'=>'boolean',
                               'description' => 'Allow end user to
                                 set their sendnewsletter value'}
                );
```

When this information is entered in `customCos_local.pl`, the new permission attribute automatically appears at the bottom of the forms used to create, modify, and compare classes of service. The new preference automatically appears in the Edit User form.

Note: *For information on creating new class of service attributes, refer to the Integrated Services Directory Reference Guide.*

LDAP Person Attributes

LDAP person attributes define address book information and other user-specific directory data. To add new LDAP person attributes to InterManager, copy the file `customLdap.pl` (in the `SA` directory) to `customLdap_local.pl`. This file contains a data structure that you use to describe any new LDAP attributes you want associated with a person. The format of this information is:

```
%SA::CustomLdapPerson = (...
              attribute_name => {values => { single | multi },
                                 description => "Descriptive text"},
              ...
                        );
```

For example, to add the `facsimileTelephoneNumber` attribute to the InterManager interface, you would add the following entry to `customLdap_local.pl`:

```
%SA::CustomLdapPerson = (
                         'facsimileTelephoneNumber' => {
                             'description' => 'Fax:',
                             'values' => 'single'}
                         );
```

When this information is entered in `customLdap_local.pl`, the new attribute automatically appears in the Address Book portion of the Edit User form.

5.2 InterManager Files

InterManager files are installed as part of the InterCore installation, and are stored in two directories:

- `httpd/htdocs/SA`, which contains forms and images used by site administrators and customer service administrators.
- `httpd/htdocs/OA`, which contains forms and images used by administrators of organizations and organization units.

5.2.1Site Administrator/Customer Service Administrator Files

The following table displays the files in the `SA` directory:

File	Description
`addAdmin.cgi`	This script generates the form that a site administrator uses to add customer service administrators and other site administrators to the system.
`addOrgAdmin.cgi`	This script generates the form that allows a site administrator to add administrators to an organization or organization unit.
`addOrgCos.cgi`	This script generates the form that allows a site administrator to add classes of service to an organization.
`addOrgDomains.cgi`	This script generates the form that allows a site administrator to add domains to an organization.
`authenticate.cgi`	This script processes login requests.
`authentication.cgi`	This script generates the authentication form.
`compareCos.cgi`	This script generates the form that a site administrator uses to compare the features of all classes of service on the system.
`cos.cgi`	This script generates the form that a site administrator uses to create or modify a class of service.
`createOrganization.cgi`	This script generates the form that a site administrator uses to create organizations.
`createOrgUnit.cgi`	This script generates the form that a site administrator uses to create organization units.
`domain.cgi`	This script generates the form that a site administrator uses to edit or create a domain in InterMail.
`editMailTemplate.cgi`	This script generates the form that allows a site administrator to edit the default mail template for an organization.
`editOrganization.cgi`	This script generates the form that allows administrators to edit an organization.

File	Description
`editOrgUnit.cgi`	This script generates the form that a site administrator uses to edit organization units.
`help.cgi`	This script generates the help page.
`html-help/*`	Online help pages.
`images/*`	Images used in the interface.
`listCos.cgi`	This script generates the form that a site administrator uses to list the existing classes of service on the system.
`listDomains.cgi`	This script generates the form that a site administrator uses to list the domains on the system.
`logout.cgi`	This script expires an InterManager web session and takes the user back to the authentication form.
`organizations.cgi`	This script generates the form that a site administrator uses to search for and list organizations.
`SA.pm`	Perl module that defines common form code, such as basic layout.
`saveCos.cgi`	This script takes the input of a class of service and does error checking before committing the changes to the database.
`saveDomain.cgi`	This script takes the input of `domain.cgi` and commits it to the database.
`saveNewOrganization.cgi`	This script takes the input of `createOrganization.cgi` and commits the information to the database.
`saveOrganization.cgi`	This script takes the input of `editOrganization.cgi` and commits the information to the database.
`saveOrgUnit.cgi`	This script takes the input of `editOrgUnit.cgi` and commits it to the database.
`saveSite.cgi`	This script takes the input of `site.cgi` and `addAdmin.cgi` and saves the changes to the database.
`saveUser.cgi`	This script takes the input of `user.cgi` and saves the changes to the database.
`SA_msgs.pl`	File that contains the text displayed on web forms. All label text, error messages, and result text for site administrators and customer service administrators is defined in this file.
`site.cgi`	This script generates the form that a site administrator uses to list site administrators and customer service representatives.
`user.cgi`	This script generates the form that a site administrator uses to create or edit an InterManager user.
`users.cgi`	This script generates the form that a site administrator uses to list InterManager users.

5.2.2Organization/Organization Unit Administrator Files

The following table displays the files in the `OA` directory:

File	Description
`addOrgAdmin.cgi`	This script generates the form that allows an organization administrator to add administrators to an organization unit.
`authenticate.cgi`	This script processes login requests.
`authentication.cgi`	This script generates the authentication form.
`compareCos.cgi`	This script generates the form that an organization administrator uses to compare the features of all classes of service on the system.
`createOrgUnit.cgi`	This script generates the form that an organization administrator uses to create organization units.
`editOrgUnit.cgi`	This script generates the form that an organization administrator uses to edit organization units.
`help.cgi`	This script generates the help page.
`html-help/*`	Online help files.
`images/*`	Images used in the interface.
`logout.cgi`	This script expires an InterManager web session and takes the user back to the authentication form.
`OA.pm`	Perl module that defines common form code, such as basic layout.
`OA_msgs.pl`	File that contains the text displayed on web forms. All label text, error messages, and result text for organization and organization unit administrators is defined in this file.
`organization.cgi`	This script generates the form that allows organization administrators to edit an InterManager organization.
`saveOrgUnit.cgi`	This script takes the input of `editOrgUnit.cgi` and commits it to the database.
`saveUser.cgi`	This script takes the input of `user.cgi` and saves the changes to the database.
`user.cgi`	This script generates the form that an organization administrator uses to create or edit an InterManager user.
`users.cgi`	This script generates the form that an organization administrator uses to list InterManager users.

A

Appendix A - Architecture

This appendix includes a brief overview of InterManager architecture. Although knowledge of this information is not required to implement and use InterManager, it is useful for sites that want to integrate InterManager with other programs.

InterManager Architecture

The following diagram illustrates the architecture of InterManager:

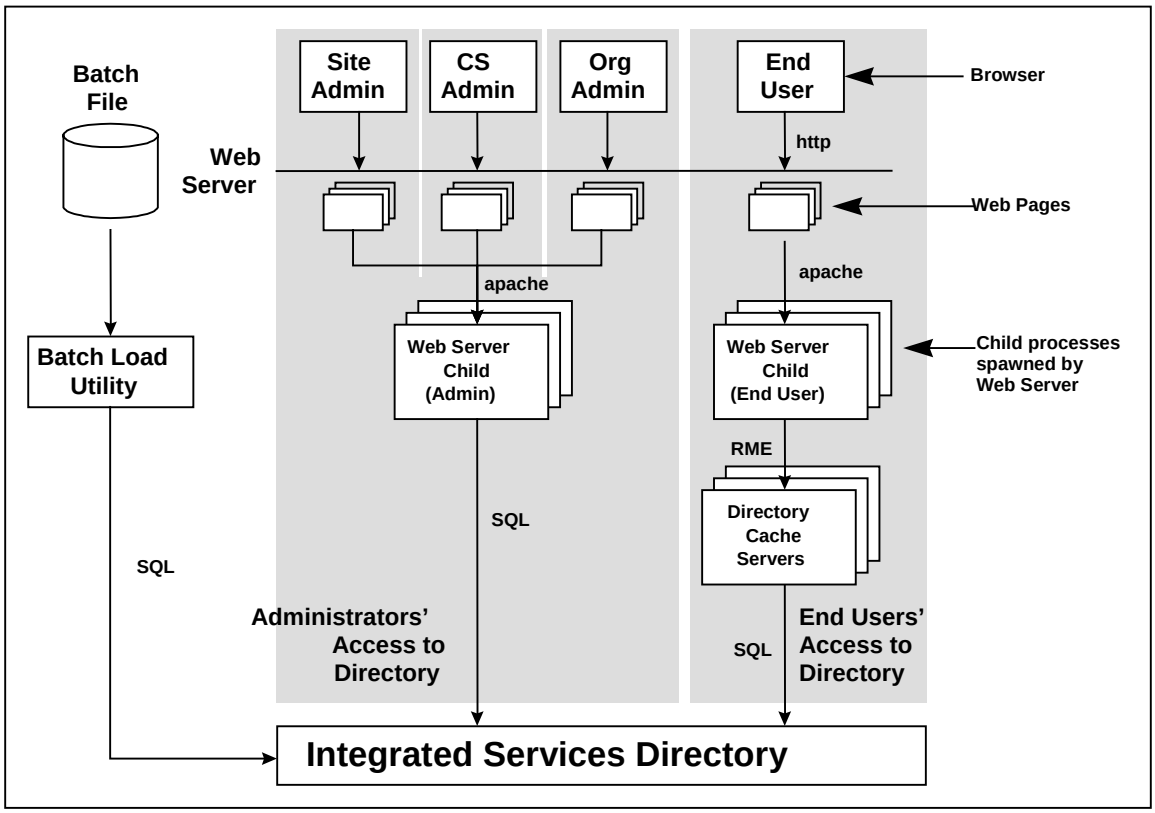

Figure 26. InterManager architecture. The end user interface is via the SelfCare interface.

As illustrated in this diagram, there are three methods available to enter InterManager data into the Integrated Services Directory:

- Through the InterManager batch loading utility.
- Via the InterManager administrator interface.
- Via the InterMail SelfCare interface for end users.

Batch Loading

InterManager data can be added to the Integrated Services Directory with the `imbatchload` utility (described in Chapter 3). This utility reads in an input file containing specifically formatted data that defines the new objects. The utility parses the input file, and then uses SQL to add the new objects directly to the Integrated Services Directory.

InterManager Web Interface

The most common method of creating or modifying InterManager data is through the administrative web interface. This is the interface used by site administrators, customer service representatives, organization administrators, and organizational unit administrators.

When an administrator submits changes through the InterManager interface, the information is given to a web server process. This server then calls on InterManager API functions to create the appropriate data objects. These API functions in turn call InterMail API functions, which enter the data into the Integrated Services Directory via SQL.

SelfCare Web Interface

Changes submitted by end users through the SelfCare interface require more steps than changes submitted by administrators. When an end user submits changes via SelfCare, the information is given to a web server process. This server then queries the Directory Cache Server (via RME) to determine whether the end user is authorized to make the changes. If the Directory Cache Server reports that the end user does *not* have the proper access, the submission is rejected, and the web server process informs the end user that the changes could not be made. If the end user's changes are authorized, the Directory Cache Server uses SQL to write the changes to the Integrated Services Directory.

B

Appendix B - Directory Information Tree

This appendix includes information on the InterManager Directory information tree (DIT), which is represented by the following illustration:

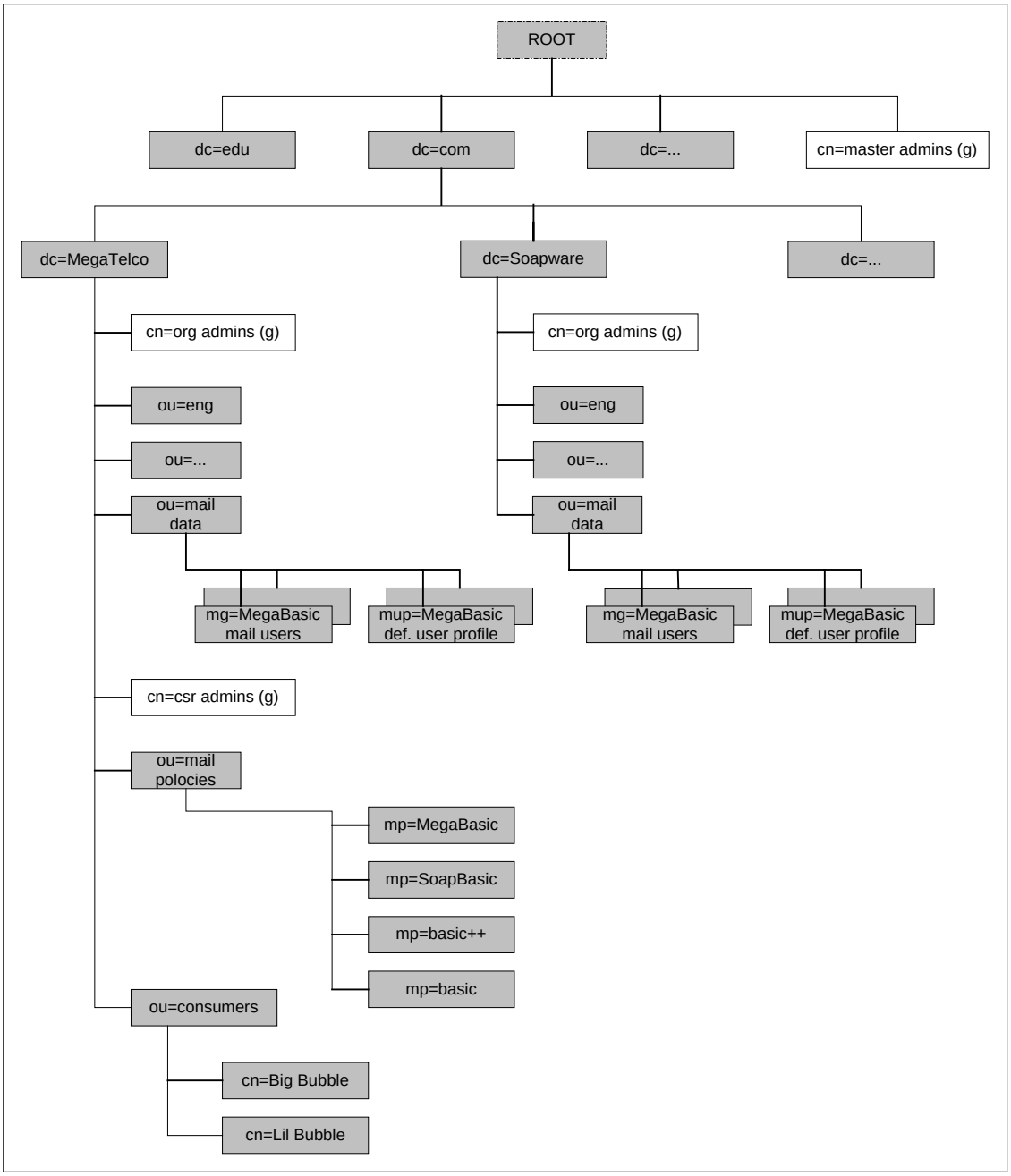

Figure 27. The InterManager Directory Information Tree.

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