

# Internet Express for Tru64 UNIX

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## Installation Guide

**April 2006**

**Product Version:** Internet Express Version 6.5 for Tru64 UNIX

**Operating System and Version:** HP Tru64 UNIX Version 5.1A and higher

This manual describes how to install and configure Internet Express on a system running the HP Tru64 UNIX operating system.

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# About This Manual

This manual explains how to install and configure components included with Internet Express Version 6.5 on a system running HP Tru64 UNIX Version 5.1A and higher.

## Audience

To use this manual, you should be familiar with installing software on an AlphaServer running the Tru64 UNIX operating system.

## Organization

This manual consists of the following chapters:

<i>Chapter 1</i>	Provides an overview of the installation procedure, describes prerequisites for installation, and provides worksheets to help you gather information required to configure your Internet network.
<i>Chapter 2</i>	Explains how to install or update Internet Express using the browser-based interface to the installation procedure.
<i>Chapter 3</i>	Describes how to complete and verify the Internet Express installation.
<i>Chapter 4</i>	Describes how to correct problems during the installation.

## Related Documentation

The Internet Express Documentation Bookshelf provides access to the following documents:

- *Release Notes* — This manual includes release notes for Internet Express.
- *Read This First* — This manual describes the contents of the kit.
- *Installation Guide* — This manual.
- *Administration Guide* — This manual contains information on how to use the Administration utility to perform day-to-day maintenance tasks on a Tru64 UNIX system. When you run the Administration utility in a Web browser, this manual is linked to the utility to provide online help.
- *Secure Web Server Administration Guide* — This manual describes how to use the Secure Web Server Administration utility.
- *Internet Services User's Guide* — This manual explains how to get started with e-mail, the TIN news reader, and a Web browser using a character-cell terminal.
- *Internet Monitor Administrator's Guide* — This manual describes how to install, configure, and use the Internet Monitor software.
- *QuickSpecs* — This document is a specification of the Internet Express product.
- *Software Description and Licensing Terms* — This document describes the terms and conditions for software packaged with the current version of Internet Express.
- *Master Index* — This manual provides a master index to important topics covered in the Internet Express documentation set.

- *Best Practices* — These documents provide you with recommended methods for performing specific tasks, rather than presenting all options.  
Additional Best Practices are available at the Tru64 UNIX Publications Web site:  
`http://h30097.www3.hp.com/docs/best_practices/`
- *Reference Pages* — These reference pages are supplied with components that can be installed and managed using Internet Express.

## Reading the Documentation

This section describes the different methods for accessing the Internet Express documentation.

The documentation is available in the following formats:

- HTML
- Portable Document Format (PDF)

## Reading Documentation Using the Administration Utility

After installation of the Secure Web Server subset (IAEAPCH), the Internet Express Documentation subset (IAEDOC), and the Internet Express Administration utility (IAEADM subset), you need access to the Administration utility for Internet Express (as described in the *Administration Guide*), so that you can read the documentation following the link from the Web page at:

```
http://hostname.domain:8081
```

where *hostname.domain* is the host name and domain of the system running Internet Express.

## Reading Documentation Using the Public Web Server

You can also read the documentation without the Administration utility by using the public Web server (if you chose to configure one) to access the documentation index page at `http://hostname.domain/documents/bookshelf.html`. If this URL does not work, verify that the Web server configuration file, `/usr/internet/httpd/admin/conf/httpd.conf`, contains the following line:

```
Alias /documents/ "/usr/internet/docs/IASS/"
```

The Internet Express documentation files are installed in the `/usr/internet/docs/IASS` directory.

- You can access the Documentation Bookshelf installed on your system by entering the following URL (substituting the name of your system for *hostname*) in your browser:

```
http://hostname/documents/bookshelf.html
```

- You can also read the installed documentation directly from the file system using a Web browser running on the same system by using the file URL:

```
file:/usr/internet/docs/IASS/bookshelf.html
```

## Reading Documentation from the Internet Express Installation and Documentation CD-ROM

You can also access the Documentation Bookshelf on the Internet Express Installation and Documentation CD-ROM from your Tru64 UNIX System or a PC.

## On a Tru64 UNIX System

To read the documentation from the Internet Express Installation and Documentation CD-ROM on an AlphaServer system:

1. Log in to your system as root.
2. Insert and mount the CD-ROM, replacing *drive* with the name of your CD-ROM drive:

```
# mount /dev/drive /mnt
```

Usually this will be:

```
# mount /dev/disk/cdrom0c /mnt
```

3. In a Web browser, open the Documentation Bookshelf file by entering the following URL:

```
file:/mnt/index.htm
```

4. Click on the book you want to open.

## On a PC

To read the documentation from the Internet Express Installation and Documentation CD-ROM on a PC:

1. Insert the CD-ROM into your PC's CD-ROM drive.

The Bookshelf page is automatically displayed in your browser.

If the Bookshelf does not appear, open the following URL, replacing *drive* with the letter of your CD-ROM drive:

```
file:drive:\index.htm
```

2. Click on the book you want to open.

## Reading Reference Pages for Internet Express Components

Reference pages for Internet Express components are available in HTML format from the *Internet Express Reference Pages* index page. These HTML reference pages can be viewed using a Web browser.

Alternatively, you can view these reference pages from a command line in a terminal window, if you modify the search path for the `man(1)` command.

The `man(1)` command's search path needs to include the following directories for Internet Express component reference pages:

```
/usr/share/man  
/usr/local/man  
/usr/internet/pgsql/man  
/usr/internet/openldap/man  
/usr/news/man  
/usr/local/samba/man  
/usr/internet/httpd/man  
/usr/opt/hpapache2/man
```

You can specify an alternative search path when entering the `man` command by using the `M` or `P` options; for example:

```
# man -M /usr/news/man active.5
```

You can also define the `man` command's `MANPATH` environment variable on the command line or in a file, such as your `.profile` file or `.login` file.

For example, suppose your `MANPATH` environment variable was defined to be the following:

```
/usr/share/man:/usr/dt/share/man:/usr/local/man
```

If you are using the `sh` or `ksh` shell, you could modify the `MANPATH` to add to the search path by adding the following:

```
# set MANPATH $MANPATH:/usr/internet/pgsql/man:/usr/internet/openldap/man:/usr/news/man: \
/usr/local/samba/man:/usr/internet/httpd/man:/usr/opt/hpapache2/man

# export MANPATH
```

If you are using the `csh` shell, you would use a command line like the following:

```
# setenv MANPATH $MANPATH:/usr/internet/pgsql/man:/usr/internet/openldap/man: \
/usr/news/man:/usr/local/samba/man:/usr/internet/httpd/man:/usr/opt/hpapache2/man
```

For details about defining reference page search paths, see `man(1)`.

## Reading the Open Source Software Component Documentation

The product kit also provides documentation (in ASCII text and HTML) for software components included with Internet Express. This documentation is located in the `/usr/internet/docs` directory on the system where Internet Express is installed.

## Reader's Comments

HP welcomes any comments and suggestions you have on this and other Tru64 UNIX manuals.

You can send your comments in the following ways:

- Fax: 603-884-0120. Attn: USPG Publications, ZKO3-3/Y32.
- Internet electronic mail: `readers_comment@zk3.dec.com`

A Reader's Comment form is located on your system in the following location:

```
/usr/doc/readers_comment.txt
```

The Tru64 UNIX Publications Group cannot respond to system problems or technical support inquiries. Please address technical questions to your local system vendor or to the appropriate HP technical support office. Information provided with the software media explains how to send problem reports to HP.

## Conventions

The following typographical conventions are used in this document:

- |              |  |
|--------------|--|
| #            | A number sign represents the superuser prompt.   |
| #            | A number sign represents the superuser prompt.   |
| % <b>cat</b> | Boldface type in interactive examples indicates typed user input.  |
| <i>file</i>  | Italic (slanted) type indicates variable values, placeholders, and function argument names.                |
| cat(1)       | A cross-reference to a reference page includes the appropriate section number in parentheses. For example, |

`cat(1)` indicates that you can find information on the `cat` command in Section 1 of the reference pages.

`Return`

In an example, a key name enclosed in a box indicates that you press that key.

`Ctrl/x`

This symbol indicates that you hold down the first named key while pressing the key or mouse button that follows the slash. In examples, this key combination is enclosed in a box (for example, `Ctrl/C`).



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## Installation Overview

You can run the Internet Express installation procedure in a Web browser or on the command line. You choose the method you want to use early in the installation process. Chapter 2 explains how to use a Web browser to install Internet Express.

After completing the installation, perform some of the tests described in Chapter 3 to verify the installation. For troubleshooting information, see Chapter 4.

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### Note

When run in a Web browser, the installation procedure provides links to this document for online help in HTML format.

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### 1.1 Installation Prerequisites

For information on supported hardware configurations, see the *QuickSpecs*. Table 1-1 describes the minimum system configuration recommended for Internet Express Version 6.5.

**Table 1-1: Minimum System Configuration Recommended for Internet Express Version 6.5**

Maximum /usr file system disk space	Approximately 980 MB for a full installation of all components.
Memory	256 MB
Operating system version	Tru64 UNIX Version 5.1A and higher

Disk space and memory requirements can vary depending on your system configuration and the Internet Express subsets you install.

Most of the disk space required by the Internet Express Version 6.5 installation is in the /usr file system. Less than 400 KB is required in the / (root) file system and 1.6 MB in the /var file system, except that during the installation procedure, approximately 1 MB of extra space is temporarily used in the /var file system.

To avoid any potential installation errors or system misconfiguration, the installation procedure verifies that the required amount of swap space is available before installing each subset. Subsets will not be installed if the available swap space drops below 20 percent.

If this should happen, you can add another swap partition. (See `swapon(8)`.) If you allow the installation procedure to switch your system to deferred (or lazy) swap mode, you can reboot the system for the swap mode to take effect. The deferred swap mode will allow you to make more efficient use of your swap space. Once the swap space problems are solved, you can rerun the installation procedure to install any chosen subsets that did not get installed earlier.

Certain Internet Express components require the Java Environment to be installed prior to the installation of the subset. Table 1-2 shows the components and the minimum Java Environment (JAVA<sub>nnn</sub> or OSFJAVA<sub>nnn</sub> subset) required.

**Table 1-2: Java Requirements for Components**

Component	Subset Name	Required Java
Internet Monitor	IAEMON	Java SDK 1.3.1 or later
LDAP Browser	IAEOLDAP	Java JRE/SDK 1.3.1 or later
Axis Server	IAESOAPO	Java JDK/SDK 1.3.1 or later
Axis/UDDI4J Clients	IAEXMLJLIB	Java JDK/SDK 1.3.1 or later
Tomcat	IAETOMCAT	Java JDK/SDK 1.3.1 or later

The JDK kit can be downloaded from the following Web site:

<http://h18010.www1.hp.com/java/download/index.html>

If Internet Express is already installed on your system, you do not need to remove it before installing Version 6.5 of the product. The Version 6.5 installation procedure updates your earlier version, preserving configuration files and user data. Updates from Versions 6.3 and 6.4 to 6.5 are supported, and updates from earlier versions should also work. (Earlier versions of this product are named Open Source Internet Solutions.)

## 1.2 Network and DNS Client Configuration Worksheets

If the installation procedure determines that your network or Domain Name System (DNS) is not configured on your system, the procedure does a minimal configuration based on information that you provide during the installation procedure. The worksheets in the following sections can help you gather and organize the information requested during installation to configure the network and DNS. In cases where you must obtain addresses, contact your Internet service provider (ISP) or system manager.

### 1.2.1 Network Configuration Worksheet

Use the following worksheet to gather network configuration data before installing Internet Express Version 6.5:

Type of Information	Example	Entry
Network interface	tu0	
Host name for this machine	myhost	
IP address for the network interface	10.55.39.182	
Subnet mask	255.255.255.0	
Default gateway IP address	10.55.39.100	
Network daemons and static routing	routed -q	

#### Note

If you intend to configure FireScreen after installing Internet Express to set up your system as a firewall, record the information for both network interfaces in the worksheet. Then use the `sysman` system management utility to configure the system as a gateway using the information from the worksheet. Enter the following command in a terminal window when logged in as `root` after the Internet Express installation has completed:

```
# /usr/sbin/sysman network
```

See the *Administration Guide* for information on installing and configuring the FireScreen firewall.

## 1.2.2 DNS Client Configuration Worksheet

The Domain Name System (DNS) is a naming system that provides a service for resolving host names to Internet Protocol (IP) address (and vice versa). The implementation of DNS on most UNIX systems is BIND (Berkeley Internet Name Domain). BIND is a network-naming service that enables servers to name resources or objects and to share information with other objects on the network.

Use the following worksheet to gather DNS client configuration data before installing Internet Express:

Type of Information	Example	Entry
Is the system a DNS server or client?	client	
Domain name	site.org.com	
Host name of primary name server	dnssrvr1	
IP address of primary name server	10.55.39.186	

The Internet Express installation procedure invokes the `bindconfig` utility and allows you to configure a primary name server. To set up a secondary name server, invoke the `bindconfig` utility on the command line.

## 1.3 Internet Express Components and Subsets

The Internet Express product consists of Open Source Internet software, Internet Monitor, LDAP Module for System Authentication, and administration software developed by HP. All components are optional, except when required as a prerequisite to another component you selected. The installation procedure automatically selects all prerequisite components when you select a component that is dependent on other components.

The following software components are installed as part of the following Internet Express subsets. See the *Software Description and Licensing Terms* for a list of the current version numbers for the components.

### Note

Subset names appear in parentheses after the component name.

**Administration Utility (IAEADM)** — Depends on subsets for the UNIX client applications for Mail (Pine) and news (TIN News Reader) (IAEUXCA), Tcl runtime components- (IAETCLRT), Secure Web Server and Administration utility, (IAEAPCH and IAEAPAD), and Internet Express documentation (IAEDOC).

The Administration utility allows you to:

- Configure and manage the components you choose to install.
- Install and configure FireScreen to set up your system as a firewall. (Internet Express also provides a command-line script, `/usr/internet/security/firescreen.setup`, for installing and configuring FireScreen. See the *Administration Guide* for more information. You should use the Administration utility to perform this task.)
- Add, modify, and delete captive user accounts and UNIX system user accounts, and configure mail delivery.
- Perform other system management tasks (such as managing printers and rebooting the system).

**Internet Express Documentation (IAEDOC)**

The Internet Express documentation is available on line in HTML format only after installation. You can access the documentation from the Administration utility on port 8081 or from the Installation and Documentation CD-ROM. See the Related Documentation section of the preface for a description of the documentation.

To read the reference pages supplied with or referred to in the Internet Express product (using the `man` command or the `webman` utility), the Tru64 UNIX Documentation Preparation Tools subset (`OSFDCMT`) must be installed on your system.

#### **Authentication Services:**

- LDAP Module for System Authentication (IAELDAM)

The LDAP Module for System Authentication is based on the Tru64 UNIX Security Integration Architecture (SIA) security mechanism. The LDAP Module for System Authentication allows user identification and authentication information stored in an LDAP server to be used by applications, including the following:

- login authentication (`rlogin`, `ftp`, and `telnet`)
- POP and IMAP authentication
- transparent LDAP database access for the `getpw*()` and `getgr*()` routines in the `libc` library

The LDAP Module for System Authentication subset includes tools designed to query the LDAP server for user and group information. You can choose the LDAP Module for System Authentication as an option during installation.

- FreeRADIUS Server (IAEFRAD)

The FreeRADIUS Server configures user authentications services.

#### **Command Line Utilities:**

- Lynx Web Browser for terminals (IAELYNX)

Lynx is a fully featured World Wide Web (WWW) line browser for users connected to a system by cursor-addressable, character-cell terminals or terminal emulators. Lynx is a product of the Distributed Computing Group within Academic Computing Services of The University of Kansas. You can choose Lynx Open Source software as an option during installation. This option includes help files for the Lynx Browser.

- UNIX client applications for Mail (Pine) and news (TIN) (IAEUXCA):

- Pine Mail Client and Pico Editor

Pine (Program for Internet News & Email) is a tool for reading, sending, and managing electronic messages on a terminal or terminal emulator. Pine was designed by the Office of Computing & Communications at the University of Washington specifically with novice computer users in mind, but it can be tailored to accommodate the needs of more advanced users. The Pico Editor is the editor that Pine uses.

- TIN News Reader

TIN is a full screen news reader for terminals or terminal emulators on UNIX systems.

#### **Data Base Management System:**

- PostgreSQL database (IAEPSQL)

#### **Directory Services:**

- Mozilla LDAP SDK (IAELDAPSDK)

- OpenLDAP (IAEOLDAP)  
An Open Source LDAP directory server. This version of OpenLDAP supports Version 3 of the LDAP protocol.

#### **File Transfer Services:**

- Pure-FTPd Server (IAEPUREFTP)  
Pure-FTPd is another file transfer protocol server available for installation. If you choose to install both the WU-FTPd and Pure-FTPd servers, you must indicate which FTP server you want to enable on your system. Because these servers share the same port, you can enable only one FTP server on the system at any given time. You can switch from one server to another at any time.

HP recommends Pure-FTPd server for its speed and security. It has the following features:

- Logging of transfers
- Logging of commands
- On the fly compression and archiving
- Classification of users on type and location
- Per class limits
- Restricted guest accounts
- Directory alias
- Directory alias
- File name filter
- Virtual host support

**E-Mail Servers** — E-mail servers provide electronic mail services to clients. Open Source software E-mail servers that use POP3 (Post Office Protocol) and IMAP4 (Internet Message Access Protocol) protocols are available as an option during installation. The Internet Express kit includes the following E-mail-related software:

- Cyrus IMAP4 CMU Cyrus IMAP mail server (IAECYRS) — Depends on Tcl runtime components (IAETCLRT)
- Cyrus SASL Library (IAESASL)
- Qualcomm popper POP3 Mail Server (IAEPOP)
- Internet Messaging Program (IMP) IMAP-based Webmail system (IAEIMP)
- Majordomo Automated Internet Mailing Lists Server (IAEMAJD)

Majordomo is a set of programs that automate the operation and maintenance of Internet mailing lists. Majordomo automatically handles requests to subscribe to, or unsubscribe from, mailing lists; it supports closed lists (subscription requests are sent to the list owner for approval) and moderated lists (all messages are sent to the list owner for approval before sending to subscribers). Lists that are set up under the control of Majordomo can be manipulated by electronic mail, so the list owner does not have to be on the system where Majordomo is running.

- Mailman - The GNU Mailing List Management System (IAEMAILMAN)  
Mailman is used to manage mailing and e-newsletter lists. The web facility provided for Mailman makes the account/list management easy. Users can use the Web facility to perform activities such as subscribe/unsubscribe, view the members of the list, and post a message. List administrators can use the web

facility for wide range of operations like archiving, membership management, language options, and handling moderator requests.

- ProcMail Mail Filtering Language (IAEPROC)

ProcMail is the mail processing language written by Stephen van den Berg of Germany. Using ProcMail, you can filter hundreds or thousands of incoming mail messages per day according to a predefined set of rules. Because the ProcMail utility understands details about most UNIX mail transport and delivery agents, it is the tool of choice for writing custom mail filtering scripts.

- Sendmail Mail Transport Agent (IAESMTP)

You can choose Sendmail as an option during installation. Sendmail is the BSD Mail Transport Agent supporting E-mail transport by means of TCP/IP using Simple Mail Transfer Protocol (SMTP).

The Internet Express installation configures the system to use Sendmail instead of the older version of Sendmail installed with the Tru64 UNIX operating system.

Choosing this option also installs the bogofilter spam-filtering software.

- University of Washington IMAP4 Mail Server (IAEIMAP)
- Clam AntiVirus and Amavisd-new anti-virus tools (IAECLAMAMAVIS)

Clam AntiVirus for UNIX provides a flexible and scalable multi-threaded daemon for e-mail scanning. Amavisd-new is a high-performance interface between mailer (MTA) and content checkers: virus scanners.

#### **Messaging Services:**

- Internet Relay Chat Server (IAECHAT)

Internet Relay Chat (IRC) allows users to communicate with each other, in real time, across a network of Internet servers.

#### **Monitoring Services:**

- Internet Monitor (IAEMON)—Depends on Secure Web Server (IAEAPCH), PostgreSQL database (IAEPSQL), Internet Monitor Documentation (IAEMOND), and Java Version 1.3.1 or higher.

The Internet Monitor allows administrators to monitor Internet services running on a Tru64 UNIX system.

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#### **Note**

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The Internet Monitor depends on the Java Environment. See Section 1.1 for more information about this requirement.

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- Documentation for the Internet Monitor (IAEMOND) — You can access the documentation from the Internet Express bookshelf if it is installed, or from the Installation and Documentation CD-ROM.

#### **Networking Services:**

- DNS/BIND (IAEBIND)

The Berkeley Internet Name Domain (BIND) service is a client/server model that allows client systems to obtain host names and addresses from DNS servers.

#### **News Services:**

- InterNetNews (INN) Server, a complete Usenet system (IAEINN)

The InterNetNews (INN) server is initially configured as a local news server. See the *Administration Guide* for information on configuring the news server for external newfeeds. You can choose InterNetNews (INN) as an option during installation.

### **PC Connectivity Services:**

- Samba File and Print Server for Windows (IAESMB)

The Samba File and Print Server serves UNIX files and print queues to PC clients by implementing the SMB protocol (also known as the Lan Manager or Netbios protocol).

### **Proxy Services:**

- Dante SOCKS Proxy Server (IAEDANTE)

Dante is a circuit-level firewall/proxy that can be used to provide convenient and secure network connectivity to a wide range of hosts while requiring only the server Dante runs on to have external network connectivity.

Once installed and configured, Dante can in most cases be made transparent to the clients while offering detailed access control and logging facilities to the server administrator.

Dante is developed by Inferno Nettverk A/S, Norway.

- Squid Proxy/Caching Server (IAESQD)

The Squid Proxy/Caching Server enhances the performance of your Web server by caching requested Web pages in a centralized area, making these pages immediately available to all users at your site. If you choose to install this server, the installation procedure sets up a basic configuration for you.

The subset includes Calamaris, which parses log files from Squid and generates a report.

The installation procedure renames the existing Squid configuration file, `/usr/internet/squid/etc/squid.conf`, to `squid.conf.OLD`. (In versions prior to Internet Express Version 5.9, the configuration file was retained when a new version of Squid was installed.) Any modifications to the old configuration file must be manually applied to the new configuration file.

- SmartFilter (IAESQD)

The Internet Express version of the Squid Proxy Server includes support for the URL filtering service SmartFilter from Secure Computing. This support can be optionally enabled and configured. For details, see the *Administration Guide*. The installation procedure copies the existing configuration files – `config.txt`, `policy.txt`, `search.txt`, `site.txt`, and `user.txt` (all located in `/usr/internet/squid/etc`) – to an `.OLD` extension. Any modifications to the old configuration files must be manually applied to the new configuration files.

### **Scripting Tools:**

- Perl Practical Extraction and Report Language (IAEPERL)

Perl is an interpreted scripting language commonly used to write Common Gateway Interface (CGI) programs for Web servers. Perl is included with Internet Express as a separate subset (IAEPERL). Several subsets require Perl Version 5.003 or later. If you have already installed Perl Version 5.003 or later, the Internet Express Version 6.5 subset (IAEPERL) is optional. If you do not have Perl Version 5.003 or later already installed, subsets that depend on Perl will require the IAEPERL subset.

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### Note

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The kit includes the Tcl runtime subset (IAETCLRT), containing Tcl, TclTk, Tcl\_cgi, TclX, and expect, solely to provide support required by other components.

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#### Security Services:

- TCP Wrapper Access Control for Internet Services (IAETCPW)

TCP Wrapper intercepts an incoming network connection and verifies whether the connection is allowed before passing the connection to the actual network daemon. TCP Wrapper is configured through the `/etc/hosts.allow` file. Note that the default security level for all administration services (except `popassd`) is set to world access at installation. See the *Administration Guide* for information on modifying security levels.

#### Service Location Protocol Services:

- OpenSLP Server (IAESLP)

OpenSLP is an implementation of the Service Location Protocol (SLP), a protocol that provides a framework to allow networking applications to discover the existence, location, and configuration of networked services in enterprise networks.

#### Web Services:

- Secure Web Server 1.3 (Powered by Apache) (IAEAPCH)

Secure Web Server (which includes the analog Web site analysis tool and the PHP Hypertext Preprocessor )

A public Web server with a default homepage can optionally be created.

- Secure Web Server 2.0 (Powered by Apache 2.0) (IAEHTTPD) and (IAEAPCH)  
Includes PHP.

- Secure Web Server Administration Utility (IAEAPAD)—Depends on Secure Web Server (IAEAPCH), Internet ExpressAdministration Utility (IAEADM), and Tcl runtime components (IAETCLRT).

The Secure Web Server Administration Utility allows you to control and configure each of the Secure Web Server instances created by Internet Express components you have installed. This includes the public Web server created when you installed the Secure Web Server (1.3 and/or 2.0) and the administration Web servers created when you installed the Internet Express Administration Utility, the Secure Web Server Administration Utility, and the Internet Monitor.

- PHP hypertext preprocessor (IAEAPCH and IAEHTTPD):

The PHP hypertext preprocessor is included in the Secure Web Server (1.3 and 2.0) and allows you to create dynamic Web content by embedding conditional directives in your HTML file.

- Secure Web Server Documentation (IAEAPDOC)

The Secure Web Server documentation is available on line in HTML format only after installation. You can access the documentation from the Administration utility on port 8081 or from the Installation and Documentation CD-ROM.

- Tomcat Java Servlet and JSP Engine

- `ht://Dig` – A World Wide Web indexing and searching tool (IAEHTDIG)

The ht://Dig system is a complete indexing and searching system for a domain or intranet. It can search through many servers on a network by acting as a Web browser.

- Mozilla Application Suite (IAEMOZ)

The Mozilla Application Suite includes a set of applications, including a Web browser, E-mail client, news reader, chat, and Web page editor.

- Mozilla Firefox (IAEFIREFOX)

Firefox is a free open source Web browser based on the Mozilla code base.

### **XML (Extensible Markup Language) Tools:**

- Apache Cocoon Servlet (IAEXML)

The IAEXML subset installs and configures Apache Cocoon as a servlet in Tomcat.

Cocoon can be used for the automatic creation of HTML from XML files as well as XSL:FO rendering to PDF files, and client-dependent transformations such as WML formatting for WAP-enabled devices. For more information on Cocoon's capabilities, refer to their documentation at <http://xml.apache.org/cocoon>.

When you install the IAEXML subset, a webapp directory is created in `/usr/internet/httpd/tomcat/cocoon`. Files needed by the Cocoon servlet should be placed in this directory. Some samples are also included, which can be accessed at <http://localhost/cocoon/servlets/samples/index.xml>. Information on the current Cocoon configuration is available from <http://localhost/cocoon/Cocoon.xml>.

Apache Cocoon Servlet (IAEXML) depends on Tomcat (IAETOMCAT) and Java XML-Based Client Tools (IAEXMLJLIB) This subset installs and configures the Apache Cocoon Servlet for XML-based Web Publishing.

- Apache Axis Serve (IAESSOAP)

The IAESSOAP subset installs and configures Apache Axis using the Secure Web Server public instance and Tomcat.

Apache Axis Server (IAESSOAP) depends on Tomcat (IAETOMCAT), Java XML-Based Client Tools (IAEXMLJLIB), and Java version 1.3.1 or higher. This subset installs and configures a SOAP Server for deploying, managing and running SOAP enabled services.

- C++ XML-Based Client Tools (IAEXMLCLIB) – installs the following client libraries:

- Xerces - XML parser for C++
- Xalan - XSLT Stylesheet Processor for C++
- Libxml2 - XML parser and toolkit for C

Libraries are installed in `/usr/local/lib` and documentation for each component is provided in the `/usr/internet/docs/` directory. Include files for Xerces and Xalan are installed in `/usr/local/include/xml` and `libxml2` header files are located in `/usr/local/include/libxml2`.

---

#### **Note**

---

The Xerces and Xalan components require Version 632 or later of the C++ Run-Time library. If you do not have an adequate version of this Run-Time Library, you will need to install the C++ Run-Time Library Redistribution kit available on the Internet Express CD-ROM or at:

<http://h30097.www3.hp.com/cplus/>

---

- Java XML-Based Client Tools (IAEXMLJLIB) – installs the following:
  - From the Apache XML (Extensible Markup Language) Project:
    - Xerces - XML parser for Java
    - Xalan - XSLT Stylesheet Processor for Java
    - Batik - Java-based toolkit for Scalable Vector Graphics (SVG)
    - FOP - XSL Formatting Object Processor
    - Cocoon Libraries - XML-Based Web Publishing Framework
    - Axis Client - SOAP Client Libraries
  - Developed as an IBM Open Source Project:
    - UDDI4J - UDDI Client Libraries
  - Various supplemental libraries required by Axis, UDDI4J and Cocoon:
    - JavaMail
    - JavaBeans Activation Framework
    - Bean Scripting Framework
    - Java Secure Socket Extension - global version

---

**Note**

---

All these tools require Java (Version 1.2.\* or higher). The Axis Client and UDDI4J require Java 1.3.1 or higher. See Section 1.1 for more information.

---

- Supplemental libraries required by Cocoon:
  - From Apache Jakarta Project:
    - Avalon Excalibur
    - Avalon Framework
    - Avalon Logkit
    - Commons Collections
    - Commons HttpClient
    - Regexp
  - PJA - Pure Java AWT Toolkit developed by eTeks
  - Resolver - XML Entity and URI Resolvers from Sun Microsystems

---

## Installing Internet Express

You can use either a browser-based interface or a command-line interface to perform the Internet Express installation. This chapter shows the browser-based procedure.

To control the progress of the browser-based installation procedure, and for data collection on some of the forms in the Administration utility for Internet Express, your browser must be enabled to use JavaScript.

Section 1.3 lists and describes the Internet Express components. If you choose to install all the components, the installation can take up to 45 minutes.

---

### Note

Update installations from Internet Express Version 6.3 and Version 6.4 to Internet Express Version 6.5 are fully supported. (Updates from versions earlier than Version 6.1 should work but are not supported.)

---

You can rerun the browser-based installation procedure at any time to change the subsets that are installed on your system. The script verifies that the system configuration is correct, and then presents an interactive menu for installing, updating, or removing subsets.

---

### Note

Some subsets are required by other subsets and cannot be removed unless the subsets that depend on them are also removed.

---

You can also use the Administration utility after installation to install or remove subsets.

---

### Note

The command-line installation procedure only allows you to install subsets. To remove subsets, use one of the following:

- `ix_install` in browser mode
  - Administration utility. Choose Install/Remove Components on the Manage Components menu.
  - `setld` command
  - `ix_cleanup` script (Section 3.3) — This script is only used for removing components.
- 

## 2.1 TruCluster Server Support

If you are installing Internet Express on a cluster running TruCluster Server Version 5.0 or higher, the following notes apply:

- Any member-specific configuration will automatically be performed for all cluster members at installation time. If Internet Express is installed on a noncluster system that is subsequently upgraded to a cluster system, all

services will be automatically reconfigured to run properly in a cluster as part of the cluster upgrade process.

- During installation, performance tuning recommendations will be made for all cluster members, but no action can be taken. To make modifications, use the Administration utility for Internet Express.

## 2.2 Verifying the Installed Version of Tru64 UNIX

Before you begin the installation procedure, make sure that you have a complete backup of your system.

If Tru64 UNIX is already installed on your system, you can verify the version number by entering the following command:

```
# /usr/sbin/sizer -v
Tru64 UNIX V5.1A (Rev. 1094); Wed Mar 12 14:26:59 EDT 2003
```

The version of Tru64 UNIX must be 5.1A (Revision 1094) or higher.

## 2.3 Starting the Installation Procedure

Insert the CD-ROM labeled *Internet Express for Tru64 UNIX Installation and Documentation* into the CD-ROM drive on your system. Make sure you are logged in as root and enter the following command to mount the drive, where *drive* is the name of the CD-ROM drive on your system:

```
# mount /dev/drive /mnt
```

Usually this will be:

```
# mount /dev/disk/cdrom0c /mnt
```

Change the directory to the topmost (root) directory in your system by entering the following command:

```
# cd /
```

Enter the following command to start the installation procedure:

```
# /mnt/ix_install
```

## 2.4 Setting Up the Internet Express Account

As shown in Example 2-1, the installation procedure (*ix\_install*), does the following:

- Creates a number of `pty` and `tty` devices (if they do not already exist) to increase the system's remote login capability.
- Prompts you for a password that will be used for all administration accounts (the Web-based installation procedure, the `iass` account, the Administration utility, the Secure Web ServerAdministration Server, and the Internet Monitor Administration Server). This password must be between 5 to 8 characters in length.
- Notifies you that it is adding the `IASS_Adm` group to the `/etc/group` file (if this group does not exist) and adding the user `iass` with the password you specified to the `/etc/passwd` file (if this user does not exist).

### Example 2-1: Setting Up the Internet Express Account

---

```
# /mnt/ix_install
```

```
***** Internet Express Installation *****
```

## Example 2-1: Setting Up the Internet Express Account (cont.)

---

```
***** Tue Oct 14 10:19:10 EDT 2003 *****

You must now specify one password to be used in all of the following
cases:

1. Access to the Internet Express installation
   (if you choose the web-browser installation mode)

2. The login password for the 'iass' administrator's account (if
   it needs to be created -- existing passwords are not changed)

3. Access to the Administration utility for Internet Express
   (if it needs to be created -- existing passwords
   are not changed)

4. Access to the Secure Web Server (if it needs to be created
   -- existing passwords are not changed)

5. The Root Distinguished Name password for administrator
   access to the Directory Server (if you choose to install
   a Directory Server)

Please enter a password (won't echo as you type).
Password: password
Repeat Password to confirm:
Adding group 'IASS_Adm' to /etc/group
```

---

## 2.5 Choosing an Installation Interface

The installation procedure presents a series of prompts aimed at determining which of the following interfaces you want to use to continue the installation.

- A new Web browser (either local or a remote)
- An existing Web browser (either local or remote)
- No browser (command-line interface)

You can use Netscape Navigator Version 4.5 and higher or Microsoft Internet Explorer Version 4.0 or higher, with JavaScript enabled to install Internet Express Version 6.5 for Tru64 UNIX.

---

### Note

---

If the system is running in single-user mode (run level s), only the command-line interface is available.

---

Table 2-1 summarizes how to respond to installation prompts to choose an installation interface.

**Table 2-1: Choosing an Installation Interface**

---

Prompt	New Web Browser		Existing Web Browser	Command-Line Interface
	DISPLAY not defined	DISPLAY defined		
Would you like to use the Internet Express Installation graphical user interface?	Y	Y	Y	n

---

**Table 2-1: Choosing an Installation Interface (cont.)**

Prompt	New Web Browser		Existing Web Browser	Command-Line Interface
	DISPLAY not defined	DISPLAY defined		
Do you want to start a Netscape Web Browser on an X Window System display?	y	y	n	
Would you like to specify an X Window System Display?	y			

If you want to use a new Netscape Web browser and your X Windows display (DISPLAY environment variable) is not defined, the installation procedure prompts you to specify one. The system on which you are installing Internet Express must be able to connect to the display you specify. (See Table 2-1.)

If you want to end the installation procedure before it completes, and you chose to use an *existing* browser, exit the procedure using one of the following methods:

- On the first page of the installation procedure, click on Cancel.
- On the page that lists the subsets to install, scroll to the bottom and click on Cancel. On the Canceling the Internet Express Installation page, click on Exit.
- In the terminal window from which you started the installation procedure, press Ctrl/C.

If you close the browser without exiting the installation procedure as previously described, the procedure remains running on your system. You can reconnect to port 8090 and click on Continue to resume at the beginning of the last step that was not completed.

If you are using a *new* browser started by the installation procedure, you can exit the installation procedure before completion by choosing Exit from the File menu in the browser window. The installation procedure cleans up and exits. If you restart the installation (using the `ix_install` script), the procedure resumes where you left off when you exited.

Example 2-2 shows how to choose to install Internet Express from a remote X Window System/Motif Netscape browser.

### Example 2-2: Choosing to Install Internet Express from a Remote Netscape Browser

```

You must now specify one password to be used in all of the following
cases:

1. Access to the Internet Express installation
   (if you choose the web-browser installation mode)

2. The login password for the 'iass' administrator's account (if
   it needs to be created -- existing passwords are not changed)

3. Access to the Administration utility for Internet Express
   (if it needs to be created -- existing passwords
   are not changed)

4. Access to the Secure Web Server (if it needs to be created
   -- existing passwords are not changed)

5. The Root Distinguished Name password for administrator
   access to the Directory Server (if you choose to install
   a Directory Server)

Please enter a password (won't echo as you type).
Password: password
Repeat Password to confirm:

```

## Example 2-2: Choosing to Install Internet Express from a Remote Netscape Browser (cont.)

---

Now you must choose whether to use the Internet Express Installation graphical user interface using a Web browser or continue with the installation using this command-line script.

If you choose the Web browser interface, you can use an existing Web browser or the installation procedure can start a Netscape Web browser if an X Window System graphical display is available.

Would you like to use the Internet Express Installation graphical user interface? (y/n) [y] **y**

Do you want to start a Netscape Web Browser on an X Window System display? (y/n) [y] **y**

Starting Web browser installation using the following username and password:

User ID: admin  
Password: the password specified.

Starting a Netscape Navigator using X Display

This installation procedure will exit when the Netscape Navigator exits.

---

If you chose to use the Web browser interface to complete the installation, the procedure starts a minimal Web server that is bundled with the Internet Express kit and required to support browser-based installation. If you chose to complete the installation using a new Netscape browser, and this is the first time you are using the Netscape browser, you will see the following:

- A license form. Accept the license.
- A message indicating that the browser is establishing a cache. Click on OK to create the browser cache.

The browser displays a confirmation message asking you to continue or cancel the installation. Click on Continue to proceed to Tru64 UNIX subset verification.

As you proceed through the installation, you are prompted to enter information on forms and submit them as input to the procedure. The browser might display a message box, warning you that information sent over the network is not secure. You can shut off this warning; however, it is good practice to reset the browser preferences after the installation to display this warning.

---

### Notes

---

If a step in the browser-based installation procedure appears to be taking a long time to complete, scroll to the bottom of the form to check its status.

You can stop the browser-based installation at any time by pressing Ctrl/C in the terminal window from which you started the installation.

---

## 2.6 Verifying Tru64 UNIX Subsets

The installation procedure checks your system to make sure that all required Tru64 UNIX subsets are present. (A default Tru64 UNIX installation includes all the subsets required by Internet Express.) If so, the procedure moves on to the next step. If any Tru64 UNIX subsets are missing, the procedure displays a

list of the missing subsets and prompts you to insert the CD-ROM containing the operating system software.

The installation procedure locates the missing subsets, if any, and automatically installs them. As it installs the subsets, the procedure displays a log of the copy and verification process. This process can take five minutes or longer.

When all the subsets are installed, scroll to the bottom of the form and click on Continue to proceed with verification of the Tru64 UNIX kernel options. Note that some updated subsets may take effect when the system reboots.

---

**Note**

---

JavaScript is required to control the progress of the Internet Express browser-based installation. The installation procedure checks that your browser is enabled to use JavaScript. If not, the procedure displays a warning message. You must enable JavaScript in your browser preferences before continuing with the installation.

---

## 2.7 Verifying Tru64 UNIX Kernel Options

The installation procedure checks for the following kernel options required by Internet Express:

- LDTTY
- RPTY
- STREAMS
- STRKINFO

If these kernel options are defined on the system, the procedure moves on to the next step. (A default Tru64 UNIX installation configures all the kernel options required by Internet Express.)

If any required kernel options are missing, the procedure:

- Displays a list of kernel configuration files on your system and prompts you to select one. Unless you have renamed your system's configuration file, accept the default name. (Do not choose the generic kernel configuration file, `GENERIC`.)
- Rebuilds the kernel (`/vmunix`) automatically. This process can take 8 to 10 minutes.

After the kernel is rebuilt, the installation procedure prompts you to reboot the system. Scroll to the bottom of the page and click on Reboot Now. After a one-minute delay, the system reboots and you can restart the installation as follows:

1. Log in as root.
2. Restart the installation procedure by entering the following command:

```
# /tmp/ix_install
```

Note that the installation procedure is now located in the `/tmp` directory.

3. Indicate whether you want to continue the installation using a Web browser.
4. Specify the user name `iass` and the password you specified.

The procedure verifies the required Tru64 UNIX kernel options and continues.

## 2.8 Verifying PAK Information

The installation procedure verifies the presence of Product Authorization Key (PAK) information required for the `OSF_BASE` and `OSF_USR` licenses. If any PAK information is missing, the script displays a form that prompts you for the missing information. (PAK information is included with the licensing materials you received with your hardware.) Enter the requested information and click on Continue. For more information on registering PAKs, see `lmf(8)` and `lmfsetup(8)`.

After verifying the PAK information, the installation procedure prompts you to choose a Web server.

## 2.9 Configuring the Network

If the procedure detects that the network has been configured, it proceeds with DNS client configuration (Section 2.10).

If the installation procedure detects that your system's network needs to be configured, the procedure displays a form prompting you for network configuration information. You can use the worksheet you prepared (Section 1.2.1) as a reference when responding to prompts for configuration data.

The `routed` daemon with the `-q` option is appropriate when your system needs to monitor Routing Information Protocol (RIP) updates from other systems but does not need to supply routes (that is, it serves as a client only). The `-q` option inhibits the `routed` daemon from supplying RIP data. (The `-q` option conflicts with the `-s` option; do not use the `-q` and `-s` options together.)

The `gated` daemon supports multiple routing protocols, and is appropriate for more complex configurations (for example, when your system needs to act as a gateway and, therefore, must provide updated RIP data to other systems). You can customize the `gated` daemon through settings in the `/etc/gated.conf` file. If you running Tru64 UNIX Version 5.0 and plan on creating a cluster, you must configure and run `gated`.

Choose whether to run the `routed` daemon, `gated` daemon, or neither, and click on Submit. The procedure prompts you to confirm the information you entered, informs you when the network has been successfully configured, and starts the network.

Click on Continue to proceed with the installation.

## 2.10 Configuring the DNS Client

If the procedure detects that the DNS client has been configured, it proceeds with configuring the SMTP Server (Section 2.11).

If the installation procedure detects that your system's Domain Name System (DNS) client needs to be configured, the procedure displays a form that prompts you for domain name, name server, and IP address information. You can use the worksheet you prepared (Section 1.2.2) as a reference when responding to prompts for configuration data.

The installation performs a minimal DNS client configuration. Internet users may require a more complete configuration. See the DNS documentation for more information on how to completely configure DNS. If you intend to use this system as a name server, you must use the tools provided with Tru64 UNIX (`bindsetup`, `bindconfig`, or the CDE Motif tools available with DIGITAL UNIX Version 4.0B or higher) to configure Berkeley Internet Name Domain (BIND).

After entering the required information, click on Submit.

## 2.11 Configuring the SMTP Server

If the procedure detects that mail has been configured, it proceeds with Internet server performance tuning (Section 2.12).

If the installation procedure detects that mail needs to be configured for the system, the procedure displays a form prompting you for mail configuration information.

Use the Configure SMTP Server form to set up the routing and delivery of mail for your system. You can configure your system as one of the following:

- Standalone system (Section 2.11.1) — Does not send or receive mail from any other system. A standalone system can send and receive mail from other users on the same system only.
- Client (Section 2.11.2) — Depends upon a mail server for all mail processing. A client system must be connected to the same network as its mail server.
- Server (Section 2.11.3) — Central host that performs all mail processing, such as forwarding, routing, addressing, aliasing, and mail delivery.

### 2.11.1 Configuring a Standalone Mail System

To configure your system as a standalone mail system, follow these steps:

1. Choose Standalone under Select Configuration Mode.
2. Click on Configure.
3. Click on Continue to proceed with the installation.

### 2.11.2 Configuring a Mail Client

To configure your system as a mail client, follow these steps:

1. Choose Client under Select Configuration Mode, then click on Configure.
2. Enter the fully qualified name of the mail server that will address and route mail for your system in the Mail Server field. If a default server name is provided, add the domain name to fully qualify the mail server name. For example, if `mailhub` is shown as the default, the fully qualified name might be `mailhub.domain.name`.
3. Click on Configure Client.

The installation procedure checks the syntax of your entry. If the syntax is valid, the installation procedure informs you that the mail configuration is successful, and starts the SMTP daemon.

4. Click on Continue to proceed with the installation.

### 2.11.3 Configuring a Mail Server

To configure your system as a mail server for SMTP, follow these steps:

1. Choose Server under Select Configuration Mode, then click on Configure. A top domain is needed if your organization uses any other protocols besides TCP/IP to deliver mail (for example, DECnet or UUCP). The top domain is used to:
  - Encapsulate mail addresses for non-IP protocols before sending mail out over the Internet
  - Determine whether to omit the host name when rewriting the address on the From: line
2. Accept the default top domain or enter another domain in the Top Domain field. (The top domain is usually your company name and Internet domain;

for example, `hp.com` or `isc.org`.) You can enter from 1 to 21 alphanumeric characters (including special characters). The address cannot start or end with a hyphen (-).

3. Choose one of the routing options for this mail server:
  - None — Send mail directly to the addresses. (So not use routing.)
  - Internet — Forward addresses outside your corporation (top domain) to the host specified in the Relay Hostname field.
  - Nonlocal — Forward addresses outside your local site to the host specified in the Relay Hostname field.
  - Local — Forward all mail with destinations other than this server to the host specified in the Relay Hostname field.

If you choose None, go to step 5; otherwise, go to step 4.

4. If you are routing mail to another system for processing, enter the fully qualified system name in the Relay Hostname field. You can accept the default value (if any), or specify another system name.
5. Click on Configure Server.

If the information you provided is valid, then mail configuration will take place; otherwise, the erroneous information is identified and you must provide new configuration information. The installation procedure informs you when the mail configuration is successful, and starts the SMTP daemon.

6. Click on Continue to proceed with the installation.

## 2.12 Tuning Internet Server Performance

The installation procedure checks several system configuration options that affect the performance of Internet services on your system and recommends configuring these options to improve performance. You can choose to configure your system swap mode to deferred mode and tune several kernel subsystem attribute values to their recommended settings.

---

### Note

---

You must reboot the system for the lazy swap mode and most of the recommended kernel attribute values to take effect.

---

To accept all the recommended configuration options, click on Submit. To avoid configuring any one of the recommended options, click on the toggle button next to the option before clicking on Submit.

---

### Note

---

To revert back to the original kernel attribute values, copy the saved `/etc/sysconfigtab.preIASS.PID` file to `/etc/sysconfigtab` and reboot. The *PID* is the process ID (PID) of the Internet Express installation procedure.

---

There are several other kernel attributes values that you can tune to improve performance.

The *Tuning Tru64 UNIX for Internet Servers* document contains the latest information on tuning a variety of Web services running HP Tru64 UNIX. As new data becomes available, HP will update this document.

Documentation on tuning your system to improve the performance of your mail and news servers is also available. You can obtain tuning information at the following URL:

<http://h30097.www3.hp.com/docs/internet/TITLE.HTM>

---

**Note**

---

The kernel subsystem attribute settings described in *Tuning Tru64 UNIX for Internet Servers* are meant for use on systems that are primarily used as Web servers (or other servers that handle a large number of connections, such as a proxy/caching server, mail server, news server, or FTP server) and that are configured with an adequate amount of RAM. In some cases, settings that differ from those recommended in this document could improve the performance of a Web service. Only a knowledgeable Tru64 UNIX system administrator should modify kernel subsystem attributes.

---

## 2.13 Specifying a Mail Forwarding Address for the iass Account

The installation procedure determines whether a mail forwarding address exists for the `iass` account. If the mail forwarding address field is blank, it has not been set and the current mail forwarding address for the `iass` account is displayed.

You can change the mail forwarding address or accept the currently specified address. Leave the field blank if you do not want to forward messages mailed to the `iass` account.

Click on Submit to continue the installation.

## 2.14 Checking /usr/local Directories

The installation procedure checks to ensure that `/usr/local/` directories are local (not NFS mounted) and have write permission for root.

If the directories do not have write permission for root, you must correct this condition before continuing with the installation. To exit the installation, click on Cancel.

If the directories are not local, the installation procedure warns you that the `/usr/local/` file system should not be shared with other systems. The procedure gives you a chance to correct the problem, continue the installation without making any changes, or exit the installation.

Click on Submit to continue the installation.

## 2.15 Creating /data and /data/spool Directories

The installation procedure prompts you for information about the Internet Express `/data` directory. The `/data` directory contains the default public Web server document root, the user accounts created by Internet Express (for example, `/data/IASS_Usr/users/sarah`), log directories, and so on.

---

**Note**

---

If you are updating a previously installed version of Internet Express, the IASS user directories might have been created under `/data/Lkr_Usr_`. If this directory exists, it remains as is. Any new

user accounts that are created after Internet Express Version 6.5 for Tru64 UNIX is installed will be added to this directory.

---

When the installation procedure creates a `/data` directory, it displays a series of forms that you use to make the following choices:

1. Choose one of the following file systems:
  - Create a link to an existing file system on a partition other than root.
  - Create a UNIX File System (UFS) partition. (This is the default if the Advanced File System (AdvFS) is not supported on your system.)
  - Create an AdvFS partition. (This is the default if AdvFS is supported on your system.)

Choose the appropriate file system and click on Continue.

2. Choose the disk partition where you want to allocate the `/data` directory and click on Continue.

If any disks on your system are unlabeled, a form is displayed at the top of the disk partition selection page that allows you to write default labels on the unlabeled disks. If you want to choose a partition from the unlabeled disks, select the checkbox next to the disk name and click on the Write Disk Labels button. The disk labels will be written on the disks you selected and the form will redisplay including the partitions from these disks.

If you do not want to write labels on these disks, you can select a different partition from the already labeled disks and click on the Continue button at the bottom of the form.

Choose an available disk partition to allocate to the `/data` directory and click on Continue.

The procedure displays a message indicating completion and proceeds with the `/data/spool/news` directory allocation.

3. Choose whether you want to create a separate file system for the `/data/spool` directory. If you plan to receive an external newsfeed that requires a large amount of disk space, you should create `/data/spool` as a separate file system. (Linking to an existing file system is not an option for `/data/spool`.) Select this option and click on Continue.
4. Select a file system and separate disk partition for the `/data/spool` directory. After you make the selections, the installation procedure creates the directories. This process can take up to a minute. The installation procedure displays a message indicating completion.

Click on Continue to proceed to selecting the Internet Express subsets you want to install.

## 2.16 Installing, Updating, or Removing Internet Express Subsets

You can use the browser-based installation procedure to install, update, or remove selected Internet Express subsets (Table 2-2). The procedure displays a form that lists each subset, showing the size (in bytes), and offering an installation option based on the subset's current status (namely, whether the subset is already installed). All subsets are optional; however, a selected subset may have other subsets on which it depends. The installation procedure automatically selects the prerequisite subsets when you choose a subset. For example, when you select the Internet Express administration utility, the installation procedure also selects its prerequisite component subsets: Secure Web Server Administration utility, Secure Web Server, Secure Web Server documentation, Tcl runtime components, and UNIX client applications for mail and news.

When you install an Internet Express Version 6.5 for Tru64 UNIX subset to update an earlier version of a component, customizations for that component are preserved to the greatest possible extent. All configuration files and user data are preserved and restored for use by the new version of the component.

**Table 2-2: Installation Options for Internet Express Subsets**

Option	Effect
Install	Installs the selected subset from the CD-ROM onto your system. This option is highly recommended if an older version of a subset exists on the system.
Remove	Removes an existing subset from your system. The Remove option is available only if the subset has already been installed. It is not an option for prerequisite subsets.

To return to the initial settings, click on Reset.

After selecting the subsets you want to install, click on Submit. A full installation of all the subsets can take 20 to 30 minutes or longer depending on your processor speed.

The installation procedure checks for conflicts with existing services (see Section 2.17). Then, if you choose to install the Secure Web Server subset, the installation procedure prompts you for additional information required to complete the installation (Section 2.18) of this component.

The installation procedure displays information on each subset as it installs it. Scroll down to the bottom of the page to monitor the progress of the installation. After the selected subsets are installed, scroll to the bottom of the page and click on Continue.

To rerun the installation procedure (for example, to change the selections you made from the list of subsets or to remove an installed subset), click on Reinstall.

When updating a previous installation of Internet Express, you may choose to update some subsets but not others. The Administration Utility (IAEADM subset) can be updated and administration pages of older components will still work, however if you update any component with administration pages, you must also update the IAEADM subset or it will not be able to use the newer administration pages.

## 2.17 Checking for Conflicts with Existing Services

If you choose to install any of the following services, the Internet Express installation procedure checks to see if any existing services are running on the standard ports used by these servers:

- Internet Relay Chat (IRC) server (`ircd`)
- InterNetNews (INN) server (`nntpd`)
- Lightweight Directory Access Protocol (LDAP) server (`slapd`)
- Sendmail (SMTP)
- Post Office Protocol (POP)
- Cyrus IMAP or University of Washington IMAP
- Squid Proxy/Caching Server

If the installation procedure detects a service on a standard port, the procedure identifies the conflict and prompts you to decide whether to install the Internet Express component that uses the same port. After deciding whether or not to install the components in question, click on Continue to continue the installation.

## 2.18 Providing Secure Web Server Information

The installation procedure allows you to choose to install either Version 1.3 or Version 2.0 of the Secure Web Server, or both. Each of these Web Servers offers different advantages for delivering your Web content. More information on the advantages and disadvantages of each server can be found in the *Secure Web Server Administration Guide*.

When you choose to install the Secure Web Server 1.3, you can choose not to install or start a Public Web Server instance. When you choose to install the Administration utility, an instance of the Secure Web Server 1.3 is automatically installed on port 8081.

When updating from Internet Express Version 5.9 or later, if a public Web server configuration exists, it will be preserved and used. Otherwise, you have the option of creating a public version of the Secure Web Server 1.3 on port 80 (or your choice of any port) or continuing without creating this instance. You will also be asked whether or not you want the public Web server to be started when the installation completes and to be configured to restart when the system boots.

When you choose to install the Secure Web Server 2.0, a public Web server will be created on the port of your choosing (although if you also configured a public 1.3 Web server, they must use different ports). You will also be asked whether or not you want the public Web server to be started when the installation completes and to be configured to restart when the system boots.

## 2.19 Choosing an IMAP Server

If you choose to install both the University of Washington IMAP server (UW-IMAP) and the Carnegie Mellon University Cyrus IMAP server (Cyrus) subsets, you must indicate which of these servers you want to enable after installation.

If you choose to install both the UW-IMAP and the Cyrus IMAP servers, you must indicate which IMAP server you want to enable on your system. Because these servers share the same port, you can enable only one IMAP server on the system at any given time. You can switch from one server to another at any time. See the *Administration Guide* for more information.

This section compares and contrasts the UW-IMAP server with the Cyrus server by considering several factors (mail file format, user setup, administrative overhead, mail folder sharing, and disk quota management). HP recommends the Cyrus IMAP server for its superior performance and scalability features, especially at sites having a large number of users who might store a large volume of mail. Cyrus also provides automated disk quota management, which is a benefit to Internet service providers (ISPs), who need to control the disk space consumed by users' mail.

The Cyrus server is also included in Tru64 UNIX.

### 2.19.1 Mail File Format

The UW-IMAP server relies on the standard UNIX `mbox` mail folders to hold the mail it serves. The messages in each folder are stored in a single file and are separated using a From header. This is the format that Sendmail uses to store messages in the `/var/spool/mail` directory. Mail-reading programs like `dtmail` and `mailx` also use this format. Because it relies on a standard mailbox format, the UW-IMAP server provides the following benefits:

- Users can easily access messages in existing `mbox` mail folders without assistance from a system administrator.

- Legacy mail agents can share mail folders. (But you must ensure that IMAP clients and mail readers do not manipulate mail folders directly at the same time; otherwise, the folders might be corrupted.)
- Users can directly access mail folders from the command line.
- The user's INBOX is `/var/spool/mail/username`.

The mbox folder format has the following drawbacks:

- Performance decreases significantly when folders get large, because all folder operations require rewriting the folder when the folder is closed.
- The UW-IMAP server writes a temporary copy of open folders to the `/tmp` directory, requiring this directory to be sufficiently large. This use of the `/tmp` directory can also limit the number of simultaneous connections.
- With the UW-IMAP server, multilevel folder hierarchies are possible only when using UNIX directories that contain other directories or mail folder files. Some IMAP clients cannot create directory hierarchies; you must manually create them on the server using the `mkdir` command. This limitation can also cause some mail clients to display warning messages if they attempt to treat these directories as real mail folders.

The Cyrus server uses a private mailbox format. Mail is stored in a spool area that is not accessible by users. Each mail folder is stored in a directory with caching files, and each mail message is stored as an individual file in one of the folder directories. The Cyrus mailbox format provides the following benefits:

- Excellent performance of all folder operations.
- Requests are handled with lower I/O overhead. Note, however, that the one file per message storage scheme tends to result in a large number of small files, which may require file system tuning.

## 2.19.2 User Setup

With the UW-IMAP server, mail is normally stored in a subdirectory of the user's home directory (usually named `./mail`). Many IMAP mail clients allow the user to specify which directory to use as the mail directory. Some mail clients can correctly determine which directories are mail folders, even when the mail directory is not specified. Other clients list all files and directories, including those that are not mail folders.

Mail folder names are constructed using the slash (`/`) as a separator, usually as children of the top-level mail directory (for example, `mail/save/stuff`). The UW-IMAP server uses the special name `INBOX` for the user's mail spool file, which is the name expected by all mail clients.

The Cyrus server does not require a top-level mail directory. Folder names are constructed using the period (`.`) as a separator and are generally children of the `INBOX` folder (for example, `INBOX.save.stuff`).

## 2.19.3 Administrative Overhead

The UW-IMAP server requires no administrative overhead. Any user who can be authenticated has access to mail folders under his or her home directory.

Before a user can use the Cyrus IMAP server, the user's existing mail folders must be converted to the Cyrus format. The Internet Express kit includes a modified version of the Tru64 UNIX mail conversion utility, `/usr/internet/mail/bin/mailcv`, which can convert UNIX ("From" style) folders to the Cyrus format and vice versa. See the *Administration Guide* for information on how to use the modified version of the `mailcv` utility. You can

read the reference page for the modified version of the `mailcv` utility by entering the following command:

```
% man n mailcv
```

## 2.19.4 Mail Folder Sharing

Cyrus supports the use of access control lists (ACLs) to allow customized access to mail folders. The ACLs provide a means of allowing users to share mail folders with a user-specific level of privileges.

Cyrus also supports the creation of common folders (that is, folders that are not specific to a given user). Visibility and access to common folders are controlled through ACLs.

With Cyrus, folders can be accessed concurrently by more than one mail client (even by different users).

The UW-IMAP server does not support ACLs or shared write access to folders. If a second client opens a mail folder that another client has open, the first client's connection is closed.

## 2.19.5 Disk Quota Management

Cyrus supports disk quota management, allowing for automated management of the disk space allocated to users' mail. When the disk quota for a user's mail would be exceeded by the receipt of a mail message, the message is automatically rejected.

UW-IMAP does not provide automated disk quota management.

## 2.20 Configuring the OpenLDAP Server

The installation procedure prompts for the following information required to set up the OpenLDAP Directory Server:

- Searchbase (otherwise known as organization name)
- Root Distinguished Name (`rootdn`)
- Root password (`rootpw`)

Defaults for all of the above are provided as follows:

1. If an existing OpenLDAP installation is detected, the existing configuration information is used.
2. If no prior installation exists, but the LDAP Module for System Authentication has been installed and configured on this system, default values are taken from `/etc/ldapcd.conf`.
3. If neither of the above are true, then the default searchbase is set to `o=<hostname>`, where `hostname` is the name of the local system. The root dn is set to `root`. The `rootpw` is set to the password specified at the beginning of the installation (if it is 8 characters long), otherwise, it is set to `diradmin`. It is strongly recommended as a security precaution that you do not use the default password of `diradmin`.

---

### Note

---

You should not use the system's root password for the Root DN password.

---

## 2.21 Configuring the LDAP Module for System Authentication

If you choose to install the LDAP Module for System Authentication, you must provide the following information to permit the installation procedure to initially configure the module:

- **Directory Server** — Host name of the directory server that the LDAP authentication module is to use. If you choose to install an Internet Express Directory Server subset, the default is the host name of the local system. If you are using a directory server other than one installed on the local system, specify the name of the host on which the directory server is running in this field.
- **Search Base** — Top level of the branch in the LDAP database that will contain the user authentication information. If you choose to install an Open Source Internet Solutions-supplied directory server, and supplied a searchbase for that server, that value is displayed in this field.
- **Root Distinguished Name** — Used with the Root DN Password to bind to the LDAP directory server. If installing with the OpenLDAP directory server, the default is `root`.
- **Root DN Password** — Used with the Root Distinguished Name to bind to the LDAP directory server. The default value for the password is derived as follows:
  1. If Netscape is not detected, but the OpenLDAP server is being or was previously installed, uses the OpenLDAP `rootpw`.
  2. If neither server was detected, uses the password specified at the beginning of the installation (if it is 8 characters long), otherwise, it is set to `diradmin`. It is strongly recommended as a security precaution that you do not use the default password of `diradmin`.

## 2.22 Completing Subset Installation

When you click on Continue, the installation procedure displays information about each component as the installation of the component software progresses. Scan this information for warning or error messages. You can cut and paste the information to save it in a file for future reference.

The installation procedure checks the validity of the configuration information you supplied and tries to connect to the LDAP server you specified. If the connection is successful, and the required schema attributes are found, the LDAP Module for System Authentication is enabled. If the connection fails, or if the required schema attributes are not found, the Module for System Authentication is enabled, but may not work correctly. The procedure used to verify the LDAP schema depends on the following criteria:

- You have a properly configured, running LDAP server.
- The LDAP server uses the LDAP V3 protocol, although the Module for System Authentication will work properly with LDAP V2 protocol servers.

After correcting the problems, you must use the Administration utility after the installation is complete to enable it.

Directory servers provided with Internet Express are automatically configured for use by the LDAP Module for System Authentication. The standard schema includes attributes that are mapped to UNIX `passwd(4)` and `group(4)` field names. The authentication of users for login and mail or any other service is completely transparent to the users. To improve performance, the `ldapd` caching daemon can cache password and group data locally and can also cache LDAP connection information. You control the daemon's caching activity through definitions in the `/etc/ldapd.conf` file. See the *Administration Guide* for more information.

Click on Continue to begin the installation of the software for all the subsets you selected.

When subset installation is complete, a button labeled Continue is displayed at the bottom of the page. Click on the Continue button to formally exit the installation procedure (Section 2.23).

## 2.23 Exiting the Installation Procedure

Click on Exit if you are satisfied with the installation. The installation procedure displays instructions for starting the Administration utility, performs a cleanup of files and directories, and sends a message to the terminal window from which you started the installation indicating that the installation is complete.

If you want to make changes to the installation, you can restart the installation procedure by clicking on Reinstall.

If you want to set up your system to serve as a firewall, see the *Administration Guide* for information on installing and configuring FireScreen.

Complete the installation as described in Chapter 3. Section 3.1 lists some tests you can perform to verify the installation.

---

### Note

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If you installed the TCP Wrapper subset, the default security level for all Internet Express services (except the `popassd` password-changing server) is set to world access. (By default, no access is permitted to the `popassd` server.) After the installation is complete, you can set the appropriate level of access for each service with the Administration utility. From the Manage Components menu, choose Security Administration, as described in the *Administration Guide*.

---



---

## Completing the Installation

After the installation procedure finishes, Verify the installation of Internet Express components (see Section 3.1) to make Internet Express software secure and operational.

---

### Note

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To ensure a secure system, you can access the Administration utility on port 8081 only from the local system (that is, the system on which you installed Internet Express). You can, however, use the Administration utility to allow access to these ports from remote systems. See the *Administration Guide* for more information.

---

### 3.1 Verifying the Installation

To verify that the Internet Express components correctly installed, you should perform general tests that are practical for your installation.

If you installed the Administration Utility, log in to the operating system with the user name and the password you specified during installation. Ensure that the Administration utility is accessible through the Web browser by accessing the following URL, substituting the fully qualified name of your system for *host.domain.name*:

```
http://host.domain.name:8081/
```

Access is initially restricted to the local host only.

Access the Administration utility using the user name `admin` and the password you specified during installation. This connection allows access to the Administration utility through the browser-based interface.

From the local system, perform such tasks as these to test the Administration utility:

- Create a captive user account
- Create one or more generic captive accounts
- Create a Tru64 UNIX user account

For more information on the tasks included in these tests, see the *Administration Guide* (which is available through a link on the Administration utility main menu).

Continue to verify other components you selected for your installation. For example:

- If you chose to install the InterNetNews Server, create a newsgroup in the form `local.group` then post an article to that newsgroup. (The Administration utility helps you do this; see the *Administration Guide* for detailed steps.
- Test the Squid Proxy/Caching Server by setting up proxies on any desktop client system to point to Internet Express on port 8080.

## 3.2 Connecting to the Secure Web Server

This section describes how to connect to Secure Web Server ports for public access and server administration.

The default, or public, Web access port is 80, although you might have chosen a different port when prompted during the installation. From the local system, connect to the following URL, substituting the fully qualified name of your system for *host.domain.name*:

```
http://host.domain.name:80/
```

Port 8081 is also used by the Secure Web Server administration utility.

Connect to the following URL to manage the Secure Web Server by substituting the fully qualified name of your system for *host.domain.name*:

```
http://host.domain.name:8081/
```

The installation procedure initially assigns the user name `admin` and the password you specified during installation to the server administrator. See the Web Server documentation for the parameters you can tune to improve the server's performance.

The installation procedure creates a link in the `/sbin/rc3.d` directory to the appropriate start procedure, which enables the Secure Web Server you installed to automatically start when the system reboots.

## 3.3 Using the Cleanup Script

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### Caution

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Use this cleanup script only if you want to remove subsets without using a browser to access the installation procedure. The cleanup script prompts you to delete the current subsets. These are the subsets you just installed; take care not to accidentally delete them.

It is not necessary to remove previous versions of Internet Express before installing a newer version. The installation procedure automatically updates from the previous version.

---

You can run the cleanup script provided on the Internet Express for Tru64 UNIX Installation and Documentation CD-ROM to remove files, directories, links, and kits used by previous versions of Internet Express.

To run the cleanup script, follow these steps:

1. Insert the CD-ROM in your system's CD-ROM drive and mount the drive by entering the following command, substituting the name of your CD-ROM drive (for example, `rz4c`) for *drive*:

```
# mount -r /dev/drive /mnt
```

2. Enter the following command to start the cleanup script:

```
# /mnt/ix_cleanup
```

The cleanup script displays the names of the Internet Express subsets currently installed on your system. Select one or more subsets to delete. When you confirm that you want to delete these subsets, the cleanup script calls `setld -d`, which removes the directories and files associated with each subset and removes any entries associated with the subset from system files.

---

## Troubleshooting the Installation

This chapter describes problems you might encounter during the installation and configuration of Internet Express software and suggests corrective action.

### Delayed response

If a step in the browser-based installation procedure appears to be taking a long time to complete, scroll to the bottom of the form to check its status. The step may be complete but the status message might not be visible unless you scroll to the bottom of the page.

### A `/usr/local` directory is not writeable

Check to ensure that the `/usr/local` file system is not NFS-mounted from another system where it is exported with root mapped to nobody.

### Modified security settings

If you are having difficulty connecting to your system using `rsh`, `telnet`, or `ftp`, and TCP Wrapper is installed on your system, check the `/etc/hosts.allow` file and edit the file to customize the entries for the affected services. If you installed the Internet Express Administration utility, use the TCP Wrapper component under Security on the Manage Components menu to customize the `/etc/hosts.allow` file.

---

#### Note

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If you installed TCP Wrapper, access to the `popassd` password changing server is denied by default after installing Internet Express.

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