

Installation Guide

iPlanet™ Application Server

Version 6.5 SP1

October 2002

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Preface

This chapter describes the contents of iPlanet Application Server *Installation Guide*. It contains the following sections:

- Using the Documentation
- About This Guide
- What You Should Know
- How This Guide is Organized
- Documentation Conventions

Using the Documentation

The following table lists the tasks and concepts that are described in the iPlanet Application Server manuals and *Release Notes*. If you are trying to accomplish a specific task or learn more about a specific concept, refer to the appropriate manual.

Note that the printed manuals are also available online in PDF and HTML format, at: <http://docs.sun.com/db?p=prod/slappsrv>

For information about	See the following	Shipped with
Late-breaking information about the software and the documentation	<i>Release Notes</i>	Available on the Web, at http://docs.sun.com/db?p=prod/slappsrv

For information about	See the following	Shipped with
Installing iPlanet Application Server and its various components (Web Connector plug-in, iPlanet Application Server Administrator), and configuring the sample applications	<i>Installation Guide</i>	iPlanet Application Server 6.5
Creating iPlanet Application Server 6.5 applications that follow the open Java standards model (Servlets, EJBs, JSPs, and JDBC), by performing the following tasks: <ul style="list-style-type: none">• Creating the presentation and execution layers of an application• Placing discrete pieces of business logic and entities into Enterprise Java Bean (EJB) components• Using JDBC to communicate with databases• Using iterative testing, debugging, and application fine-tuning procedures to generate applications that execute correctly and quickly	<i>Developer's Guide</i>	iPlanet Application Server 6.5

For information about	See the following	Shipped with
<p>Administering one or more application servers using iPlanet Application Server Administrator Tool to perform the following tasks:</p> <ul style="list-style-type: none"> • Monitoring and logging server activity • Implementing security for iPlanet Application Server • Enabling high availability of server resources • Configuring web-connector plugin • Administering database connectivity • Administering transactions • Configuring multiple servers • Administering multiple-server applications • Load balancing servers • Managing distributed data synchronization • Setting up iPlanet Application Server for development 	<i>Administrator's Guide</i>	iPlanet Application Server 6.5
Migrating your applications to the new iPlanet Application Server 6.5 programming model from the Netscape Application Server version 2.1, including a sample migration of an Online Bank application provided with iPlanet Application Server	<i>Migration Guide</i>	iPlanet Application Server 6.5
Using the public classes and interfaces, and their methods in the iPlanet Application Server class library to write Java applications	<i>Server Foundation Class Reference (Java)</i>	iPlanet Application Server 6.5
Using the public classes and interfaces, and their methods in the iPlanet Application Server class library to write C++ applications	<i>Server Foundation Class Reference (C++)</i>	Order separately

About This Guide

This *Installation Guide* tells you about the various kinds of installation procedures for the iPlanet Application Server and how to follow them.

This manual is intended for system administrators, network administrators, evaluators, application server administrators, web developers, and software developers who want to install iPlanet™ Application Server.

What You Should Know

Before you begin, you should already be familiar with the following topics:

- Application Servers
- Client/Server programming model
- Internet and World Wide Web
- Windows NT/2000 or Solaris™ operating systems
- Java programming and J2EE

How This Guide is Organized

This Guide is organized as follows:

Chapter 1, “Getting Started”, gives an overview of iPlanet Application Server features, iPlanet Application Server components, installation options, and system requirements for installation.

Chapter 2, “Preparing to Install”, provides an overview of the minimum requirements, and steps to be taken prior to installing iPlanet Application Server.

Chapter 4, “Easy iPlanet Application Server Installations on Windows”, contains the quick installation procedures for both the Windows and Solaris platform, including the ezSetup installation option.

Chapter 5, “Advanced Installations for Solaris”, describes the Custom Installation options for the Solaris platform. This installation option is recommended only for experienced users.

Chapter 6, “Advanced Installations for Windows,” describes the Custom Installation option for the Windows NT/2000 platform. This installation option is recommended only for experienced users.

Chapter 7, “Uninstalling,” describes uninstallation procedures.

Appendix A, “Configuring iPlanet Application Server,” describes configuration options in more detail.

Documentation Conventions

File and directory paths are given in Windows format (with backslashes separating directory names). For Unix versions, the directory paths are the same, except forward slashes are used instead of backslashes to separate directories.

This guide uses URLs of the form: `http://server.domain/path/file.html`, where:

- `server` is the name of the server where you are running the application.
- `domain` is your internet domain name.
- `path` is the directory structure on the server.
- `file` is an individual filename.

The following table shows the typographic conventions used throughout iPlanet documentation.

Table 1 Typographic Conventions

Typeface	Meaning	Examples
Monospaced	The names of files, directories, sample code, and code listings; and HTML tags	Open <code>Hello.html</code> file. <code><HEAD1></code> creates a top level heading.
<i>Italics</i>	Book titles, variables, other code placeholders, words to be emphasized, and words used in the literal sense	See Chapter 8 of the <i>Installation Guide</i> . Enter your <i>UserID</i> . Enter <i>Login</i> in the Name field.
Bold	First appearance of a glossary term in the text	Templates are page outlines.

Getting Started

This chapter provides the information to correlate your usage goals for iPlanet™ Application Server with the installation option that best suits those goals. In addition, it contains an overview of iPlanet Application Server components.

This chapter includes the following topics:

- iPlanet Application Server Features
- Overview of Server Components

Read this chapter before installing iPlanet Application Server. Check the release notes for the latest updates to these instructions at:

<http://docs.sun.com/?p=prod/sl.ipasee>

iPlanet Application Server Features

This section discusses the features you should consider when planning to integrate iPlanet Application Server into your environment. The configurations which you use to achieve your goals may affect where you install iPlanet Application Server and how you configure it after installation. Although some configuration is done during installation by entering required settings (especially while using the custom installation), you should plan on doing most of the configuration after installation is complete, using the iPlanet Application Server Administration Tool.

This section includes the following topics:

- High Scalability
- High Performance
- High Availability via Failover
- Security

- Enterprise System and Database Connectivity
- Enterprise-wide Manageability
- Cross-platform Portability

High Scalability

When a system can incrementally increase the capacity, capability, throughput and workload as the number of users increase, it is known as a highly scalable system. There are two categories of scalability available within iPlanet Application Server:

- Vertical scaling — focuses on loading up a single powerful machine to take full advantage of its resources.
- Horizontal scaling — adds several less powerful machines to increase performance.

iPlanet Application Server's scalable architecture allows applications to be developed to meet the needs of initial deployment, and later to be scaled to meet heavier demands as business needs grow. iPlanet Application Server applications can scale dynamically to support massive number of users. The Distributed Data Synchronization (DSync) mechanism in iPlanet Application Server allows the ability to dynamically add servers and new instances of application components.

High Performance

iPlanet Application Server can support a high volume of concurrent users without affecting the throughput. The following features contribute to high performance:

- Multi-threaded capabilities — Supports the multi-threading capabilities of the host operating system.

An application can optimize performance by processing requests on multiple threads, which maximizes CPU resource utilization.

- Dynamic load balancing — Distributes requests among instances of application servers to avoid any one or more of the servers being underutilized, or overutilized while others are available.

iPlanet Application Server offers several load balancing methods, including server load, response time, round robin and weighted round robin mechanisms. For more information see, "Balancing User-Request Loads" in the *iPlanet Application Server Administrator's Guide*.

- iPlanet Application partitioning — Allows components to be distributed across servers to accommodate heavier loads.

iPlanet Application Server architecture supports application partitioning, which allows logic to be distributed across servers as an application scales to accommodate heavier loads. Using iPlanet Application Server Administration Tool, system administrators can partition an application into functional areas.

- Resource pooling and caching — Avoids unnecessary time spent on creating and closing connections as well as on retrieving frequently accessed results by:
 - Connection caching and pooling — To improve performance, iPlanet Application Server caches database connections so that commonly used, existing connections are re-used rather than re-established each time. Connection caching avoids the overhead involved in creating a new database connection for each request.
 - Results Caching — iPlanet Application Server improves application performance by caching the results of application logic execution. Developers can optionally enable this feature in their applications.
 - JSP Caching — iPlanet Application Server provides this new feature, which aids in the development of compositional JSPs. This provides functionality to cache JSPs within the Java engine, making it possible to have a master JSP which includes multiple JSPs (similar to a portal page), each of which can be cached using different cache criteria. The JSP caching feature is in addition to result caching.

- Data Streaming — Moves data more quickly, providing results sooner.

iPlanet Application Server provides data streaming that allows users to begin viewing results of requests sooner, rather than wait until the operation has been completely processed. Application developers can explicitly control what data is streamed, or allow the system to provide automatic streaming.

- Optimized Web Server communication — Speeds application performance through tighter integration with web servers.

Web Server integration occurs through the Web Connector Plug-ins and corresponding listeners. iPlanet Application Server supports NSAPI, ISAPI, APACHEAPI, and optimized CGI for iPlanet, Microsoft, and CGI-compatible Web servers, respectively.

Other factors affecting application performance include network topology, network and server hardware, database architecture, and application programming. For more information see *iPlanet Application Server Performance and Tuning Guide*.

High Availability via Failover

iPlanet Application Server can support operations that run 24 hours per day, and seven days per week (24 by 7). The main factor to consider while configuring a highly available iPlanet Application Server installation is the failover capability.

iPlanet Application Server provides a highly available and reliable solution through the use of load balancing and dynamic failover (also called failure recovery). iPlanet Application Server can distribute all or part of an application across multiple servers. As a result, if one server goes down, the other servers can continue to handle requests. iPlanet Application Server minimizes downtime by providing automatic application distributed user-session information and distributed application-state information. Information is maintained as long as at least one iPlanet Application Server installation is still running in a cluster with the server that crashed.

iPlanet Application Server features a set of failover capabilities that promote application availability, including:

- **Stateful Session Bean failover** — If there are unexpected fatal problems with the server, the bean fails over to another server. Supporting failover for stateful session beans is an iPlanet Application Server value-added feature. J2EE applications do not need any modification to support this feature.
- **Rich Client failover** — The Rich Client CORBA Executive Service (CXS) acts as a bridge between Rich Clients that use the Internet Inter-Object Protocol (IIOP) and the EJBs on iPlanet Application Server's Java engine(s). If the CXS server within iPlanet Application Server crashes, the state of the bridge objects for all EJBs are restored to that before the crash. By eliminating single points of failure, iPlanet Application Server offers maximum application availability.

Security

To prevent unauthorized access to business logic, resources, and data, the main factor to consider are the authentication and authorization mechanisms. These mechanisms can be role-based, certificate-based, or form-based authentication.

iPlanet Application Server supports all J2EE security requirements, including role-based authentication, certificate authentication, and form-based authentication. iPlanet Application Server supports the EJB v1.1 security model and the Java Servlet v2.2 security model.

iPlanet Application Server also provides secure web server communication and supports SSL, HTTPS, and HTTP challenge-response authentication to clients. To bridge the security gap between browsers and data sources, iPlanet Application Server supports user authentication, cookies, and database access controls for the secure handling of transactional operations. Event logging and tracking enables detection of, and protection against, unauthorized access.

iPlanet Application Server features a set of security features that include:

- Single sign-on across all applications on iPlanet Application Server
- Security for Rich Clients
- XML-based role mapping information. Use the iPlanet Application Server GUI-based deployment tool to build the XML files that contain security information
- LDAP-based authentication

Enterprise System and Database Connectivity

iPlanet Application Server has the ability to interface with external databases and enterprise information systems. iPlanet Application Server provides developers with native database drivers, JDBC support, and the Unified Integration Framework API, which provides heterogeneous transactions - spanning multiple vendor databases.

iPlanet Application Server provides support for all JDBC database drivers conforming to the Java Software JDBC 2.0 API with Extensions. iPlanet Application Server certifies JDBC drivers for:

- Oracle
- DB2
- Informix
- Sybase
- SQL Server (on Windows only)

iPlanet Application Server provides JDBC connectivity through an iPlanet Application Server implementation of JDBC. This implementation supports both heterogeneous and global transactions. Local transactions are native to a database and are restricted within a single process. Local and global transactions are managed and coordinated by the Transaction Manager built into iPlanet Application Server.

Enterprise-wide Manageability

By using the iPlanet Application Server Administration Tool, you can change the system configuration without interrupting the operation of the system or disrupting service to clients. The Java-based iPlanet Application Server Administration Tool enables local and remote monitoring and management of multiple Application Servers and distributed applications. The following features enable this:

- Remote administration — remotely configuring the server and its applications.
- Automatic detection and restart of failed servers and processes
- Real-time monitoring of system events and performance
- Event notification system that you can configure to run a script and send an email message about critical situations
- Application management and partitioning
- Fine tuning of applications for optimal performance
- Setup security roles and access control lists
- Transaction Management features for local or global transactions

Cross-platform Portability

iPlanet Application Server provides developers the flexibility to develop and deploy on different hardware platforms.

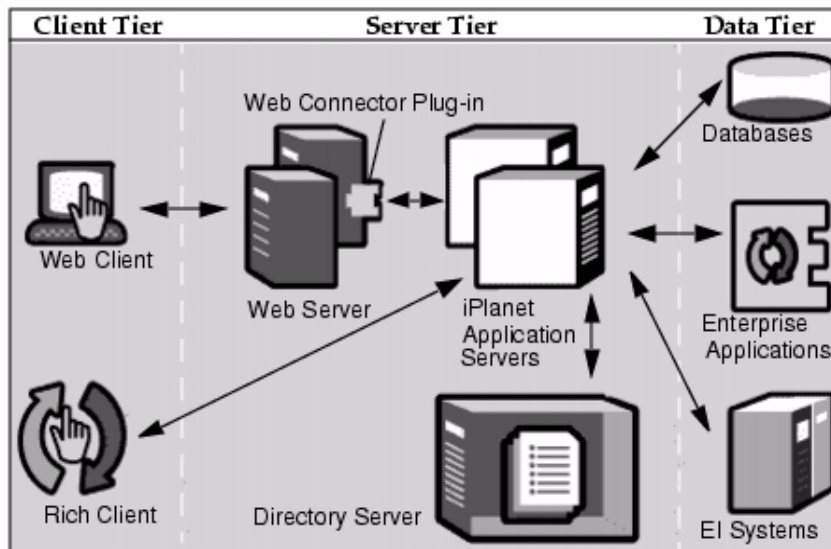
iPlanet Application Server is available on a variety of hardware platforms. These include:

- Microsoft Windows NT SP6a or Windows 2000 Professional
- Sun® SPARC™ running Solaris™ 2.6 or Solaris 8
- Hewlett Packard HP-UX 11.0
- IBM® AIX 4.3.3

Overview of Server Components

iPlanet Application Server includes the iPlanet Console, the Administration Server, the (optional) Web Connector plug-in, the Directory Server, iPlanet Application Server Deployment Tool, and the Administration Tool. Their relationship to the three tier and J2EE computing model is shown in Figure 1-1.

Figure 1-1 iPlanet Application Server is at the core of the three tier computing model



This section includes the following topics:

- iPlanet Console
- Administration Servers
- Core Application Server Components
- iPlanet Directory Server

iPlanet Console

The iPlanet Console performs common server administration functions such as stopping and starting servers, installing new server instances, and managing user and group information through the LDAP services of the Directory Server. The console can be installed with iPlanet Application Server or by itself. When installed as a standalone application, you can use it to manage remote servers from any machine on your network.

Administration Servers

When you install iPlanet Application Server, you install its Administration Server also. The iPlanet Application Server's Administration Server is used internally by the Administration Tool and Deployment Tool but is not used directly by system administrators.

In addition, when you install the iPlanet Console, its Administration Server is installed. Like the iPlanet Application Server's Administration Server, this server is used internally by the iPlanet Console.

Core Application Server Components

Web Connector Plug-In

The Web Connector plug-in enables communication between iPlanet Application Server and a Web server. When you install iPlanet Application Server, your Web server is automatically configured for the Web Connector plug-in. This means that all necessary directories and settings on the Web server are updated.

If you have problems with the connection between iPlanet Application Server and the Web Connector plug-in, see the *iPlanet Application Server Administrator's Guide* for more information.

iPlanet Application Server Administration Tool

The iPlanet Application Server Administration Tool is a stand-alone Java application with a graphical user interface that allows you to administer one or more instances of iPlanet Application Server.

iPlanet Application Server Deployment Tool

The iPlanet Application Server Deployment Tool allows you to package and deploy your J2EE applications. Like the Administration Tool, the Deployment Tool is also a stand-alone Java application with a graphical user interface.

iPlanet Directory Server

Your iPlanet Application Server and other directory-enabled applications use the iPlanet Directory Server as a common, network-accessible location for storing shared data such as user and group identification, server identification, and access control information. The most well known of the Directory Server's service is the Distinguished Name Service (DNS).

The iPlanet Directory Server provides global directory services, meaning, it provides information to a wide variety of applications. A global directory service is a single, centralized repository of directory information that any application can access through network-based communication between the applications and the directory. iPlanet Directory Server uses LDAP (Lightweight Directory Access Protocol) to give applications access to its global directory service. The LDAP protocol enables iPlanet Directory Server to scale to millions of entries for a modest investment in hardware and network infrastructure.

NOTE iPlanet Directory Server runs as the `slapd` service on Windows, and `ns-slapd` on Solaris.

iPlanet Directory Server installed along with the Application Server, is configured to store two types of information: configuration information and authentication information. As you install iPlanet Application Server, you set up the Directory Server Data Information Tree (DIT), which has branches for this information. For more information see the *iPlanet Directory Server Installation Guide* at:

<http://docs.sun.com>

The configuration directory is the part of Directory Server used to store the Application Server's configuration information. It contains the data tree, `o=NetscapeRoot`, used by the iPlanet Application Server to store the configuration settings under the suffix that you set up to identify your organization. Multiple server installations can store their configuration settings in this configuration directory.

If you install Directory Server component with the iPlanet Application Server, you must designate this installation of Directory Server as the configuration directory, even if another installation of directory server already exists at your site.

For an overview of the various functions of Directory Server, see the *iPlanet Directory Server Installation Guide*.

Preparing to Install

This chapter includes the following topics:

- Minimum System Requirements
- Prerequisites for Installation
- Installing iDS 5.0 SP1 Patch
- Installation Options
- Upgrading From 6.5 to 6.5 SP1
- List of Certified Directory Servers
- List of Certified Web Servers
- List of Certified JVMs
- List of Certified Third Party JDBC Database Drivers
- List of Certified Native Type 2 Database Servers and Clients

Read this chapter before using the ezSetup, Typical, Express or Custom iPlanet™ Application Server installations. For any late breaking updates to these instructions, check the *Release Notes* at:

<http://docs.sun.com/?p=prod/s1.ipasee>

For more information about configuring your application server after installation, refer to the *iPlanet Application Server Administrator's Guide*.

Minimum System Requirements

Your system must meet the following requirements before you can install iPlanet Application Server.

Solaris

Your Solaris™ system must meet the following requirements before you can install iPlanet Application Server, Enterprise Edition 6.5 SP1:

- Sun® SPARC™ running Solaris 2.6 or Solaris 8 or Solaris 9
- 400 MB free hard disk space
- 512 MB RAM
- One of the following Web Servers:
 - iPlanet Web Server, Enterprise Edition 6.0, SP1 or later
 - iPlanet Web Server, Enterprise Edition 4.1, SP7 or later
 - Apache Web Server 1.3.19, 1.3.26
- The following Web browser:
 - Netscape™ Communicator 4.5 or later

NOTE The web server and browser need not be present on the same machine if you are performing a Webless installation. For more information, see “Webless Installations,” on page 151

- Solaris Patch Requirements

iPlanet Application Server 6.5 SP1 bundles Solaris production JDK 1.3.1_04 for SPARC®. The following patches must be applied on Solaris 2.6 and Solaris 8.

These patches can be downloaded from the <http://sunsolve.sun.com> Web site.

Table 2-1 Required JDK 1.3.1 patches on Solaris 2.6

Patch	Patch Description
105181-29	Kernel update patch
105210-38	libaio, libc & watchmalloc patch
105284-45	Motif 1.2.7: Runtime library patch
105568-23	Libthread patch
105591-11	C++ shared library patch
105633-59	OpenWindows 3.6: Xsun patch

Table 2-1 Required JDK 1.3.1 patches on Solaris 2.6

Patch	Patch Description
105669-10	libDtsvc Patch
106040-17	X Input & Output Method patch
106125-11	patch for patchadd and patchrm
106409-01	Fixes the Traditional Chinese TrueType fonts
106841-01	Openwin patch
106842-09	Euro support
106429-02	Kernel/drv/mm patch
107733-09	Linker patch
108091-03	ssJDK1.2.1_03 fails with fatal error in ISO8859-01 Locales

Apply the following JDK 1.3.1 patches on Solaris 8:

Table 2-2 Required JDK 1.3.1 patches on Solaris 8

Patch	Patch Description
108652-37	X11 6.4.1 patch
108921-13	CDE 1.4 patch
108940-32	Motif patch

Apply the following OS patches on Solaris 8

Table 2-3 Required Solaris 8 OS patches

Patch	Patch Description
108528-17	Kernel update patch
108434-04 (32-bit)/ 108435-04 (64-bit)	libc patch
108827-12	libthread.so.1 patch

NOTE You must reboot your Solaris system after applying the kernel patch.

Windows

Your Microsoft Windows system must meet the following requirements before you can install iPlanet Application Server, Enterprise Edition 6.5:

- Microsoft Windows NT 4.0 with SP6a, or Windows 2000 Professional SP2, or Windows 2000 Server SP2, or Windows 2000 Advanced Server SP2
- 400 MB free hard disk space (NTFS)

NOTE On a FAT file system, the installer may not calculate the needed space correctly and may run out of disk space without warning.

- 512 MB RAM
- One of the following Web Servers:
 - iPlanet Web Server, Enterprise Edition 6.0, SP1, SP2, or 6.0.1
 - iPlanet Web Server Enterprise Edition 4.1, SP7 or later (not supported on Windows 2000)
 - Microsoft Internet Information Server 4.0 or 5.0
 - Apache Web Server 1.3.19, 1.3.26
- One of the following Web browsers:
 - Netscape Communicator 4.5 or later
 - Internet Explorer 4.0 or later

NOTE

- The web server and browser need not be present on the same machine if you are performing a Webless installation. For more information, see “Webless Installations,” on page 151
- To run Internet Information Server 5.0 on Windows 2000, a few manual configuration steps have to be performed. For more information see, “Registering the Plug-in on IIS 5.0 running on Windows 2000,” on page 154.

Prerequisites for Installation

Before you begin installing iPlanet Application Server, Enterprise Edition 6.5, verify that the following prerequisite conditions are met:

- Meet the Minimum System Requirements for the platform on which you are installing iPlanet Application Server.
- Have administrative privileges on the Windows or Solaris system.
- On Solaris platforms, unset the environment variable `LD_LIBRARY_PATH` from the shell from which you are installing iPlanet Application Server.
- On Solaris platforms, establish a UNIX user and group for iPlanet Application Server. Use this account to install and manage iPlanet Application Server.
- Make sure you have your product key nearby; it's in the Welcome letter.
- Ensure that a static IP address is assigned to the machine (contact your system administrator to get one).
- If you are planning to use a fresh installation of iPlanet Application Server, Enterprise Edition 6.5 with a remote user directory, you must install the iPlanet Directory Server 5.0 SP1 patch *before* installing iPlanet Application Server.

This patch must be installed even if you are using iPlanet Directory Server 4.13 or later versions, as your user directory. For more information on how to install the patch, see “Installing iDS 5.0 SP1 Patch,” on page 32.

- If you choose not to install the Directory Server Suite on a fresh installation of iPlanet Application Server, Enterprise Edition 6.5 on Windows, then you must copy the `libnspr3.dll` file from the product CD to the `Winnt\system32` directory. This is to ensure that your LDAP applications work properly when the configuration directory is on a remote machine.

The `libnspr3.dll` file can be found on the product CD in the `/Windows/ias` directory.

- Make sure that no other service is running on port 9092 before installing iPlanet Application Server as the bundled PointBase database application uses port 9092 by default.
- If you are running Windows 2000, ensure that the Primary DNS suffix has been correctly set on the machine on which you are installing iPlanet Application Server.

To set the Primary DNS suffix, go to `Start menu > Settings > Control Panel > System > Network Identification > Properties`. Ensure that the computer's name is entered correctly.

Click `More`. Ensure that the DNS domain name is entered correctly in this panel. Click `OK` to update your changes.

- On Solaris platforms, ensure that the machine has its fully qualified domain name mentioned in the `/etc/hosts` file, as shown in this example:

```
#
# Internet host table
#
127.0.0.1 localhost
192.168.0.255 myhost.company22.com myhost loghost
```

- On Solaris platforms, ensure that the Directory Server is installed on the local file system. Multiple physical drives can be used, but they should to be mounted locally.
- Configure the Web Server
 - Make sure that one of the recommended Web Server and Web Browser is installed and configured before you install iPlanet Application Server. The iPlanet Web Server, Enterprise Edition 6.0, SP1 or later is available for download at:
<http://www.sun.com/software/download/download/5289.html>

- On the Solaris platform, iPlanet Application Server user and the Web Server user must either be the same or from the same group. If the Web Server is installed as a regular user, and the iPlanet Application Server user is installed as the root user, a file permission problem will exist. The Web Server will not start because it doesn't have access to the registry file, `reg.dat`.
- Webless Installation

If your web server runs on a different machine from the machine on which iPlanet Application Server is installed, you perform what is referred to as a “webless” installation. After performing a webless installation, you must install the Web Connector plug-in on the web server in your configuration.

For more information, see “Webless Installations,” on page 151.

NOTE

- To use Apache Web Server, you must configure iPlanet Application Server to work with either the iPlanet Web Server or Microsoft Internet Information Server during installation. After installing iPlanet Application Server, install and configure the Apache Web Server.
- Make sure to set the registry key permissions for the `\SOFTWARE\iPlanet` key to Full Control for all options.

For more information on how to install and configure the Apache web server, see “Installing the Web Connector Plug-in,” on page 152.

- Install and Configure Database Servers

Before installing iPlanet Application Server, install the database servers and clients to use with this iPlanet Application Server installation.

During application server Custom installation, you can choose to configure iPlanet Type 2, third party JDBC, or no JDBC drivers. Although only one type of JDBC driver can be configured during installation, either the Type 2 driver or third party JDBC driver, you can choose to configure both after installation.

You can configure third party JDBC drivers after installation by executing `db_setup.sh` script on Solaris and `jdbctestup.exe` on Windows, a JDBC driver configuration tool. When configuring the database drivers after installation, you must restart the application server to apply the changes. For more information, see *iPlanet Application Server Administrator's Guide*.

NOTE PointBase database server and its third party JDBC driver is automatically registered with the Administration Server. It also populates the sample databases of e-Store, J2EEGuide, Database, and Bank sample applications.

For more information on how to register database drivers and deploy applications, see the iPlanet Application Server Administrator's Guide and the online help of the Deployment Tool.

Installing iDS 5.0 SP1 Patch

This patch should be installed if you are planning to use a fresh installation of iPlanet Application Server, Enterprise Edition 6.5, with a remote user directory. This patch must be installed even if you are using iPlanet Directory Server 4.13 or later versions, as your user directory.

You don't need to install the iPlanet Directory Server 5.0 SP1 patch if you are upgrading from an earlier version of iPlanet Application Server, Enterprise Edition, 6.0. While upgrading, make sure you do not select the iPlanet Directory Suite component. For detailed instructions on upgrading iPlanet Application Server, see "Upgrading From 6.5 to 6.5 SP1," on page 34.

Follow these instructions to install iPlanet Directory Server 5.0 SP1 Patch. This patch must be copied to the appropriate directory before installing iPlanet Application Server, Enterprise Edition, 6.5.

To Install the Patch on Solaris

1. Copy the contents of the product CD under the `Solaris/iAS` directory to a local directory on your machine.
2. From the product CD, copy the `nsslapd.zip` file from the `iDS50SP1patch/Solaris` directory to the `slapd` directory under the iPlanet Application Server installables on your local machine.
3. Run the iPlanet Application Server, Enterprise Edition, 6.5 installation from this local directory.

To Install the Patch on Windows

1. Copy the contents of the product CD under the `Windows\ias` directory to a local directory on your machine.
2. From the product CD, copy the `slapd.z` file from the `iDS50SP1patch\Windows` directory to the `slapd` directory under the iPlanet Application Server installables on your local machine.
3. Run the iPlanet Application Server, Enterprise Edition, 6.5 installation from this local directory.

Installation Options

iPlanet Application Server provides the following installation options:

- Ezsetup
- Express or Typical
- Custom
- Silent

The first two options require very little user input and thus enable you to get the application server up and running in a matter of minutes. The installer sets up the application server with default values for port numbers, passwords, and so on. These settings are sufficient for running many of the iPlanet sample applications and for providing a platform for you to use in deploying your own sample applications.

Ezsetup

The ezSetup installation is the easiest of the installation options. The ezSetup installer runs a script which assigns default values to administrator user names and passwords. You have to enter information to very few questions to start the installation process.

For installation instructions, go to “Running ezSetup on Windows,” on page 65, or “Running ezSetup on Solaris,” on page 45.

Express or Typical

The Express and Typical options afford more flexibility than ezSetup. The express and Typical options will install iPlanet Application Server with the most common settings. You can configure your iPlanet Application Server instances after installation by using the Administration Tool.

For instructions on installing on Windows, go to “Running the Wizard Installation,” on page 68, and for installing on Solaris, go to “Starting Solaris Installations,” on page 47.

Custom

The Custom installation option allows you to configure the application server and its associated components during the installation. The Custom installation option requires a lot of user input and is recommended for advanced users.

For instructions on installing on Windows, go to Chapter 6, “Advanced Installations for Windows”, and for Solaris, see Chapter 5, “Advanced Installations for Solaris”.

NOTE	You must use the Custom installation option to test the clustering samples.
-------------	---

Silent

The Silent Installation feature allows iPlanet Application Server installation on multiple machines without running the installation program more than once.

For more information on running the Silent installation option on Windows, see “Installing on Multiple Windows Machines,” on page 141, and for Solaris, see “Installing on Multiple Solaris Machines,” on page 116.

Upgrading From 6.5 to 6.5 SP1

This section describes procedures to upgrade from iPlanet Application Server 6.5, Enterprise Edition to iPlanet Application Server 6.5 SP1, Enterprise Edition.

The following topics are covered in this section:

- Before You Start
- Upgrading on Solaris Platforms
- Upgrading on Windows Platforms
- Upgrading Webless Installations
- Upgrading Web-connector Plugin

NOTE Due to changes in the transaction manager, you cannot upgrade from 6.0 SPx to iPlanet Application Server 6.5. You will have to perform a fresh install of iPlanet Application Server 6.5 and redeploy all your applications.

For details on redeploying your existing applications, see Chapter 2, “Migrating Applications”, in *iPlanet Application Server Migration Guide*.

Before You Start

Make sure to follow these guidelines before upgrading to 6.5 SP1:

- Stop iPlanet Application Server before starting the upgrade process. If the current iPlanet Application Server installation is part of a cluster, then you must stop all application servers running in that cluster before upgrading.
- Make sure that the Directory Server is running.
- If you want to make any changes to the existing configuration, first complete the upgrade procedure, and then use iPlanet Application Server Administration Tool (IASAT) to make those changes.
- iPlanet Application Server installation or upgrade will cause the Directory Server installed locally on the same machine on which the application server is being installed, to restart. Other application server instances configured to the same Directory Server will display error messages, until the Directory Server is up again.

After the Directory Server has restarted, all the iPlanet Application Server instances will function normally.

Upgrading on Solaris Platforms

To upgrade to iPlanet Application Server 6.5, SP1 on Solaris, perform the following steps:

NOTE	Choose the same configuration options that you chose for the existing installation. You can make modifications to your configuration after upgrading.
-------------	---

1. Ensure you have met all the conditions listed in “Minimum System Requirements,” on page 25, and “Prerequisites for Installation,” on page 29.
2. Run the setup program.
3. Enter y and press Enter at the Welcome Screen.
4. Enter y and press Enter to accept the license agreement.
5. Select 1 to install iPlanet Servers.
6. Select Typical or Custom as the type of installation.
7. Change the location of install to the same location as your current installation.
Press Enter.
The iPlanet Server Products Components screen appears.
8. Enter 4 and press Enter to install only the iPlanet Application Server component.

Make sure this is the only selected component. *Do not select the other components.*
9. Select the sub-components shown in subsequent screens.
10. Enter the fully qualified domain name (*hostname.domain.com*) of the machine on which you are installing iPlanet Application Server.
11. Enter the system user and system group names.
12. Enter the Administrator ID and password for the Configuration Directory Server.
13. When you are asked whether you want to upgrade, type y at the prompt and press Enter.
14. Enter the Product Key.
The product key is in the welcome letter you received with the product CD.
15. The installation program extracts the required files and completes the upgrade process.

For more detailed information on the installation procedure, see Chapter 5, “Advanced Installations for Solaris”.

Upgrading on Windows Platforms

NOTE In the ‘Components to Install’ screen, ensure to select the main components before selecting the sub-components. Some of the components may have already been selected. In such cases, de-select these components and select them again.

To upgrade to iPlanet Application Server 6.5 SP1 on Windows, perform the following steps:

1. Ensure you have met all the conditions listed in “Minimum System Requirements,” on page 25, and “Prerequisites for Installation,” on page 29.
2. Run the setup program.
3. Click Next after the Welcome screen appears.
4. Click Yes to accept the license agreement.
You must accept the License agreement to continue.
5. Click Next to install the iPlanet Server and core components.
6. Select Typical or Custom as the type of installation.
7. Change the location of install to the same location as your current installation. Click Next to continue.

The Components to Install screen appears.

8. Select iPlanet Application Server 6.0.
Make sure this is the only selected component. *Do not select the other components.*
9. Enter the configuration directory administrator ID and password
10. Click OK when you are asked whether you want to upgrade.
11. Confirm the configuration directory information displayed and enter the password of the user directory administrator (typically cn=Directory Manager).

12. Enter the Product Key. The product key is in the welcome letter you received with the product CD.
13. Click Install to complete the upgrade.

For more information on the installation procedure, see Chapter 6, “Advanced Installations for Windows”.

Upgrading Webless Installations

The following procedure describes how to upgrade a webless installation of iPlanet Application Server 6.5 on both Solaris and Windows.

1. Ensure you have met all the conditions listed in “Minimum System Requirements,” on page 25, and “Prerequisites for Installation,” on page 29.
2. Run the setup program.
3. Press Enter at the Welcome Screen.
4. Accept the license agreement.
5. Select 1 to install iPlanet Servers.
6. Select Typical or Custom as the type of installation.
7. Change the location of install to the same location as your current installation, and press Enter.
8. Enter 4 and press Enter to install only the iPlanet Application Server component.

Make sure this is the only selected component. *Do not select the other components.*

The iPlanet Server Products Components screen appears. Depending on your previous configuration, a few options will be automatically selected. If you proceed with the selected components, the upgrade might fail at a later stage with the error message, “the installed components do not match with the selected components”.

9. De-select all automatically selected components (only on Windows).

Additionally, ensure to select the main components before selecting the sub-components.

10. Select the sub-components shown in subsequent screens, except for the Web-connector plugin.

11. Enter the fully qualified domain name (*hostname.domain.com*) of the machine on which you are installing iPlanet Application Server.
12. Enter the system user and system group names.
13. Enter the Administrator ID and password for the Configuration Directory Server.
14. When you are asked whether you want to upgrade, type *y* at the prompt and press Enter.
15. Enter the Product Key.
The product key is in the welcome letter you received with the product CD.
16. The installation program extracts the required files and completes the upgrade process.

Upgrading Web-connector Plugin

The following procedure describes how to upgrade the Web-connector plugin on both Solaris and Windows.

1. Ensure you have met all the conditions listed in “Minimum System Requirements,” on page 25, and “Prerequisites for Installation,” on page 29.
2. Run the setup program on the machine where the Web-connector plugin is installed.
3. Press Enter at the Welcome Screen.
4. Accept the license agreement.
5. Select 1 to install iPlanet Servers.
6. Select Typical or Custom as the type of installation.
7. Change the location of install to the same location as your current installation, and press Enter.

8. Enter 4 and press Enter to install only the iPlanet Application Server component.

Make sure this is the only selected component. *Do not select the other components.*

The iPlanet Server Products Components screen appears. Depending on your previous configuration, a few options will be automatically selected. If you proceed with the selected components, the upgrade might fail at a later stage with the error message, “the installed components do not match with the selected components”.

9. De-select all automatically selected components (only on Windows).

Additionally, ensure to select the main components before selecting the sub-components.

10. Select the Web-connector plugin component.

Ensure to de-select the other sub-components.

11. Enter the fully qualified domain name (*hostname.domain.com*) of the machine on which you are installing iPlanet Application Server.

12. Enter the system user and system group names.

13. Enter the Administrator ID and password for the Configuration Directory Server.

14. When you are asked whether you want to upgrade, type y at the prompt and press Enter.

15. The installation program extracts the required files and completes the upgrade process.

List of Certified Directory Servers

The following directory servers are certified to work with iPlanet Application Server 6.5 on Solaris and Windows platforms.

Table 2-4 Certified Directory Servers

Directory Server	Version
iPlanet Directory Server	5.1 SP1
	5.0 SP1 (bundled with iPlanet Application Server 6.5 SP1)
	4.13

List of Certified Web Servers

The following Web servers are certified to work with iPlanet Application Server 6.5.

Table 2-5 Certified Web Servers

Web Server	Interface
iPlanet Web Server, Enterprise Edition 6.0, SP1, SP2 or 6.0.1	NSAPI iWS 6.0.1, which is bundled with iPlanet Application Server 6.5 SP1 product CD, does not include the Verity search engine. All versions of iPlanet Web Server Enterprise Edition 6.0, SP1 or later is certified on Solaris.
iPlanet Web Server, Enterprise Edition 4.1, SP7 or later (Not supported on Windows 2000)	NSAPI
Microsoft Internet Information Server 4.0 (Windows NT)	ISAPI
Microsoft Internet Information Server 5.0 (Windows 2000)	ISAPI
Apache 1.3.19, 1.3.26	APACHEAPI

List of Certified JVMs

The following JVMs are certified to work with iPlanet Application Server 6.5.

Table 2-6 Certified JVMs

Platform	Version	JVM
Windows 2000	Professional, Server	JDK 1.3.1_06
Windows NT	4.0 SP6a	JDK 1.3.1_06
Solaris	2.6, 8	JDK 1.3.1_06

Accessing Databases

To configure a new iPlanet Application Server instance for database access, it is recommended that you use one of the iPlanet Application Server database setup tools after installation. You can use these tools to configure your applications and components for third party JDBC access.

NOTE In addition to the JDBC third party driver support, the Custom installation option provides wizard panels for configuring iPlanet Application Server Type 2 database access. However, these drivers have been deprecated with this release of iPlanet Application Server.

This section includes the following topics:

- Configuring Database Drivers
- Database Support

Configuring Database Drivers

Third party JDBC drivers need to be identified to iPlanet Application Server either during application server installation or by using registration tools after installation. Registration must occur on each application server instance that houses applications which use third party JDBC driver data sources.

When you create your own applications, you can elect not to specify the particular database you want the application to use. In this case, the application will attempt to connect to the configured databases in the priority order you specify during installation.

NOTE During installation, third party JDBC driver for PointBase database server are automatically setup, even if you choose not to configure database drivers. This is to ensure the proper working of the PointBase database server, which is installed by default.

During Installation

You can configure the third party JDBC drivers only through the Custom installation option. If you use the Express or Typical installation, see the next section for configuring the third party JDBC drivers after installation of the application server.

After Installation

Configure third party JDBC drivers after installation using the iPlanet Application Server Administration Tool. When configuring database drivers after installation, you must restart the application server to apply the driver changes.

For more information, see *iPlanet Application Server Administrator's Guide*.

Database Support

iPlanet Application Server 6.5 is certified against the third party JDBC database drivers in Table 2-7. In addition, though not yet certified, other third party JDBC database drivers, which conform to JDBC 2.0 with Extensions specifications, should work with iPlanet Application Server 6.5.

List of Certified Third Party JDBC Database Drivers

Table 2-7 Third party JDBC database drivers certified in 6.5 on Windows and Solaris

Database Vendor	JDBC Driver
Oracle	Oracle 8i 8.1.7 (Type 4 and Type2), 9i
Merant SequeLink	DataDirect Java 5.1 (all databases supported by DDJ5.1)
Sybase	jConnect for JDBC 5.2 Type 4
IBM DB2	IBM DB2 7.1 JDBC Client
Informix	Informix JDBC v2.1 Type 4

List of Certified Native Type 2 Database Servers and Clients

-
- NOTE**
- Local and global transactions are not supported for Native drivers. To use transactions, you must configure a third party JDBC driver.
 - For transactions support for your database driver, you must use third party JDBC drivers that conform to JDBC 2.0 with Extensions specifications.
-

To maintain backward compatibility, iPlanet Application Server 6.5 continues to support database clients and servers for iPlanet Application Server Type 2 JDBC Database Drivers listed in Table 2-8.

Table 2-8 Certified Native Type 2 database servers and clients-in 6.5

Database Server	Database Client	Platform
Oracle 7.3.4, 8.0.x, 8i, 9i	Oracle8i 8.1.7	Windows NT/Solaris
Sybase 12	Sybase Open/Client System 12	Windows NT/Solaris
DB2 7.1	DB2 6.1, 7.1	Windows NT/Solaris
Informix 9.2	Informix SDK 2.40	Windows NT/Solaris
Microsoft SQL Server 7, 2000	ODBC 3.51	Windows NT only (client)

-
- NOTE**
- For proper functioning of the Sybase global transactions on Solaris, the following Sybase patches for client version 12 should be installed:
 - EBF 9651
 - EBF 9769

These patches are available from the Sybase website at:
<http://www.sybase.com>.
 - On Oracle, transactions are supported on Oracle 8.1.7 or later server versions.
-

Easy iPlanet Application Server Installations on Solaris

This chapter describes how to install and configure the iPlanet™ Application Server for the Windows and Solaris™ platforms. It contains the following information

- The Easy Installation Options
- What You're Installing
- Using the Easy Installation Options for Solaris
- Verifying Installation
- Using the Sample Applications

Read this chapter before using the ezsetup, Typical, or Express iPlanet Application Server installations. For any late breaking updates to these instructions, check the *Release Notes* at:

<http://docs.sun.com/?p=prod/s1.ipasee>

For more information about configuring your application server after installation, refer to *iPlanet Application Server Administrator's Guide*.

The Easy Installation Options

The easiest iPlanet Application Server software installation options are as follows:

- ezsetup; at most, a two step installation, which sets port numbers, usernames, and passwords to default values
- Express; requires slightly more user input than ezsetup

- Typical; requires more user input but yields an installation that is essentially the same as that performed by `ezsetup`

What You're Installing

The software you're installing for iPlanet Application Server, consists of a group or *stack* of components, including:

- iPlanet Directory Server, Enterprise Edition 5.0 SP1
- iPlanet Console, which has its own Administration Server
- iPlanet Application Server and its subcomponents:
 - iPlanet Application Server Web Connector Plug-in component
 - iPlanet Application Server Core Server Component
 - iPlanet Application Server Administration Tool
 - iPlanet Application Server Deployment Tool
 - PointBase Database Server

Installs the required PointBase files/packages when you select the Application Server core components.

See Chapter 1, "Getting Started", for an overview of the iPlanet Application Server features and components. For more specific information about any of the other server or components, check the iPlanet Web site at:

<http://docs.sun.com/?p=prod/s1.ipasee>

Using the Easy Installation Options for Solaris

Before you begin installing check to see that you satisfy the system requirements. Once these are satisfied, you can follow your choice of the various installation procedures.

This section includes the following topics:

- Running `ezSetup` on Solaris
- Starting Solaris Installations
- Running the Express Installation

- Running the Typical Installation

NOTE Meet the Minimum System Requirements and Prerequisites for Installation, as given in “Chapter 2, “Preparing to Install”.

Running ezSetup on Solaris

The ezSetup application requires almost no user input because it assigns default values for the iPlanet Application Server’s component’s usernames and passwords.

The standalone ezSetup application performs an automated iPlanet Application Server installation and sets the default values given in Table 3-1.

Ensure you have met all the conditions listed in “Prerequisites for Installation,” on page 29.

NOTE This installation is not intended for working developers or production environments.

Before you start the ezSetup installation program, make sure that the Web server is installed and running.

To Run ezSetup

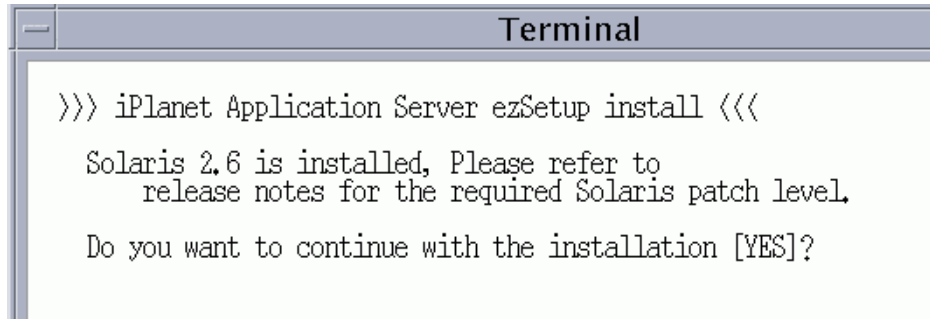
1. Log in as root.
2. Mount the CD-ROM on, for example, /cdrom/cdrom0
3. At the shell prompt, run the following command:

```
/cdrom/cdrom0/solaris/ezSetup
```

If you have downloaded the tar file, untar the file and in the temporary directory you have created, type:

```
./ezSetup
```

4. Enter y and press Enter to accept the License Agreement. You must accept the license agreement to continue with the installation.
5. You will be prompted to install the required patch level for the version of Solaris you are running. Enter y and press Enter.



```
Terminal

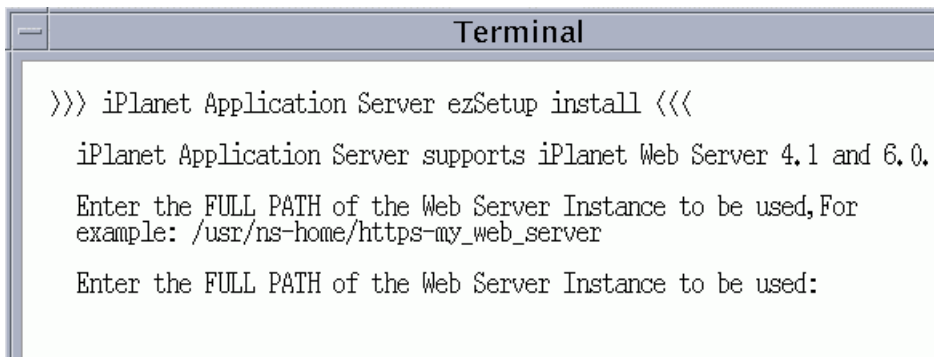
>>> iPlanet Application Server ezSetup install <<<

Solaris 2.6 is installed, Please refer to
      release notes for the required Solaris patch level.

Do you want to continue with the installation [YES]?
```

For more information on the required patches, see “Minimum System Requirements”. For any updates to the patch requirements, see the Release Notes at <http://docs.sun.com/?p=prod/s1.ipaseel>

6. Enter the iPlanet Application Server installation directory.
7. When prompted for the web server’s installation location, enter the full path where the Web server is installed.



```
Terminal

>>> iPlanet Application Server ezSetup install <<<

iPlanet Application Server supports iPlanet Web Server 4.1 and 6.0.

Enter the FULL PATH of the Web Server Instance to be used, For
example: /usr/ns-home/https-my_web_server

Enter the FULL PATH of the Web Server Instance to be used:
```

8. Type-in the product key and press Enter

The server files will now be extracted to the installation directory you have specified. After all the files have been extracted, the installer generates a report of the port numbers assigned.

NOTE	Record or print the port number report as the port numbers are required to administer the iPlanet Application Server.
-------------	---

9. Go to the installation directory and execute the `startconsole -a http://<servername>:<port_number>` command (printed at the end of the port number report) to start the iPlanet Administration Console.

Table 3-1 Default values assigned for username and password

Component	username	password
Configuration server administrator	admin	admin
Directory manager	Directory Manager	DManager
iPlanet Application Server Administration Server	admin	admin

Table 3-2 Default port number values

Component	Port Numbers
Directory Server	389
Administrative Server (KAS)	10817
Executive Server (KXS)	10818
CGI to Executive Server (KXS) communication.	10819
Java Server (KJS) on Solaris	10820
On Windows, this port is used for the C++ Server (KCS).	
C++ Server (KCS) on Solaris	10821
PointBase database engine	9092

Starting Solaris Installations

During iPlanet Application Server installation on the Solaris platform, use the following keystroke commands:

- Enter key; accepts that screen's default setting and goes to next screen.

- CTL+B; goes back to the previous screen within an installation section, as defined by the title at the top of the screen. You cannot use CTL+B to go back to a screen in a different section.
- CTL+C; exits the installation. Once exited, the installer starts over at the beginning.
- Comma (,) delineated list; specifies more than one item.

NOTE A Web server and Web browser must be installed and running before you begin iPlanet Application Server installation. iPlanet Application Server 6.0 SP2b is available on the product CD.

You can also download iPlanet Web Server, Enterprise Edition 4.1 Spa7 or later, or 6.0 SP1 or later, from:
<http://www.iplanet.com/downloads/download/>

To Begin Installation

The following six steps are common to all the Solaris installations.

1. Login as root.
2. Insert the product CD in the CD-ROM drive.
3. Mount the CD-ROM on, for example, /cdrom/cdrom0
4. At the shell prompt, run the following command:

```
/cdrom/cdrom0/solaris/setup
```

If you have downloaded the tar file, untar the file and in the temporary directory you have created, type:

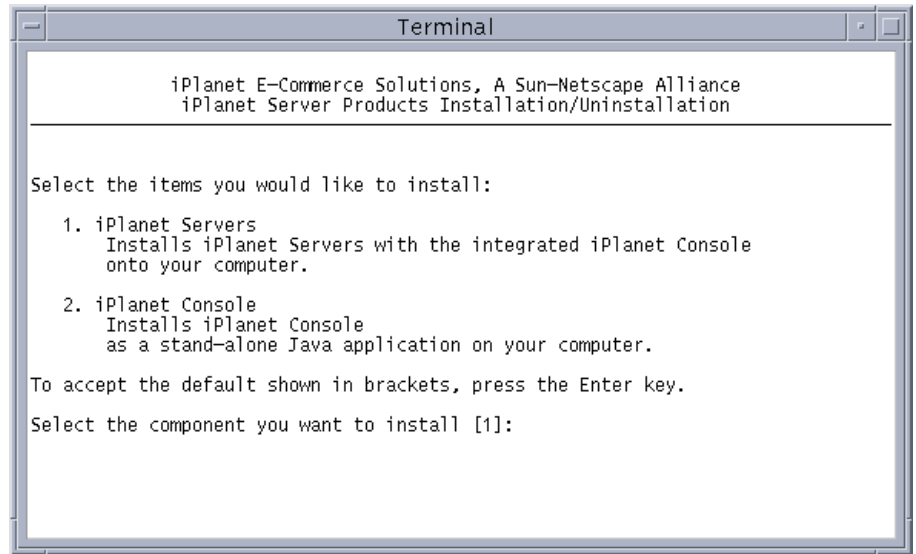
```
./setup
```

The Tips screen appears.

5. Press Enter.
The License Agreement screen appears.
6. You must enter *y* to continue.

7. Press Enter to accept the default; install the iPlanet Servers group unless you select the iPlanet Console instead.

If you select iPlanet Console (formerly Netscape Console), the iPlanet Console is installed as a standalone application, which can be used from any machine to administer your iPlanet Application Server configuration.



The next screen allows you to choose the installation type. The Express Installation is described next. For a description of the typical installer, see “Running the Typical Installation” on page 53.

Running the Express Installation

Before you begin installing iPlanet Application Server, ensure you have met all the conditions listed in “Prerequisites for Installation,” on page 29.

1. Enter 1 to select Express Installation.
2. Press Enter to accept the default installation directory: `/usr/iplanet/ias6`

If you enter a different location, do not include spaces in the path name.

NOTE You must have at least 400 MB available on this drive to install. All components are installed in this directory

3. On the iPlanet Server Products Components panel, the default choice of [All] indicates which components are installed during a full install of iPlanet Application Server. You may choose to:
 - Keep the default selection. If you choose [All], the sub-components of the selected components are listed in subsequent screens, so that you can further refine your choices.
 - Enter 1, 3, 4 to not install the Directory Suite component if you already have a directory service available.

NOTE	<ul style="list-style-type: none">• The Directory Component should not be selected if you intend to install multiple instances of iPlanet Application Server. For more information, see “Installing Multiple Instances on Solaris,” on page 112.• If you don’t install Directory Server with iPlanet Application Server, you must designate an existing Directory Server as the configuration directory. The Directory Server you designate as the configuration directory must contain the data tree: o=NetscapeRoot.
-------------	---

- Enter 1, 2, 4 to not install the Administration Services component if you don’t want the iPlanet Administration Console.
- Enter 4 to install only the iPlanet Application Server.

4. Type in the system user and group names.

This user and group should be set up prior to running the installation program. Typically, this user and group should be the same as the user and group used for the web server installation.

Specify a user that has no privileges elsewhere on the system to avoid access to restricted servers, such as the configuration Directory Server.

Within iPlanet Application Server installation, there are several panels pertaining to installing and configuring the Directory Suite. The Express Installation Wizard panels set up the:

- Administrator for the Configuration Directory Server
- Administrator for the Directory Server directory data; this “superuser” is identified by the Directory Manager Distinguished Name (DN)

These panels and their function are described in the following procedures.

5. Assign the Administrator ID and password for the configuration directory.

Press Enter to accept default username as `admin`, or type in a username and press Enter. Enter a password: it can contain letters and numbers.

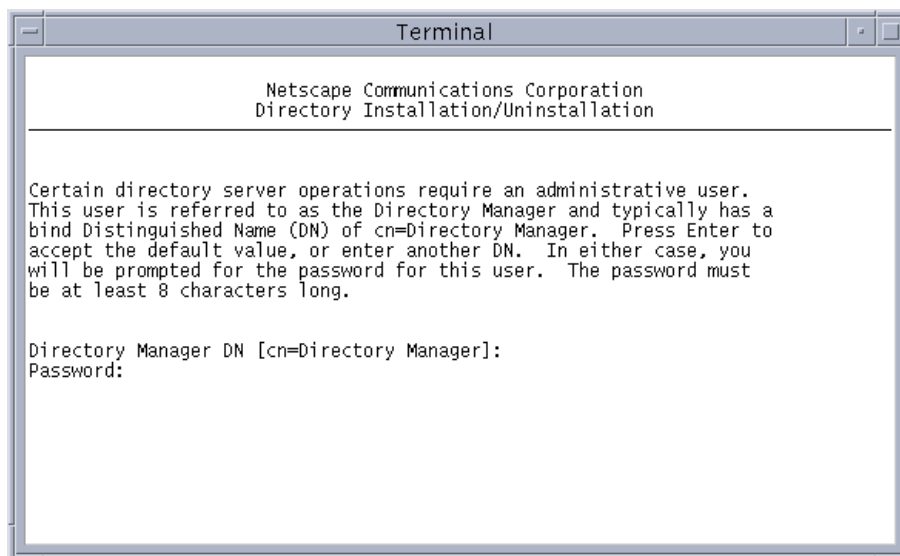
The Configuration Directory Server is the part of the Directory Server used to store configuration information. The Directory Server also stores directory data.

NOTE	This ID and password is used to login to the iPlanet Administration Console and to uninstall iPlanet Application Server and the Directory Server.
-------------	---

To learn more about the Directory Server, see *iPlanet Directory Server Deployment Guide*, on the Web at: <http://docs.sun.com/?p=prod/sl.ipasee>

6. Assign the Directory Manager's Distinguished Name.

Keep the default DN value `Directory Manager`, which is set to the common name of Directory Manager (`cn=Directory Manager`). Or, if necessary, enter a different Directory Manager name. Enter a password for the Directory Manager that is at least 8 characters long.



The Directory Manager's Distinguished Name is the special directory entry for the administrator of the Directory Server. Access control does not apply to the Directory Manager.

The Directory Server is now configured for installation.

7. Enter the Product Key; it's in the Welcome letter you received with iPlanet Application Server.

You must enter this number correctly for installation to continue.

8. Enter the full path to your running Web server instance.

The iPlanet Application Server Web Connector Plug-in will now be installed and configured to the Web Server instance that is identified here.

9. Enter a user name and password for the iPlanet Application Server's Administration Server.

NOTE	Record the username and password. After installation, you'll need them to register iPlanet Application Server with the iPlanet Application Server Administration Tool.
-------------	--

10. Enter `y` to enable standard Java internationalization for iPlanet Application Server applications, otherwise accept the default.

The iPlanet Application Server installation is now ready to extract the required files and installs them in your system.

11. Press Enter to extract the components to install.

Here, you may be prompted to change the ownership of iPlanet Application Server files if the owner and group are different.

Type `Y` and press Enter if you want to change the group permission of iPlanet Application Server files to that of the user you are installing as. You must be the super user or logged in as that user to change permissions.

After all the files have been extracted, the installer generates a report of the port numbers assigned.

NOTE Record or print the port number report as the port numbers are required to administer iPlanet Application Server.

12. To start the iPlanet Administration Console, go to the installation directory and execute the command (printed at the end of the port number report):

```
startconsole -a http://<servername>:<port_number> command
```

Running the Typical Installation

Before beginning iPlanet Application Server installation:

- Ensure that all requirement in “Prerequisites for Installation” on page 29 are met.
- Perform the procedure in “Starting Solaris Installations” on page 47.

To Run the Typical Installer

1. Enter `2` to select the Typical Installation type.
2. Press Enter to accept the default installation directory: `/usr/iplanet/ias6`

If you enter a different location, do not include spaces in the path name.

NOTE You must have at least 400 MB available on this drive to install.
All components are installed in this directory

3. On the iPlanet Server Products Components panel, the default choice of [All] indicates which components are installed during a full installation of iPlanet Application Server. You may choose to:
 - Keep the default selection. If you choose [All], the sub-components of the selected components are listed in subsequent screens, so that you can further refine your choices.
 - Enter 1, 3, 4 to not install the Directory Suite component if you already have a directory service available.

NOTE

- The Directory Server Component should not be selected if you intend to install multiple instances of iPlanet Application Server. For more information, see “Installing Multiple Instances on Solaris,” on page 112.
- If you don’t install Directory Server with iPlanet Application Server, you must designate an existing Directory Server as the configuration directory. The Directory Server you designate as the configuration directory must contain the data tree: o=NetscapeRoot.

- Enter 1, 2, 4 to not install the Administration Services component if you don’t want the iPlanet Administration Console.
- Enter 4 to install only the iPlanet Application Server.

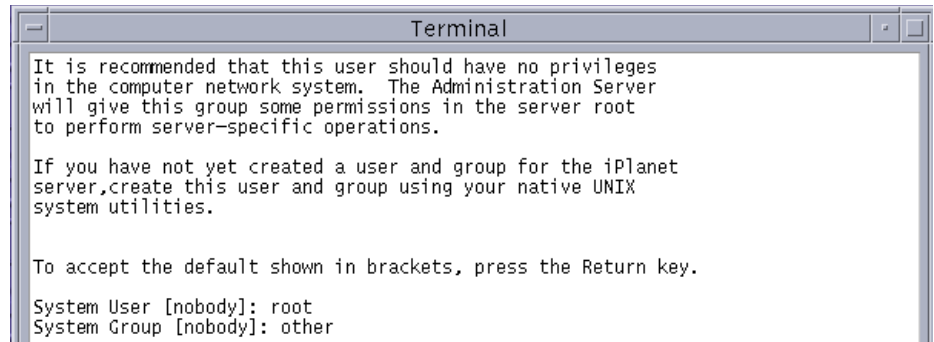
The components selected here have multiple sub-components. Press Enter in each screen to accept the default sub-components.

4. Press Enter in each subsequent screen to accept the default sub-components.
5. Press Enter to accept the default name of the computer you are installing on.

6. Type in the system user and group names.

This user and group should be set up prior to running the installation program. Typically, this user and group should be the same as that which installed the web server.

Specify a user that has no privileges elsewhere on the system to avoid access to restricted servers, such as the configuration Directory Server.



```

Terminal

It is recommended that this user should have no privileges
in the computer network system. The Administration Server
will give this group some permissions in the server root
to perform server-specific operations.

If you have not yet created a user and group for the iPlanet
server, create this user and group using your native UNIX
system utilities.

To accept the default shown in brackets, press the Return key.

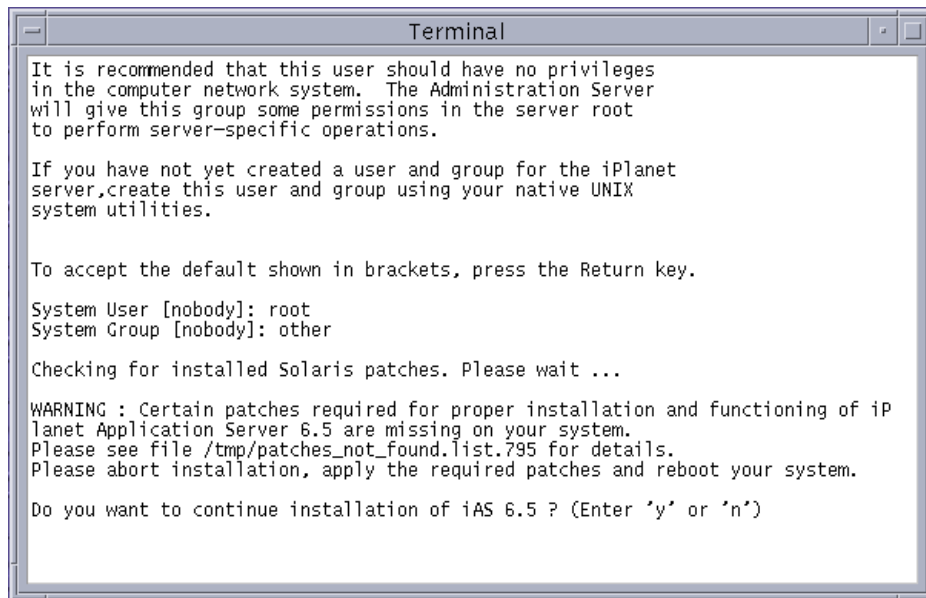
System User [nobody]: root
System Group [nobody]: other

```

7. The installer will now check your Solaris system for the essential patches required for your version of Solaris.

For installation to succeed, and for the proper functioning of the application server, certain patches must be installed in your system. These required patches are listed in the Release Notes, which is available at <http://docs.sun.com/?p=prod/s1.ipasee>. The list of required patches is also available in Chapter 2, “Preparing to Install”, in *iPlanet Application Server Installation Guide*.

If any of these mandatory patches are missing, the installer will generate a temporary file containing the missing patches. You will see the following message in your console:

A terminal window titled "Terminal" with a standard window control bar. The text inside the terminal is as follows:

```
It is recommended that this user should have no privileges
in the computer network system. The Administration Server
will give this group some permissions in the server root
to perform server-specific operations.

If you have not yet created a user and group for the iPlanet
server, create this user and group using your native UNIX
system utilities.

To accept the default shown in brackets, press the Return key.

System User [nobody]: root
System Group [nobody]: other

Checking for installed Solaris patches. Please wait ...

WARNING : Certain patches required for proper installation and functioning of iP
lanet Application Server 6.5 are missing on your system.
Please see file /tmp/patches_not_found.list.795 for details.
Please abort installation, apply the required patches and reboot your system.

Do you want to continue installation of iAS 6.5 ? (Enter 'y' or 'n')
```

If you get this message, you must apply the missing patches and reboot your system, and then reinstall iPlanet Application Server.

If all the required patches are already installed, then the installation will proceed with the following steps.

Configuring Directory Server

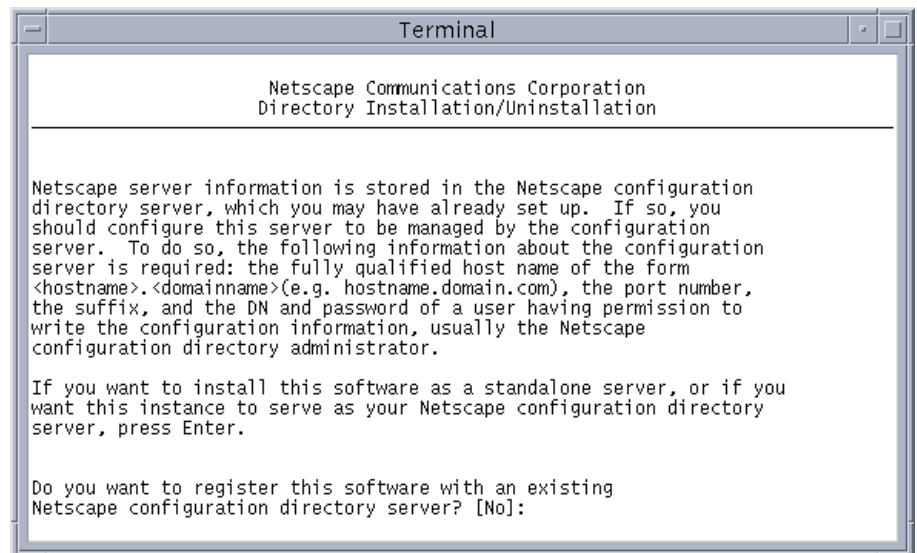
Within the iPlanet Application Server installation there are several panels having to do with installing and configuring the Directory Suite.

-
- | | |
|-------------|--|
| NOTE | <ul style="list-style-type: none">• The Directory Server Component should not be selected if you intend to install multiple instances of iPlanet Application Server. For more information, see “Installing Multiple Instances on Solaris,” on page 112.• If you don’t install Directory Server with iPlanet Application Server, you must designate an existing Directory Server as the configuration directory. The Directory Server you designate as the configuration directory must contain the data tree: o=NetscapeRoot. |
|-------------|--|
-

Within the iPlanet Application Server installation there are several panels pertaining to installing and configuring the Directory Suite. The Typical Installation Wizard panels set up the:

- Administrator for the Configuration Directory Server
- Administrator for the Directory Server directory data; this “superuser” is identified by the Directory Manager Distinguished Name (DN).

These panels and their function are described in the following procedures.



8. Press Enter to register iPlanet Application Server's configuration information with the directory server instance that you are installing.

The default choice is No, so that the Directory Server instance being installed currently is registered for use by iPlanet Application Server.

Enter **Yes** if you want to specify an existing directory server to hold the configuration information. You must provide the fully qualified domain name (*hostname.domain.com*) and the port number of the directory server.

TIP The Configuration Directory Server is the part of the Directory Server used to store configuration information. The Directory Server also stores directory data.

9. Press Enter to register iPlanet Application Server's data storage, such as user and group information, with the Directory Server instance installed with this installation of iPlanet Application Server.

Enter `Yes` to register with an existing directory server. You will be prompted for the host, port, suffix, and bind DN to use for that directory server.

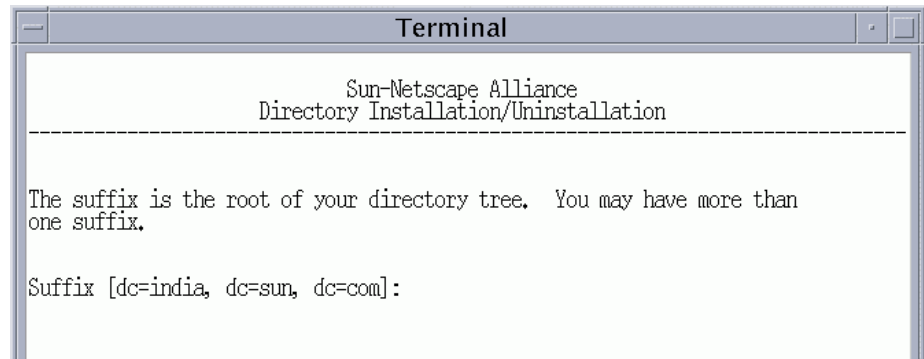
10. Press Enter to set the listener port for the Directory Server by default to the standard port number: 389. For more information, see "Configuring Port Numbers" on page 149, in Appendix A.
11. Press Enter to set the unique identifier for the Directory Server by default to the name of the computer it's being installed on.

To enter a different name type the name and press Enter.

12. Assign the Administrator ID and password for the configuration directory.
 - Press Enter to accept default username as `admin`, or type in a username and press Enter.
 - Enter a password; it can contain letters and numbers.

NOTE	Record and keep the Configuration Directory Administrator ID and password for future reference. They are required to login to the iPlanet Administration Console and to uninstall the iPlanet Application Server and the Directory Server.
-------------	--

13. Enter the data information tree suffix for your organization.



For example, if an organization uses the distinguished name service (DNS) of `sales.sun.com`, then a reasonable suffix for identifying that organizations' data is: `dc=sales, dc=sun, dc=com`.

14. Enter a distinguished name (DN) for the directory server's administrator. The default value is Directory Manager (`cn=Directory Manager`).

Enter a password for the Directory Manager that is at least 8 characters long.

The Directory Manager's Distinguished Name is the special directory entry for the administrator of the Directory Server. Access control does not apply to the Directory Manager.

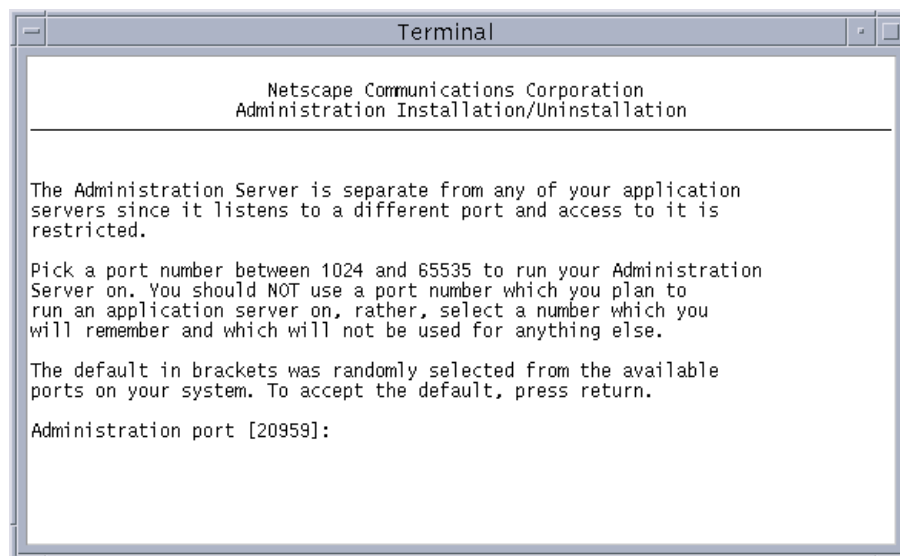
15. Enter the directory server's Administration Domain.

The default is set to the installation computer's domain. If you need to change this value, you should use a name that corresponds to the organizations that control the servers in each domain.

As a Directory Server may store Configuration information for multiple domains, the Administration Domain is used to keep these separate. Enter an administration domain to use for keeping software configuration information stored in the Configuration Directory Server distinct from other such information.

The Directory Server is now configured for installation.

16. Set the port number of the iPlanet Administration Console's administration server. By default it is set to a random unused port number between 1024 and 65535. For more information, see "Configuring Port Numbers" on page 149, in Appendix A.



17. Enter the name of the user who will have the privilege to write configuration information to the Directory Server using iPlanet Console. By default, this is set to: root
18. Enter the product key at the prompt.

The Product Key is in the welcome letter you received with iPlanet Application Server. You must enter this number correctly for installation to continue.
19. Enter the full path of the Web server instance that is already installed and running.

The iPlanet Application Server Web connector will be installed and configured to the Web Server instance that is identified here.
20. Enter the username and password to use for the iPlanet Application Server Administration Tool.

NOTE Record the username and password. After installation, you'll need them to register iPlanet Application Server with the iPlanet Application Server Administration Tool.

21. Enter `y` to enable standard Java internationalization for iPlanet Application Server applications, otherwise accept the default.

The iPlanet Application Server installation is now ready to complete the installation.

22. Press Enter to start copying the installation files.

Here, you may be prompted to change the ownership of iPlanet Application Server files if the owner and group are different.

Type `Y` and press Enter if you want to change the group permission of iPlanet Application Server files to that of the user you are installing as. You must be the superuser or logged in as that user to change permissions.

After all the files have been extracted, the installer generates a report of the port numbers assigned.

NOTE Record or print the port number report as the port numbers are required to administer the iPlanet Application Server.

23. To start the iPlanet Administration Console, go to the installation directory and execute the command (printed at the end of the port number report):

```
startconsole -a http://<servername>:<port_number>
```

Verifying Installation

The iPlanet Web site provides an application that verifies connectivity of your iPlanet Application Server installation. Since this basic application, which uses servlets and JSPs, does not rely on a database, it runs without any extra setup.

To Verify Installation, perform the following steps:

1. Open your browser enter the following URL, and then click Enter:

`http://<yourwebserver>:<portnumber>/ias-samples/index.html`

2. Click the *Quick Test* link, under Sample Applications.
3. Press the shift key and click on the browser's Reload button to ensure the application repeatedly returns a new HTML stream.

Using the Sample Applications

To better understand specific technology features provided by iPlanet Application Server, run the iPlanet Application Server Technology Samples.

To use the sample applications, perform the following steps:

1. Start iPlanet Application Server.
2. Open your browser, enter the following URL, and press Enter:
`http://<yourwebserver>:<portnumber>/ias-samples/index.html`
3. Select the iPlanet Application Server J2EE Application Samples link and select a specific sample application. Follow the application-specific setup instructions to establish the necessary database settings and to run the application.

After you become familiar with the iPlanet Application Server sample applications, run the Sun Samples, which are applications based on those found at `http://www.java.sun.com`. The Java Pet Store example in particular demonstrates how a popular J2EE application is deployed to iPlanet Application Server.

You can review the source code of the sample applications and associated J2EE XML Deployment Descriptors by browsing in the following location:

```
<installDir>/ias/ias-samples/
```

You can also find compile scripts at this site for experimenting with the sample code.

Easy iPlanet Application Server Installations on Windows

This chapter describes how to install and configure the iPlanet™ Application Server for the Windows and Solaris™ platforms. It contains the following information

- The Easy Installation Options
- What You're Installing
- Using Easy Installation Options on Windows
- Verifying Installation
- Using the Sample Applications

Read this chapter before using the ezsetup, Typical, or Express iPlanet Application Server installations. For any late breaking updates to these instructions, check the *Release Notes* at:

<http://docs.sun.com/?p=prod/s1.ipaseel>

For more information about configuring your application server after installation, refer to the *iPlanet Application Server Administrator's Guide*.

The Easy Installation Options

The easiest iPlanet Application Server software installation options are as follows:

- ezsetup; at most, a two step installation, which sets port numbers, usernames, and passwords to default values
- Express; requires slightly more user input than ezsetup

- Typical; requires more user input but yields an installation that is essentially the same as that performed by `ezsetup`

What You're Installing

The software you're installing for iPlanet Application Server, consists of a group or *stack* of components, including:

- iPlanet Directory Server, Enterprise Edition 5.0 SP1
- iPlanet Console, which has its own Administration Server
- iPlanet Application Server and its subcomponents:
 - iPlanet Application Server Web Connector Plug-in component
 - iPlanet Application Server Core Server Component
 - iPlanet Application Server Administration Tool
 - iPlanet Application Server Deployment Tool
 - PointBase Database Server

Installs the required PointBase files/packages when you select the Application Server core components.

See Chapter 1, "Getting Started", for an overview of the iPlanet Application Server features and components. For more specific information about any of the other server or components, check the iPlanet Web site at:

<http://docs.sun.com/?p=prod/sl.ipasee>

Using Easy Installation Options on Windows

This section describes the easy installation options for Windows NT/2000 platforms.

The following topics are included in this section:

- Running `ezSetup` on Windows
- Running the Wizard Installation
- Running the Express Installation

- Running the Typical Installation

NOTE Meet the Minimum System Requirements and Prerequisites for Installation, as given in “Chapter 2, “Preparing to Install”.

Running ezSetup on Windows

The standalone `ezsetup` application performs an automated iPlanet Application Server installation and sets the default values given in Table 4-1.

Ensure you have met all the conditions listed in “Prerequisites for Installation,” on page 29.

NOTE

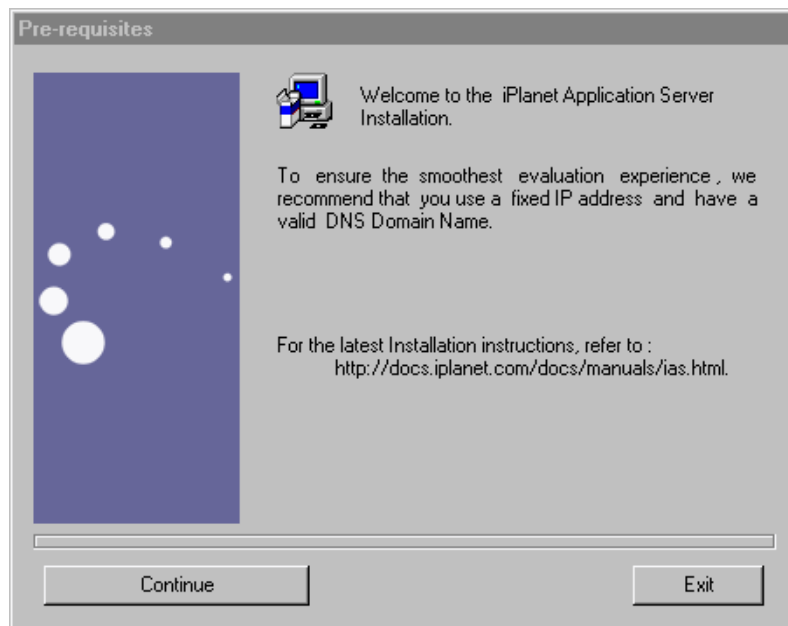
- This installation is not intended for working developers or production environments. `ezSetup` is meant for evaluation purposes only.
- You must not have an existing installation of iPlanet Directory Server on the machine on which you are running `ezSetup`.
- You should have a fixed IP address and a valid DNS domain name for the machine on which you plan to run `ezSetup`.

To Run esZetup

1. From the `ezSetup` directory, double-click `ezSetup.exe`.
2. Click Next at the Welcome Screen.
3. Click Yes to accept the License Agreement.

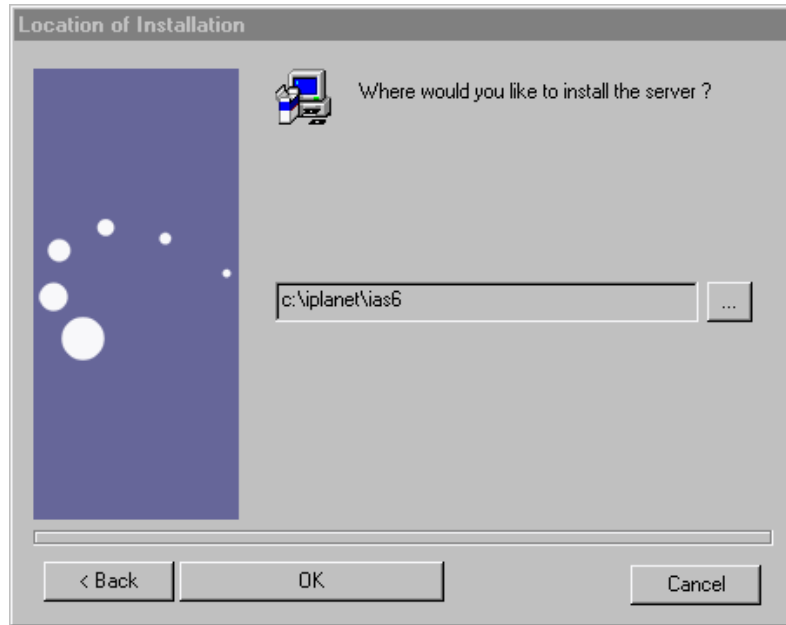
You must accept the license agreement to continue with the installation.

4. Click Continue if you meet the recommendations mentioned in the Pre-requisites screen.



5. Click OK to select the default installation path or click the ellipsis (...) to browse through your computers' folders to select another directory.

If you have multiple Web server instances running, you will be prompted to select the Web server instance to associate with iPlanet Application Server and click OK.



6. Enter the product key and Click OK.
iPlanet Application Server installs without any further prompts.

Table 4-1 Default values assigned for username and password

Component	Username	Password
Configuration Server Administrator	admin	admin
Directory Manager	Directory Manager	DManager
iPlanet Administration Server	admin	admin

Table 4-2 Default port number values

Component	Port Number
Directory Server	389
Administrative Server (KAS)	10817
Executive Server (KXS)	10818

Table 4-2 Default port number values

Component	Port Number
Java Server (KJS) on Windows	10819
On Solaris, this port is used for the CGI to Executive Server (KXS) communication.	
Java Server (KJS) on Solaris	10820
On Windows, this port is used for the C++ Server (KCS).	
C++ Server (KCS) on Solaris	10821
PointBase database engine	9092

Running the Wizard Installation

The iPlanet Application Server Installation Wizard's Express and Typical installation options both require very little user input. The first six (6) screens of all the Wizard Installations are the same.

NOTE A Web server and browser must be installed and running before you begin iPlanet Application Server installation. iPlanet Web Server, Enterprise Edition 6.0 SP2b is available on the product CD.

You can also download iPlanet Web Server 4.1 SP7 or later, or 6.0 or later, from:

<http://www.iplanet.com/downloads/download/>

The web server and browser need not be present on the same machine if you are performing a Webless installation. For more information, see “Webless Installations,” on page 151

To Start the Wizard Installation

1. Ensure conditions in “Prerequisites for Installation” on page 29 are met.
2. If you are installing from a CD-ROM, the installation wizard should start automatically when the CD is inserted in the CD-ROM drive. If it does not, browse the CD-ROM drive to locate and launch the file: `setup.exe`.
3. Click Next after the Welcome screen appears.

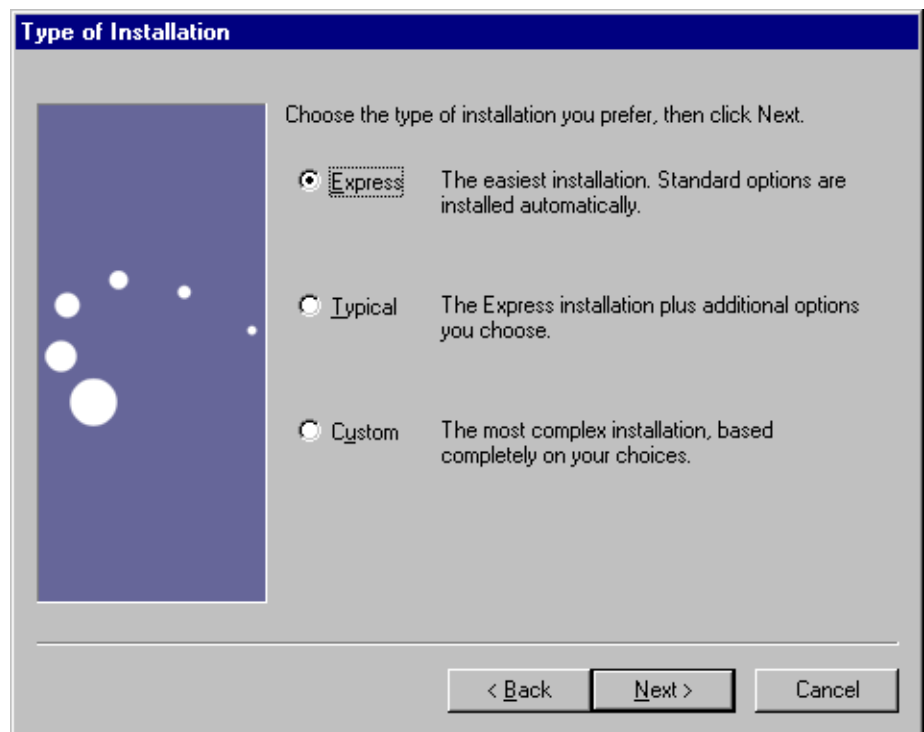
4. Click Yes to accept the license agreement.

You must accept the License agreement to continue.

5. Click Next to install the iPlanet Server and core components.

Select the iPlanet Administration Console to install it as a standalone application. Selecting the iPlanet Server and core components will install the Administration Console by default on the same machine on which you are installing the application server.

6. Choose the type of installation and click Next.



Following is a description of the Express installation. For information on Typical installation, see “Running the Typical Installation” on page 76”.

For information on Custom installation, see Chapter 6, “Advanced Installations for Windows.”

Running the Express Installation

Since the first steps of the Installation wizard are the same for all of its options, execute the steps in, “Running the Wizard Installation” on page 68, before you start the following procedure. Click Next after each step.

NOTE A Web server and browser must be installed and running before you begin iPlanet Application Server installation. iPlanet Web Server, Enterprise Edition 6.0 SP2b is available on the product CD.

You can also download iPlanet Web Server 4.1 SP7 or later, or 6.0 or later, from:

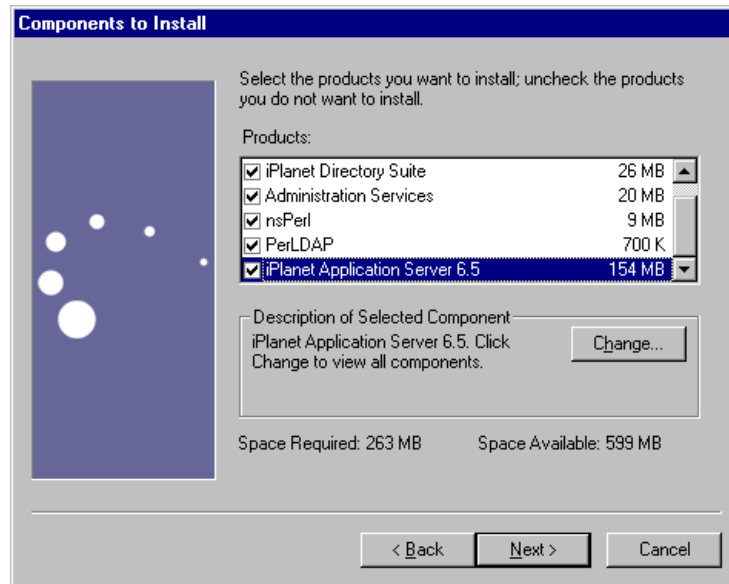
<http://www.iplanet.com/downloads/download/>

The web server and browser need not be present on the same machine if you are performing a Webless installation. For more information, see “Webless Installations,” on page 151

To Start the Express Installation

1. Select Express as the type of installation to perform and click Next.
2. Click Next on the Location of Installation panel to accept the default pathway, or click the ellipsis (...) to browse through your computers' folders and select another directory. Do not use a directory name that includes spaces.

The Components to Install screen appears.



3. Click Next to accept the default choices on the Components to Install panel. The default choices indicate those installed during a full installation.

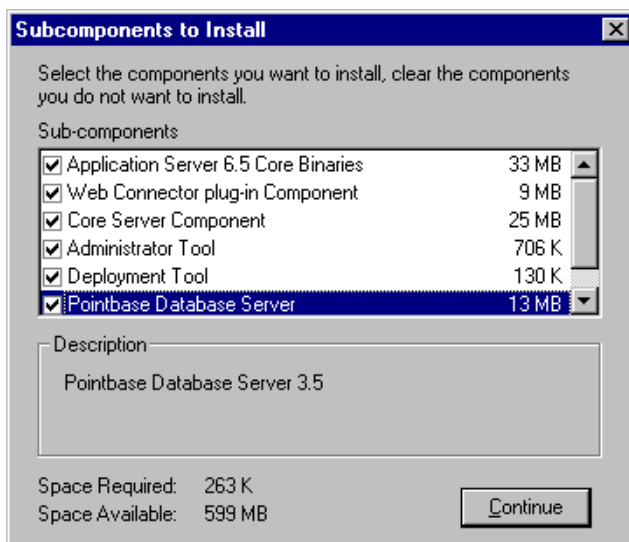
Click the Change button to further refine your choices. This displays the subcomponents associated with each component selected.

Your selections at the component level of the Components to Install panel enable you to:

- Deselect the Directory Suite component if you already have a directory service available.
- Deselect Administration Services if you don't want the iPlanet Administration Console.

NOTE The `nsPerl` and `PerlLDAP` components are required by the directory server component. To deselect them, you must first deselect the iPlanet Directory Suite component.

iPlanet Application Server bundles the PointBase database server, which is installed by default. If you do not want to install PointBase, select iPlanet Application Server 6.5 > Change, and uncheck the box next to PointBase Database Server.



Within the iPlanet Application Server installation there are several panels pertaining to installing and configuring iPlanet Directory Server 5.0 SP1. The Express Installation Wizard panels set up the following:

- Administrator for the configuration directory.
- Administrator for the directory server. This “superuser” has the default Distinguished Name (DN) of Directory Manager.

The Configuration Directory Server is the part of the Directory Server used to store configuration information. The Directory Server also stores directory data. For an overview of the various functions of the Directory Server, see the *iPlanet Directory Server Installation Guide*.

-
- | | |
|-------------|---|
| NOTE | <ul style="list-style-type: none">• If you don't install directory server with iPlanet Application Server, you must designate an existing directory server as the configuration directory. The directory server you designate as the configuration directory must contain the data tree: <code>o=NetscapeRoot</code>. |
|-------------|---|
-

The following steps configure the directory server:

4. Assign the Administrator ID and Password for the configuration directory, on the Directory Server 5.0 panel. Click Next.

The default username is `admin`.

For more information about the Configuration Directory Server, see *iPlanet Directory Server Deployment Guide*, on the Web at: <http://docs.sun.com/1>

5. Enter the Directory Manager DN or keep the default, and click Next.

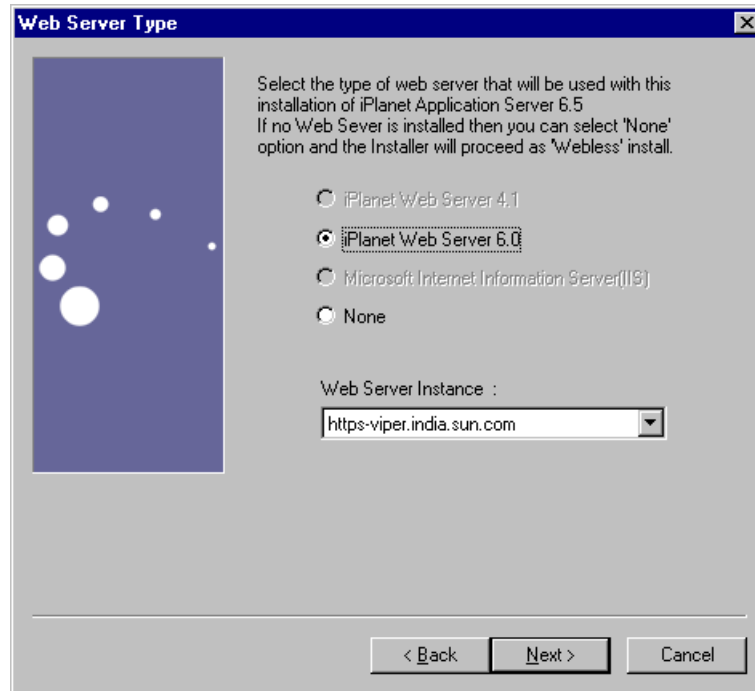
The Directory Manager's Distinguished Name is the special directory entry to which access control does not apply. You can think of the Directory Manager as your directory's super user.

In most cases, it is best to keep the default value, which is set to the common name of Directory Manager, as follows: `cn=Directory Manager`

6. Enter the Directory Manager's password; it must be at least 8 characters long. Click Next.
7. Enter the product key and click Next.

The product key is in the Welcome Letter you received with the iPlanet Application Server CD. You must enter this number correctly for installation to continue.

8. Select the type of Web Server installed. If you have multiple Web server instances running, then select one from the drop-down menu to locate an instance to associate with iPlanet Application Server.

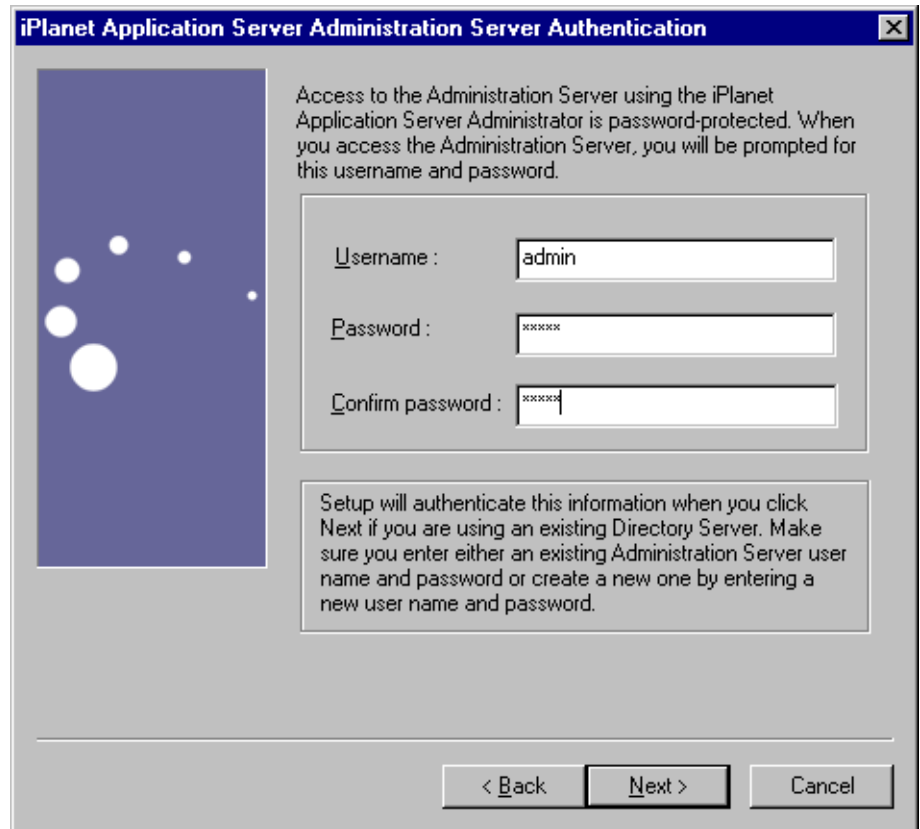


Select None if you do not have a Web server installed. This causes iPlanet Application Server Installer to continue without installing the Web Connector plug-in. This is referred to as a “webless” installation. For more information, see “Installing the Web Connector Plug-in” on page 152.

NOTE The Webless type of installation is necessary if your Web server is installed on a remote machine. After you are finished installing iPlanet Application Server, you must go to that machine and install the Web connector.

For more information, see “Installing the Web Connector Plug-in,” on page 152.

9. Enter an Administrator Username and Password. This sets up the user name and password for the iPlanet Administration Server Console.



The image shows a Windows-style dialog box titled "iPlanet Application Server Administration Server Authentication". On the left is a blue vertical rectangle with several white circles of varying sizes. The main area contains instructional text, three input fields for Username, Password, and Confirm password, and a final instruction box. At the bottom are three buttons: "< Back", "Next >", and "Cancel".

iPlanet Application Server Administration Server Authentication

Access to the Administration Server using the iPlanet Application Server Administrator is password-protected. When you access the Administration Server, you will be prompted for this username and password.

Username :

Password :

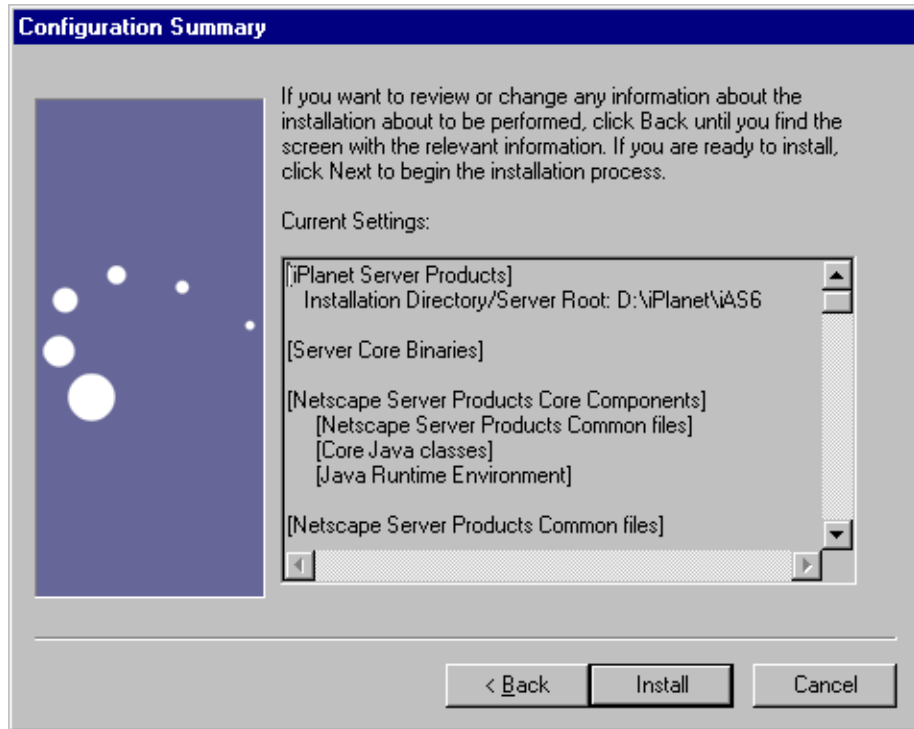
Confirm password :

Setup will authenticate this information when you click Next if you are using an existing Directory Server. Make sure you enter either an existing Administration Server user name and password or create a new one by entering a new user name and password.

< Back Next > Cancel

10. Select Yes on the Internationalization panel to enable support for standard Java internationalization. Click Next.

The Configuration Summary screen with all your settings will now be displayed.



11. Click Install to complete the installation.

If you want to change any of the settings, click Back to page back through the panels and correct them.

An Installation Progress indicator bar appears. After the installer finishes, reboot the machine.

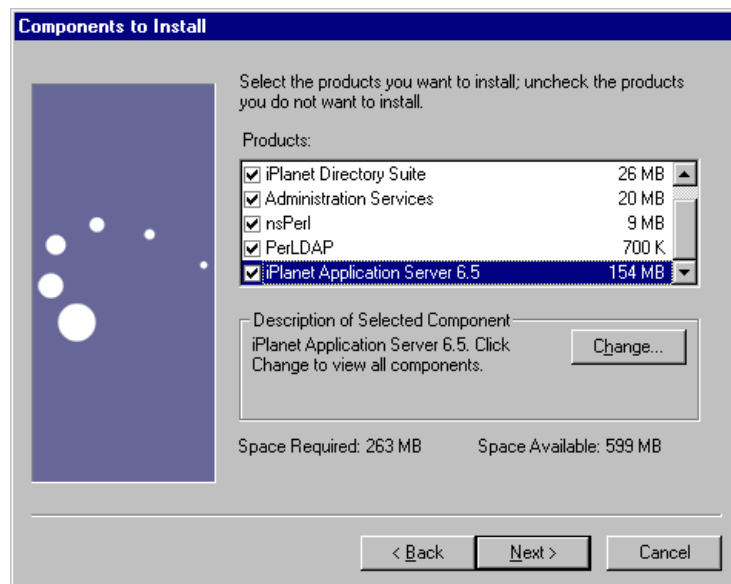
Running the Typical Installation

As the first steps of the Installation wizard are the same for all of its options, execute the steps in, "Running the Wizard Installation" on page 68, before you start the following procedure. Click Next after each step.

To Run the Typical Installer

1. Select Typical as the type of installation to perform.
2. Click Next on the Location of Installation panel to accept the default pathway, or click the ellipsis (...) to browse through your computers' folders and select another directory. Do not use a directory name that includes spaces.

The Components to Install screen appears.



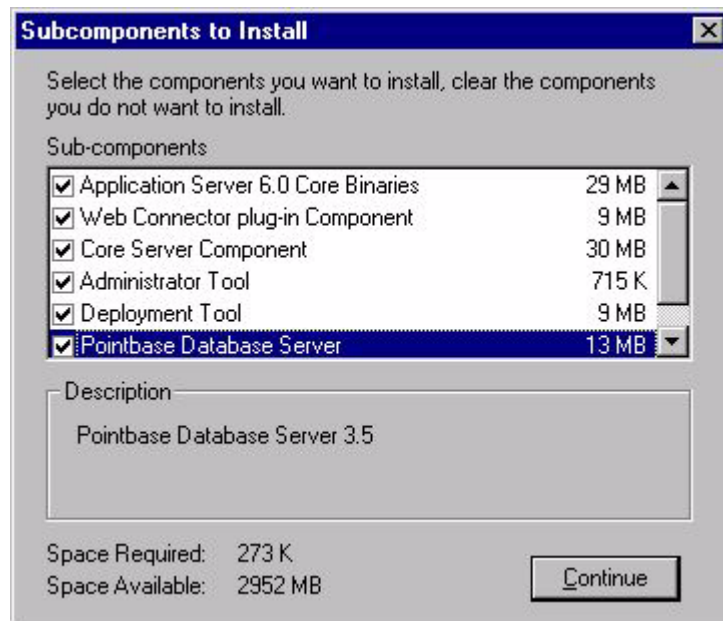
3. Click Next to accept the default choices on the Components to Install panel. The default choices indicate those installed during a full installation. Click the Change button to further refine your choices. This displays the subcomponents associated with each component selected.

Your selections at the component level of the Components to Install panel enable you to:

- Deselect the Directory Suite component if you already have a directory service available.
- Deselect Administration Services if you don't want the iPlanet Administration Console.

-
- NOTE** • The `nsPerl` and `PerLDAP` components are required by the directory server component. To deselect them, you must first deselect the iPlanet Directory Suite component.
-

iPlanet Application Server bundles the PointBase database server, which is installed by default. If you do not want to install PointBase, select iPlanet Application Server 6.5 > Change, and uncheck the box next to PointBase Database Server.



Within the iPlanet Application Server installation there are several panels pertaining to installing and configuring iPlanet Directory Server 5.0 SP1. These panels and their function are described in the following steps.

4. Select the directory server that will hold the configuration directory.

The configuration directory contains the data tree used by the iPlanet Application Server. The Directory Server stores these configuration settings in the data tree: `o=NetscapeRoot`, under the suffix that you set up to identify your organization. Multiple server installations can store their configuration settings in this configuration directory.

Choose one of the following options:

- Set a new Directory Server (the one you are installing) as the configuration directory by keeping the default setting, or
- Use an existing Directory Server by selecting “Use existing configuration Directory Server,” and then fill in the information used to identify that server.

NOTE

- If you don't install the directory server with iPlanet Application Server, you must designate an existing directory server as the configuration directory. The directory server you designate as the configuration directory must contain the data tree: o=NetscapeRoot.

5. Select the directory server that will store iPlanet Application Server Data.

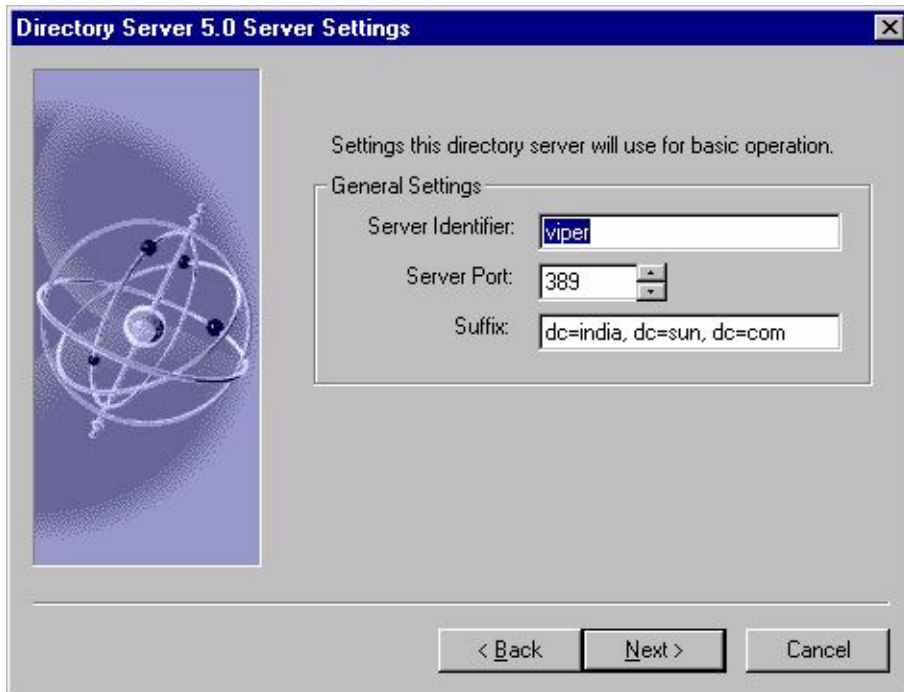
The Directory Server gives you the option to distribute data amongst multiple Directory Server databases. It does this by using a plug-in that chains together distributed data. For more information, see *iPlanet Directory Server Deployment Guide*, which is available on the Web at: <http://docs.sun.com/>

Choose one of the following options:

- To store directory data in the newly installed Directory Server, select the default option.
- To use an existing Directory Server for data storage, select that option and enter its general settings:
 - Host name and port number.
 - Default binding or Distinguished Name (DN). By default it's cn=Directory Manager.
 - Suffix: dc=sales, dc=sun, dc=com. For example, if the DNS name is sales.sun.com, then the suffix should be: dc=sales, dc=sun, dc=com.

6. Specify the Directory Server's General Settings

These settings consist of an identifier for the Directory Server's host machine, the port number of the LDAP communication port, and the data information tree suffix that is used to identify the root of the database tree for this iPlanet Application Server installation or the Directory Server.



The suffix is the entry at the top of the Directory Server data tree, below which iPlanet Application Server data is stored. For more information on standard directory suffixes, see the *iPlanet Directory Server Administrator's Guide*.

- The Server Identifier is set to the local host (the computer on which you are installing the directory server.)
- The default Server Port number is 389 (the standard LDAP port number); if the port is in use, a randomly generated number will be used.
- The default domain name is set to the computer you're installing the Application Server on.

7. Set up the directory server's Administration Domain.

The default is set to the installation computer's domain. If you need to change this value, you should use a name that corresponds to the organizations that control the servers in each domain

Since a Directory Server may store Configuration information for multiple domains, the Administration Domain is used to keep these separate. For more advanced configurations and information about using the Directory Server to store information about multiple domains, see the *iPlanet Directory Server Administrator's Guide*.

8. Enter a Directory Administrator (Manager) user name and password.

9. Click Next to use default Administrator Port Number.

10. Enter the Directory Manager common name, or keep the default value, which is: cn=Directory Manager.

The Directory Manager's Distinguished Name is the special directory entry to which access control does not apply. You can think of the Directory Manager as your directory's super user. On the Directory Manager Settings panel, enter a Directory Manager DN or keep the default.

11. Enter the Directory Manager's password; it must be at least 8 characters long.

12. Enter the Product Key; it's in the iPlanet Application Server Welcome letter.

13. Indicate the Web Server type (which has been installed earlier), by choosing one of the following:

- iPlanet Web Server
- Microsoft Internet Information Server (IIS)
- None. In this case a Webless installation take place. After you have finished with this installation you must install the Web Connector Plug-in. for more information see, "Installing the Web Connector Plug-in," on page 152.

14. Enter the user name and password for the iPlanet Administration server. Click Next.

The Internationalization panel appears.

15. Choose to either install or not install support for Internationalization, and click Next.

The Configuration Summary panel appears.

16. Click Install to complete the installation.

If you want to change any of the settings, click Back to page back through the panels and correct them.

To finish, restart your computer so the new settings can take effect.

You can use a pre-installed application to verify that the iPlanet Application Server is running. For more information see, “Verifying Installation” on page 82.

Verifying Installation

The iPlanet Web site provides an application that verifies connectivity of your iPlanet Application Server installation. Since this basic application, which uses servlets and JSPs, does not rely on a database, it runs without any extra setup.

To Verify Installation, perform the following steps:

1. Open your browser enter the following URL, and then click Enter:
`http://<yourwebserver>:<portnumber>/ias-samples/index.html`
2. Click the *Quick Test* link, under Sample Applications.
3. Press the shift key and click on the browser's Reload button to ensure the application repeatedly returns a new HTML stream.

Using the Sample Applications

To better understand specific technology features provided by iPlanet Application Server, run the iPlanet Application Server Technology Samples.

To use the sample applications, perform the following steps:

1. Start iPlanet Application Server.
2. Open your browser, enter the following URL, and press Enter:
`http://<yourwebserver>:<portnumber>/ias-samples/index.html`
3. Select the iPlanet Application Server J2EE Application Samples link and select a specific sample application. Follow the application-specific setup instructions to establish the necessary database settings and to run the application.

After you become familiar with the iPlanet Application Server sample applications, run the Sun Samples, which are applications based on those found at <http://www.java.sun.com>. The Java Pet Store example in particular demonstrates how a popular J2EE application is deployed to iPlanet Application Server.

You can review the source code of the sample applications and associated J2EE XML Deployment Descriptors by browsing in the following location:

```
<installDir>/ias/ias-samples/
```

You can also find compile scripts at this site for experimenting with the sample code.

Advanced Installations for Solaris

This chapter describes the advanced installation options to install and configure iPlanet™ Application Server for the Solaris™ platform. It contains the following information:

- What You're Installing
- Using the Solaris Custom Installer
- Verifying Installation of the Application Server
- Using the Sample Applications
- Installing Multiple Instances on Solaris
- Installing on Multiple Solaris Machines

Check the *Release Notes* for any updates to these instructions at:

<http://docs.sun.com/?p=prod/s1.ipasee>

NOTE	Before you start iPlanet Application Server installation, make sure that you are running a Solaris 2.6 or Solaris 8 system.
-------------	---

What You're Installing

The software you're installing for iPlanet Application Server, actually consists of a group or stack of components, including:

- iPlanet Directory Server, Enterprise Edition 5.0 SP1
- iPlanet Administration Console, which has its own Administration Server
- iPlanet Application Server and its subcomponents:

- iPlanet Application Server Web Connector Plug-in Component
- iPlanet Application Server Core Server Component
- iPlanet Application Server Administration Tool
- iPlanet Application Server Deployment Tool
- PointBase Database Server.

Installs the required PointBase packages when you select the Application Server core components.

See Chapter 1, “Getting Started,” for an overview of iPlanet Application Server features and components.

NOTE	In addition to these components, Custom Installation allows you to install database clients, proprietary Type 2 iPlanet Application Server Database Drivers, and Type 3 JDBC drivers.
-------------	---

Using the Solaris Custom Installer

This section explains how to install iPlanet Application Server on the Solaris platform using the custom set up procedure. It includes the following topics:

- Starting Solaris Installation
- To Begin the Custom Installation
- To Configure the Directory Server
- To Configure iPlanet Application Servers
- To Configure Database Connectivity
- To Install iPlanet Application Server Clusters
- To Configure Clusters for Data Synchronization
- To Complete the Installation

NOTE	You can configure native and third party JDBC drivers when you install iPlanet Application Server. If you want to do this after installation, use the iPlanet Application Server Administration Tool.
-------------	---

Starting Solaris Installation

Before you begin installing iPlanet Application Server, meet the Minimum System Requirements and Prerequisites for Installation, as given in “Chapter 2, “Preparing to Install”.

NOTE A Web server and browser must be installed and running before you begin iPlanet Application Server installation. iPlanet Web Server, Enterprise Edition 6.0 SP2b is available on the product CD.

You can also download iPlanet Web Server 4.1 SP7 or later, or 6.0 or later, from: <http://www.iplanet.com/downloads/download/>.

The web server and browser need not be present on the same machine if you are performing a Webless installation. For more information, see “Webless Installations,” on page 151

When installing iPlanet Application Server on the Solaris platform, use the following keystroke commands:

- Enter key; accepts that screen’s default setting and goes to next screen.
- CTL-B; goes back to the previous screen within an installation section, as defined by the title at the top of the screen. You cannot use CTL+B to go back to a screen in a different section.
- CTL-C; exits the installation. Once exited, the installer starts over at the beginning.
- Comma (,) delimited list; specifies more than one item.

To Begin the Custom Installation

1. Login as root.
2. Insert the product CD in the CD-ROM drive.
3. Mount the CD-ROM on, for example, /cdrom/cdrom0

4. At the shell prompt, run the following command:

```
/cdrom/cdrom0/solaris/ias/setup
```

If you have downloaded the tar file, untar the file and type:

```
./setup
```

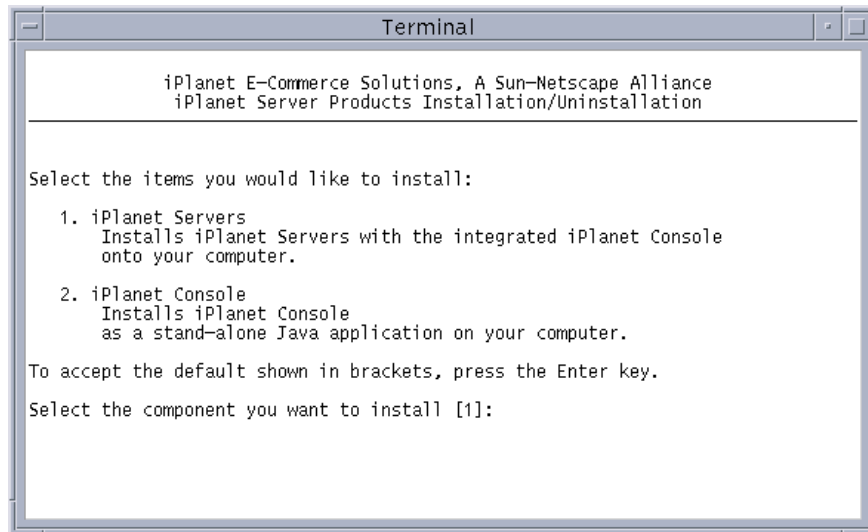
The Tips screen appears.

5. Press Enter.

The License Agreement screen appears.

6. You must enter `y` to continue.

7. Press enter to accept the default; install the iPlanet Servers group unless you select the iPlanet Console instead.



If you select iPlanet Console (formerly Netscape Console), the iPlanet Administration Console is installed as a standalone application, which can be used from any machine to administer your iPlanet Application Server configuration.

8. Enter 3 to select the Custom Installation type.
9. Enter the installation directory. The default iPlanet Application Server installation directory location is: `/usr/iplanet/ias6`

If you enter a different location, do not include spaces in the path name. All components are installed in this base directory

NOTE You must have at least 400 MB free space available on this drive to install iPlanet Application Server.

10. On the iPlanet Server Products Components panel, the default choice of [All] indicates which components are installed during a full installation of iPlanet Application Server. You may choose to:

- Keep the default selection (All).

If you choose [All], the sub-components of the selected components are listed in subsequent screens, so that you can further refine your choices.

- Enter 1, 3, 4 to not install the Directory Suite component if you already have a directory service available.

NOTE The Directory Suite Component should not be selected if you intend to install multiple instances of iPlanet Application Server. See “Installing Multiple Instances on Solaris,” on page 112 for more information.

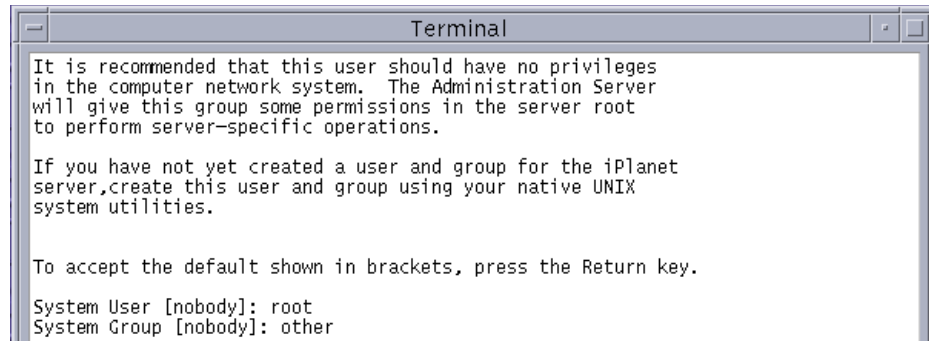
- Enter 1, 2, 4 to not install the Administration Services component if you don't want to install iPlanet Administration Console.
- Enter 4 to install only the iPlanet Application Server.

The components selected here have multiple sub-components. Press Enter in each screen to accept the default sub-components.

11. Press Enter in each subsequent screen to accept the default sub-components.

12. Press Enter to accept the default name of the computer you are installing on.

13. Enter the system user and system group names.

A screenshot of a terminal window titled "Terminal". The window contains the following text:

```
It is recommended that this user should have no privileges
in the computer network system. The Administration Server
will give this group some permissions in the server root
to perform server-specific operations.

If you have not yet created a user and group for the iPlanet
server, create this user and group using your native UNIX
system utilities.

To accept the default shown in brackets, press the Return key.

System User [nobody]: root
System Group [nobody]: other
```

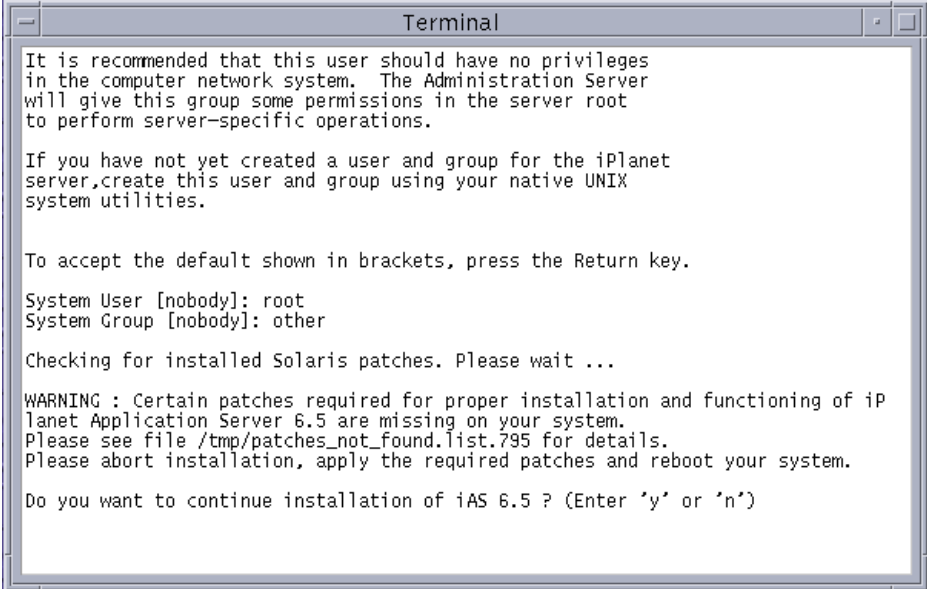
You should have already set up this user and group prior to running the installation program. Typically, this user and group should be the same as that which installed the web server.

Specify a user that has no privileges elsewhere on the system to avoid access to restricted servers, such as the configuration Directory Server.

14. The installer will now check your Solaris system for the essential patches required for your version of Solaris.

For installation to succeed, and for the proper functioning of the application server, certain patches must be installed in your system. These required patches are listed in the Release Notes, which is available at <http://docs.sun.com/?p=prod/s1.ipasee>. The list of required patches is also available in Chapter 2, "Preparing to Install", in *iPlanet Application Server Installation Guide*.

If any of these mandatory patches are missing, the installer will generate a temporary file containing the missing patches. You will see the following message in your console:



```

It is recommended that this user should have no privileges
in the computer network system. The Administration Server
will give this group some permissions in the server root
to perform server-specific operations.

If you have not yet created a user and group for the iPlanet
server, create this user and group using your native UNIX
system utilities.

To accept the default shown in brackets, press the Return key.

System User [nobody]: root
System Group [nobody]: other

Checking for installed Solaris patches. Please wait ...

WARNING : Certain patches required for proper installation and functioning of iP
lanet Application Server 6.5 are missing on your system.
Please see file /tmp/patches_not_found.list.795 for details.
Please abort installation, apply the required patches and reboot your system.

Do you want to continue installation of iAS 6.5 ? (Enter 'y' or 'n')

```

If you get this message, you must apply the missing patches and reboot your system, and then reinstall iPlanet Application Server.

If all the required patches are already installed, then the installation will proceed with the following steps.

Configuring Directory Server

Within the iPlanet Application Server installation there are several panels having to do with installing and configuring the Directory Suite.

-
- NOTE**
- The Directory Server Component should not be selected if you intend to install multiple instances of iPlanet Application Server. For more information, see “Installing Multiple Instances on Solaris,” on page 112.
 - If you don’t install Directory Server with iPlanet Application Server, you must designate an existing Directory Server as the configuration directory. The Directory Server you designate as the configuration directory must contain the data tree: `o=NetscapeRoot`.
-

To Configure the Directory Server

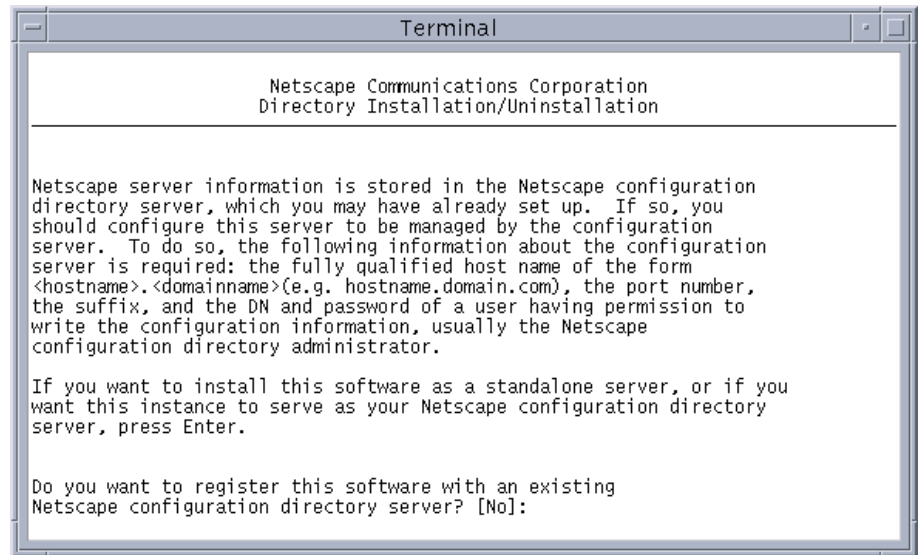
The Custom Installation Wizard panels set up the following:

- Directory Server
- Registers the Directory Server's data tree by indicating what the Directory Server stores:
 - Configuration data
 - Directory data
- Sets up following administrators:
 - Configuration Data Administrator
 - Directory Data Administrator, known as Directory Manager
- Records general settings for the Directory server's
 - LDAP communication port
 - Local host machine
 - Data Tree Root Suffix for the iPlanet Application Server you're installing
- Sets Administrative Domain boundaries for the Directory Server

NOTE For information about installing the Directory Server, see the *iPlanet Directory Server Installation Guide* at:

<http://docs.sun.com/>

1. Press Enter to accept the default and register this Directory Server as the configuration Directory Server.



If you are not installing the configuration Directory Server included in this installation, specify an existing Directory Server and provide its fully qualified domain name (*hostname.domain.com*), and port number.

TIP The Configuration Directory Server is the part of the Directory Server used to store configuration information. The Directory Server also stores directory data.

2. Press Enter to accept this Directory Server instance as the general directory data storage server.

If you have an existing Directory Server already installed on your system for this purpose, specify it. You will have to provide the fully qualified domain name, port number, the data information tree suffix, and the user directory admin (typically *cn=Directory Manager*) and password.

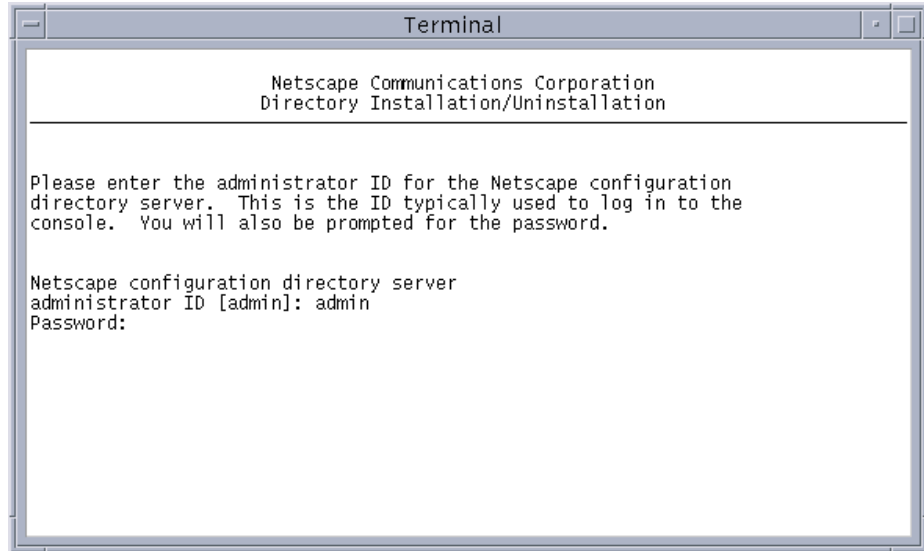
3. Press Enter to accept the default directory server port number of 389.

If you are not logged in as root, the default value is a random number generated by the installer, which is greater than 1024.

4. Press Enter to set the unique identifier for the Directory Server by default to the name of the computer it's being installed on.

To enter a different name, type in the name and press Enter.

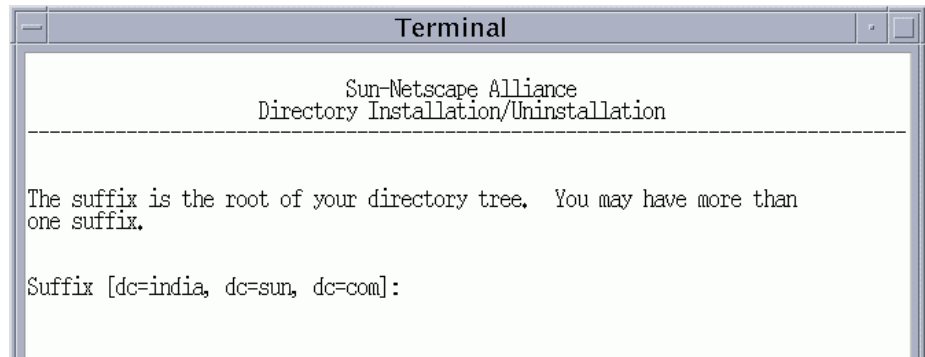
5. Assign the Administrator ID and password for the Configuration Directory Server.



- Press Enter to accept default username as `admin`, or type in a username and press Enter.
- Enter a password; it can contain letters and numbers.

NOTE Record and keep the Configuration Directory Administrator ID and password for future reference. They are required to login to the iPlanet Administration Console and to uninstall the iPlanet Application Server and the Directory Server.

6. Enter the data information tree suffix for your organization.



For example, if an organization uses the distinguished name service (DNS) of sales.sun.com, then a reasonable suffix for identifying that organizations' data is: dc=sales, dc=sun, dc=com.

7. Enter a distinguished name (DN) for the directory server's administrator. The default value is Directory Manager (cn=Directory Manager).

Enter a password for the Directory Manager that is at least 8 characters long.



The Directory Manager's Distinguished Name is the special directory entry for the administrator of the Directory Server. Access control does not apply to the Directory Manager.

8. Enter the directory server's Administration Domain.

If your installation has multiple domains setup for this Directory Server, enter a unique domain name here, otherwise keep the default entry. The default is set to the installation computer's domain. If you need to change this value, you should use a name that corresponds to the organizations that control the servers in each domain.

Since a Directory Server may store Configuration information for multiple domains, the Administration Domain is used to keep these separate. Enter an administration domain to use for keeping software configuration information stored in the Configuration Directory Server distinct from other such information.

9. Enter `y` to configure this Directory Server installation for replication; otherwise accept the default choice.

Replication is used to duplicate all or part of a directory server to another directory server to provide a fail-safe setup.

A server that holds a replica that is copied to a replica on a different server is called a *supplier*. A server that holds a replica that is copied from a different server is called a *consumer*. For more information on replication concepts, see *iPlanet Directory Server Deployment Guide*.

<http://docs.sun.com/>

10. Enter `y` to enter sample directory data or accept the default.
11. Enter the full path and filename of a file in LDIF format to populate the directory with your custom database, or Enter `suggest` at the prompt to add sample entries to the Directory Server.
12. Press Enter to enable schema checking for an imported database.

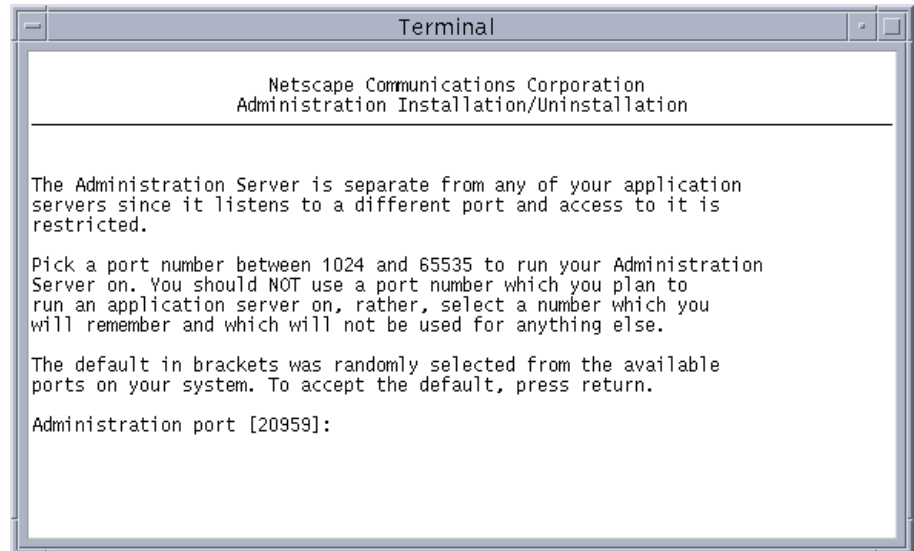
Disable schema checking if you are going to import an old database immediately after or during installation, and you think you may have problems with it. If you choose to do this, schema checking will remain off until you manually turn it back on.

We recommend that you turn it back on as soon as possible.

The Directory Server is now configured for installation. Next, you will configure the port numbers and the number of Java and C++ servers.

To Configure iPlanet Application Servers

1. Press Enter to accept the default port number for the administration server, or type in a different port number.



The Administration Server is separate from any of your application servers since it listens to a different port and access to it is restricted.

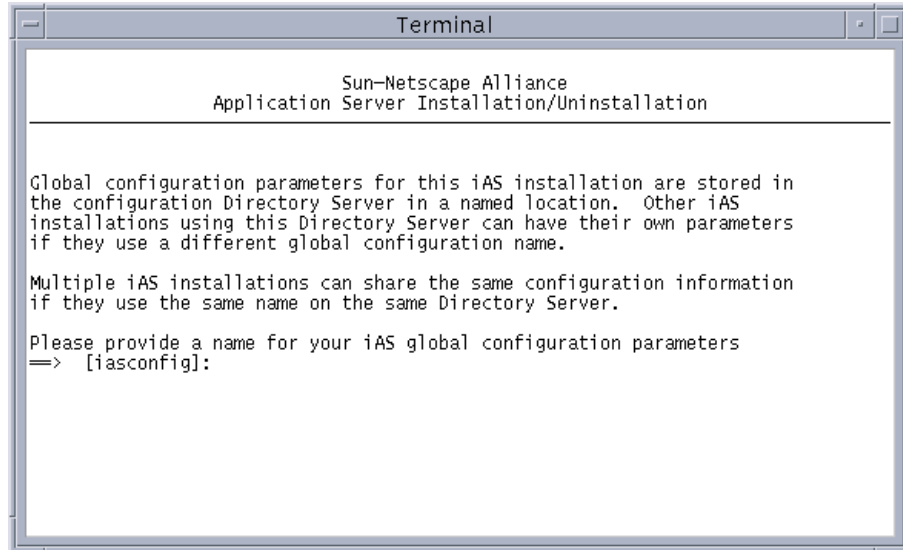
2. Enter the IP address of the machine you want the Administration Server to bind to.

By default, the IP address is that of the current host.

3. Press Enter to enable “root” user access to the Administration Server.
4. Enter Y if you want the locally installed Directory Server to be the instance which connects to the iPlanet Application Server.

Depending on the configuration you are currently installing you may or may not want the locally installed Directory Server to be the instance which connects to iPlanet Application Server.

5. Press Enter to accept the default global configuration name or type a unique name for this installation of iPlanet Application Server.



This name is stored on the configuration Directory Server, under the `o=NetscapeRoot` tree, along with global configuration names of any other iPlanet Application Server installations.

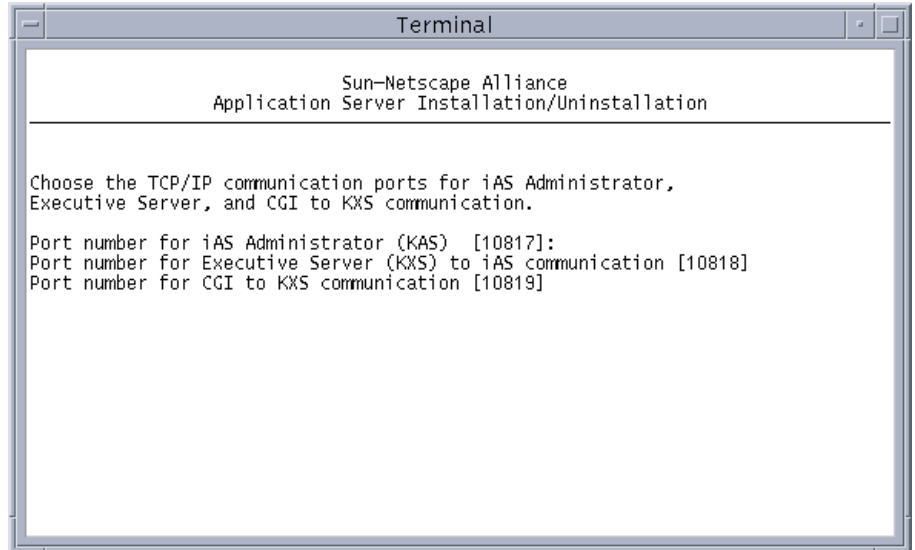
6. Enter the product key.

The Product Key is in the welcome letter you received with iPlanet Application Server. You must enter this number correctly for installation to continue.

7. Enter the full path of your Web Server instance.

No default is provided.

8. Press Enter to accept the default listener port numbers.



Listener ports must be within the acceptable range (1025 to 32768), and must be unique (not used by any other services on your system).

9. Press Enter to install one Java Server (KJS).

If you intend to use more than one, enter the number and their default port number(s), or type different port numbers.

All Java Server port numbers are listener ports and must be within the acceptable range of 1025 to 32768. Port numbers must be unique (not used by any other services on your system).

10. Press Enter to install one C++ Server (KCS).

If you intend to use more than one C++ server, enter the number and their default port number(s).

All C++ port numbers are listener ports and must be within the acceptable range of 1025 to 32768. Port numbers must be unique (not used by any other services on your system).

11. Enter the username and password to use for the iPlanet Application Server Administration Tool.



NOTE Record the username and password. After installation, you'll need them to register iPlanet Application Server with the iPlanet Application Server Administration Tool.

Next up are configuration options to setup third party JDBC database drivers. You can also configure them after installation through the iPlanet Application Server Administration Tool.

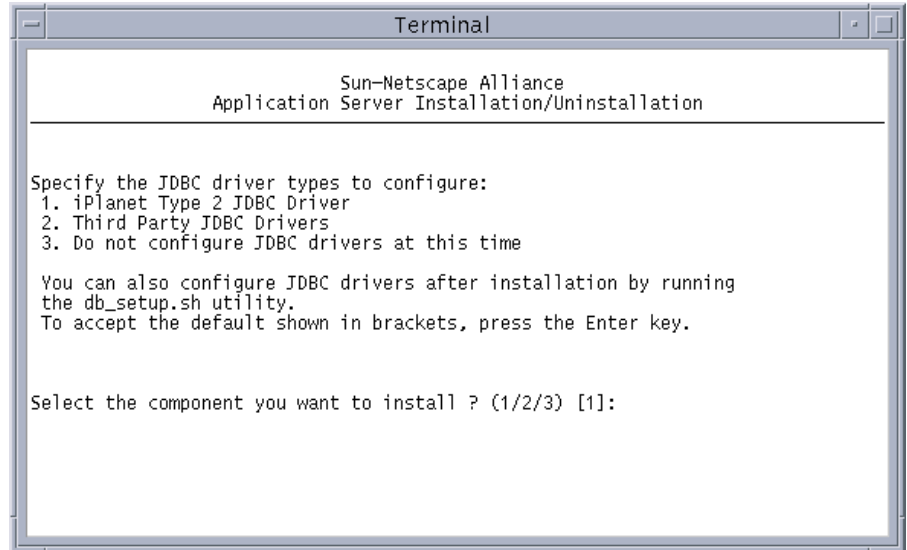
iPlanet Application Server supports iPlanet Type 2 and third party JDBC database drivers.

To Configure Database Connectivity

This section includes procedures on setting up the database clients, native and third party JDBC drivers.

Choose To Set Up JDBC Drivers

- Press Enter to install iPlanet Type 2 JDBC drivers by default, or 2 to install Third Party JDBC drivers, or enter 3 for none.



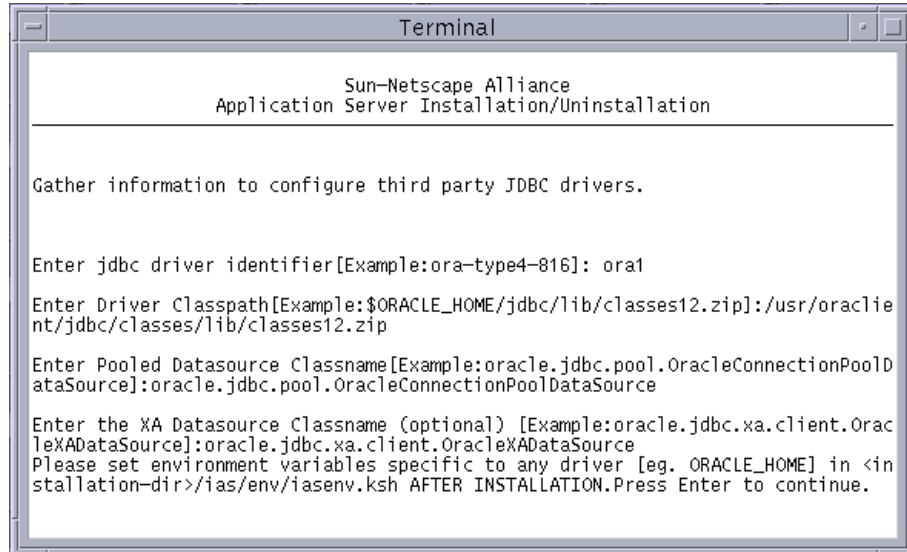
NOTE We recommend that you use the third party JDBC drivers, since the proprietary iPlanet Type 2 JDBC drivers have been deprecated.

To Set Up Third Party JDBC Drivers

1. Enter the number of Third Party JDBC drivers you want to configure.

These drivers can be configured for the same or different database clients.

The following screen appears:



2. For each Third Party JDBC driver, enter the following details:

- a. Enter driver identifier for the driver you are configuring, for example**
oral.

This is a logical name by which you identify the driver to iPlanet Application Server. This name is used to link datasource definitions back to a physical driver type. The name can be of any string value you choose. Examples include: driver1, ora-type4, ora-type2, and jconnect.

- b. Enter driver classpath, for example**
Oracle_Home/jdbc/lib/classes12.zip

The fully qualified path to the driver classes, JAR, or ZIP file. This zip file holds the library classes for the driver. Specify the complete path as shown in the following example:

```
/usr/oraclet/jdbc/classes/lib/classes12.zip.
```

- c. Enter Pooled Datasource Classname, for example**
oracle.jdbc.pool.OracleConnectionPoolDataSource

NOTE If this Pooled Datasource Classname is `com.iplanet.ias.jdbc.IASConnectionPoolDataSource`, then you have to specify the JDBC Driver Class name specific to the driver. For example:
`com.pointbase.jdbc.jdbcUniversalDriver`.

This option is required for drivers which only support Driver Manager, for example PointBase, which is bundled with iPlanet Application Server.

iPlanet Application Server provides wrappers to support pooled connections for such drivers. The name of the wrapper is:
`com.iplanet.ias.jdbc.iASConnectionPoolDataSource`

- d. Enter the XA Datasource Classname, for example
`oracle.jdbc.xa.client.OracleXADataSource`

NOTE This is optional and need to be specified if you want to use global transactions.

- e. You will be prompted to set the environment variables for your driver in the `iASInstallDir/ias/env/iasenv.ksh` file after installation.

For more details on JDBC configuration, see *iPlanet Application Server Administrator's Guide*.

-
- NOTE**
- PointBase database server and its third party JDBC driver is automatically registered with the Administration Server. It also populates the sample databases of e-Store, J2EEGuide, Database, and Bank sample applications.
 - After installation you must register the datasource for the third party JDBC drivers.

For more information, see *iPlanet Application Server Administrator's Guide* and the online help of the Deployment Tool.

To Configure Type 2 Database Connectivity

The installation program lists the database clients supported by iPlanet Application Server. These clients are required for Type 2 connectivity.

1. Indicate if you want to configure this instance of iPlanet Application Server to connect with each of the supported database clients. For each client that you specify “Yes,” provide the specified information for that client:
 - Oracle
 - Oracle home directory
 - Class library
 - Sybase:
 - Sybase home directory
 - Sybase server name
 - Class library
 - Informix:
 - Informix home directory
 - Informix server name
 - Class library
 - DB2:
 - DB2 home directory
 - DB2 server name
 - Class library
2. Type Y (Yes) or N (No) to indicate whether or not to configure iPlanet Application Server for communication with Oracle, Sybase, Informix, and IBM DB2.
3. Rank each database according to its priority for your application’s data lookup needs.

This enables you to write applications without specifying what database to use.

To Configure the Transaction Manager

Use the iPlanet Application Server Administration Tool to configure transaction manager. iPlanet Application Server supports both local and global transactions for third party JDBC drivers.

NOTE Global transactions support is not available for native drivers.

For more information on configuring transaction manager for your JDBC driver, see *iPlanet Application Server Administrator's Guide*.

Internationalization Support

1. Enter `y` to enable standard Java Internationalization support, otherwise accept the default setting (N).

To Install iPlanet Application Server Clusters

Follow instructions for installing and verifying the simple cluster on the Solaris platform at:

<http://developer.iplanet.com/appserver/samples/cluster/docs/unix-cluster.html>

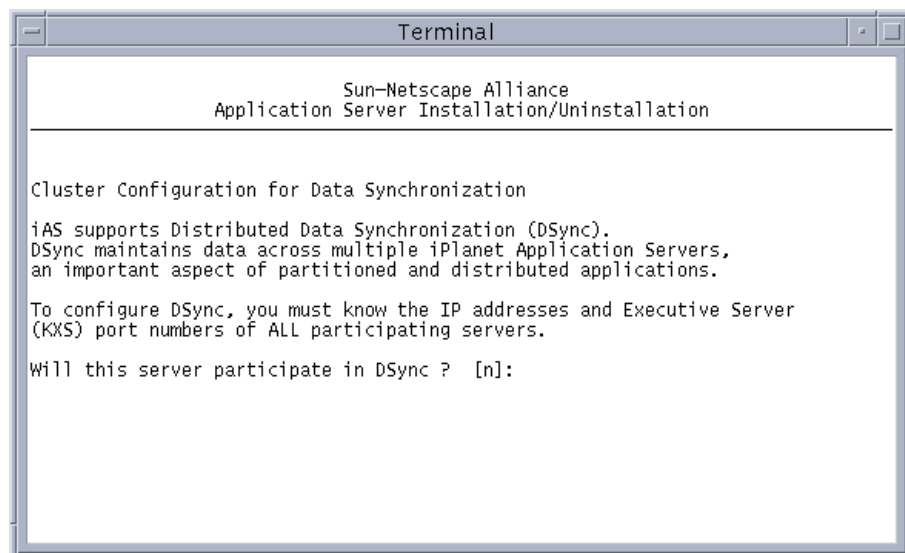
Additional information on configuring and deploying iPlanet Application Servers is available under “Configuring iPlanet Application Server Clusters,” on page 157, and in the *iPlanet Application Server Administrator's Guide*.

To Configure Clusters for Data Synchronization

1. Enter `y` and press Enter to set this iPlanet Application Server instance to participate in data synchronization. The default is no (n).

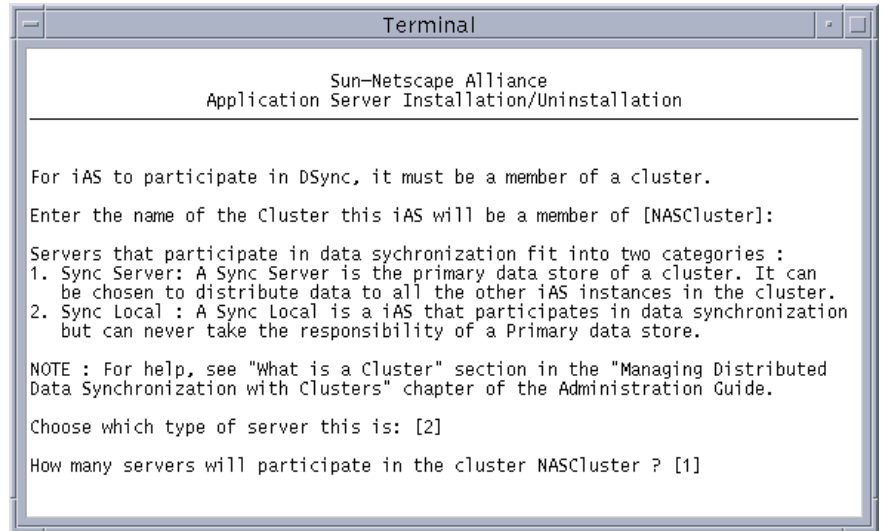
NOTE During installation, you cannot configure multiple instances on a single machine as a cluster. Use the Administration Tool to set up a clustering environment.

For more information, see the *iPlanet Application Server Administrator's Guide*.



This sets up the synchronization of session and state information across multiple servers for failover and fault tolerance.

2. If you answered yes in the previous screen, you are asked to:
 - a. Enter the name of the cluster to which this instance of iPlanet Application Server belongs. The cluster may already exist, or this may be the first server assigned to the cluster.

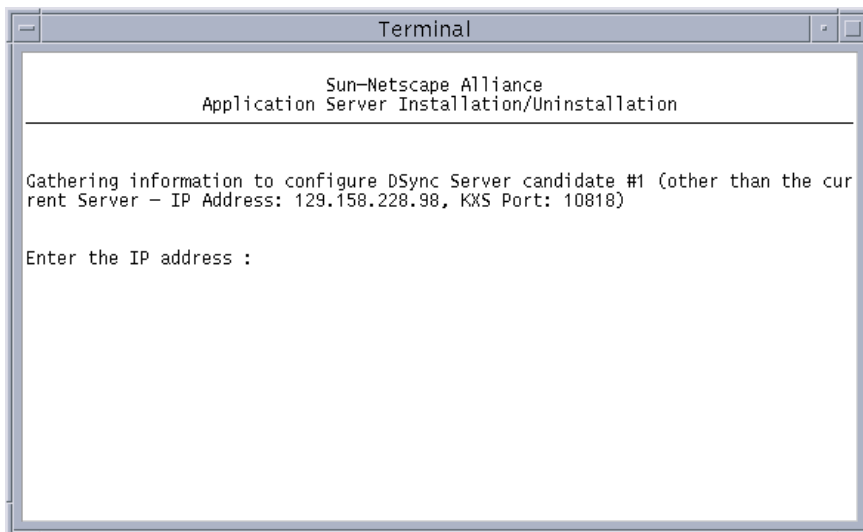


- b.** Indicate if this iPlanet Application Server instance is to be a Sync Local or Sync Server instance.

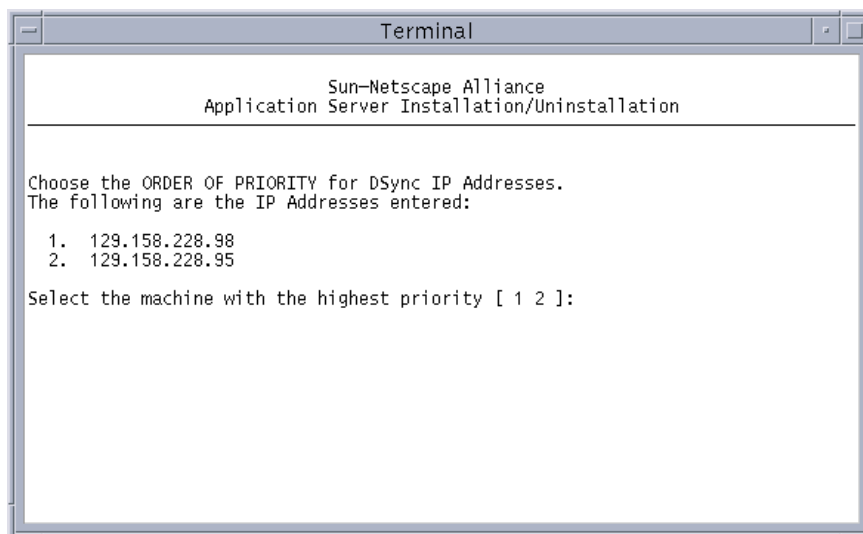
A Sync Local server uses data synchronization services, but is not eligible to become a Sync Primary or the Sync Backup Server. For more information on Sync Servers and Sync Local, see “Configuring iPlanet Application Server Clusters,” on page 157

- c.** Enter the IP addresses and port numbers for each installation of iPlanet Application Server in the cluster. The IP address of the machine you are installing on is added by default (if it’s a Sync Server).

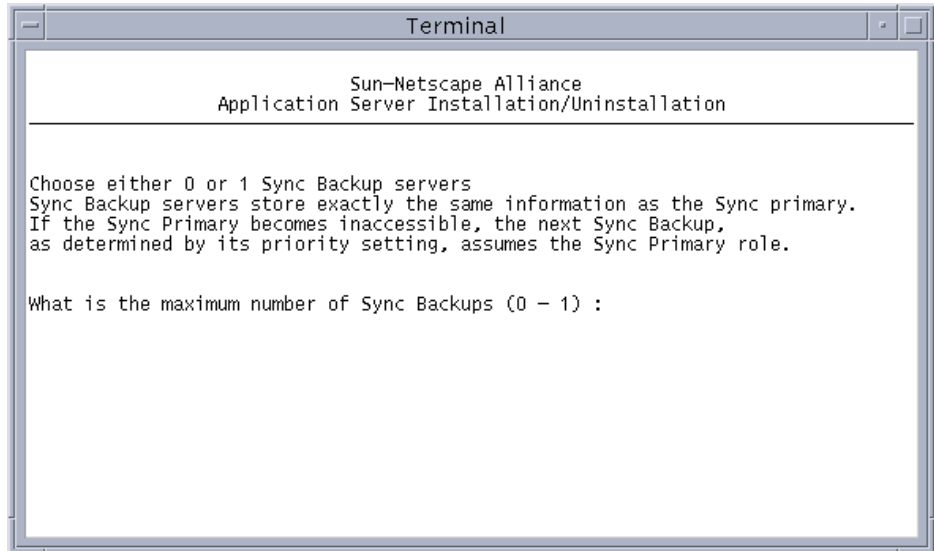
These IP addresses and port numbers must match across installations for the cluster to function properly.



- d. Enter the priority for each Sync Server. Start with the highest priority Sync Server in the cluster. This is the first server to take over if Sync Primary fails. Enter each Sync Server's priority until all are ranked.



- e. Specify the number of Sync Backup servers that should be active while the cluster is running.



This completes the configuration of your iPlanet Application Server installation. Continue with the next few steps to extract the packages and complete the installation.

To Complete the Installation

1. Enter `y` to enable this iPlanet Application Server instance to automatically start at system startups.

The default is No.

NOTE You can only run iPlanet Application Server automatically at startup if you have logged on as root.

2. The installation program now extracts the iPlanet Application Server files and installs them in your system.

Here, you may be prompted to change the ownership of iAS files if the owner and group are different.

Type `y` and press `Enter` if you want to change the group permission of iAS files to that of the user you are installing as. You must be the superuser or logged in as that user to change permissions.

After all the files have been extracted, the installer generates a report of the port numbers assigned.

-
- | | |
|-------------|---|
| NOTE | <ul style="list-style-type: none">• Record or print the port number report as the port numbers are required to administer the iPlanet Application Server.• After installation is complete, the PointBase database package's administration dialog will be displayed. If you get an error message, and you are unable to view the dialog box, set the <code>DISPLAY</code> terminal variable to <code>X</code>. |
|-------------|---|
-

The PointBase database engine automatically starts after installation (if you had opted to install it). Use this bundled database application to test your sample database applications. If you don't want to use it right away, you can shut down the PointBase database engine and use it later.

To start PointBase, go to the `<iASInstallDir>/pointbase/network/bin` and type:

```
pointbaseServer start
```

To stop, type:

```
pointbaseServer stop
```

3. To start iPlanet Administration Console, go to the installation directory and execute the command (printed at the end of the port number report):

```
startconsole -a http://<servername.domain.com>:<port_number> .
```

Verifying Installation of the Application Server

The iPlanet Web site provides an application that verifies connectivity of your iPlanet Application Server installation. Since this basic application, which uses servlets and JSPs, does not rely on a database, it runs without any extra setup.

To Verify Installation

1. Open your browser and enter the following URL:

```
http://<yourwebserver>:<portnumber>/ias-samples/index.html
```

2. Press Enter.
3. Click the *Quick Test* link, under Sample Applications.
4. Press the shift key and click on the browser's Reload button to ensure the application repeatedly returns a new HTML stream.

Using the Sample Applications

To better understand specific technology features provided by iPlanet Application Server, run the iPlanet Application Server Technology Samples.

To Use the Sample Applications

1. Start iPlanet Application Server.
2. Open your browser, enter the following URL, and press Enter:

```
http://<yourwebserver>:<portnumber>/ias-samples/index.html
```

3. Select the iPlanet Application Server J2EE Application Samples link and select a specific sample application. Follow the application-specific setup instructions to establish the necessary database settings and to run the application.

After you become familiar with the iPlanet Application Server sample applications, run the Sun Samples, which are applications based on those found at <http://www.java.sun.com>. The Java Pet Store example in particular demonstrates how a popular J2EE application is deployed to iPlanet Application Server.

You can review the source code of the sample applications and associated J2EE XML Deployment Descriptors by browsing in the following location:

`installDir/ias/ias-samples/`

You can also find compile scripts at this site for experimenting with the sample code.

Installing Multiple Instances on Solaris

Multiple instances benefit both the development and production environments. In the development environment, having multiple iPlanet Application Server instances enables you to isolate code. In a production environment, multiple iPlanet Application Server instances will improve scalability.

For more information on the benefits of installing multiple instances, see “Reasons for Installing Multiple Instances,” on page 159

NOTE	This option is available only on Solaris.
-------------	---

To Install for Developer Deployment

1. Create logins for each iPlanet Application Server instance.
2. Install the initial instance of the iPlanet Application Server on each system.
 - Set up a home directory, such as: `/usr/iplanet/ias6/instance0`.
 - Store configuration data under the global configuration name, `iasconfig0`, on the Directory Server.
 - Configure the number of executive server (KJS) processes so there is one KJS per iPlanet Application Server instance.
3. Install additional iPlanet Application Server instances.
 - Use Custom Installation to assign different port numbers.
 - Set up different home directories for each instance, like:
`/usr/iplanet/ias6/instance1`, `/usr/iplanet/ias6/instance2`
 - Do not install the iPlanet Directory Suite or Administration Services.
 - Do not install iPlanet Core Java classes or Java Runtime Environment.

4. Store configuration data on the primary directory server in "iasconfig1", "iasconfig2", and so forth.
5. Install the Web Connector on all Web Server instances. Each Web Server instance is associated with one iPlanet Application Server instance.

To Install for Production Deployment

1. Install two Directory Servers; one to serve as a primary and the other a secondary server. Configure these servers so that the primary Directory Server replicates to the secondary.
2. Create logins for each Directory Server instance. The best performance comes from using 1 instance per processor, but up to eight (8) processors can be used per Directory Server instance.
3. Install the initial instance of the iPlanet Application Server on each system.
 - o Setup an installation directory, like: /usr/iplanet/ias6/instance0.
 - o Store configuration data in `iasconfig_global` on the primary Directory Server.
 - o Configure for the secondary Directory Server.
 - o Configure at least two KJS processes per iPlanet Application Server instance.
 - o Optional: Configure the application server so that it starts up automatically
4. Install additional instances.
 - o Use the Custom Installation to change port numbers.
 - o Input different home directories for each instance, like:
/usr/iplanet/ias6/instance1, /usr/iplanet/ias6/instance2
 - o Do not install the iPlanet Directory Suite or Administration Services.
 - o Do not install iPlanet Core Java classes or Java Runtime Environment.
 - o Do not install iPlanet Application Server Web Connector Component or Deployment Tool.
5. Store configuration data on the primary Directory Server in:
 - o `iasconfig_global` for most instances

- `iasconfig_Acme` for Web servers and iPlanet Application Servers in a cluster configuration dedicated to handling AOL customers
 - `iasconfig_ispl` for Web servers and iPlanet Application Servers in a cluster configuration dedicated to handling ispl customers
 - `iasconfig_ispN` for Web servers and iPlanet Application Servers in cluster configuration dedicated to handling ispN customers
6. Configure a secondary Directory Server.
 7. Configure the number of KXS and KJS processes so that there are at least two KJS processes per instance.
 8. Configure each instance so that it does *not* start up automatically.
 9. Create a script to bind processes to individual processors.
For more details, see *iPlanet Application Server Performance and Tuning Guide*.
 10. Create a crontab script to periodically check process bindings. A restart of a KJS process should cause this script to run the process binding script.
 11. Configure cluster pairs so that:
 - A ring topology is achieved as much as possible
 - Each instance is on a separate server

Example 1:

Server A runs Instance 0 and Instance 1

Server B runs Instance 2 and Instance 3

Server C runs Instance 4 and Instance 5

Create Cluster 0 with Instance 1 and Instance 2

Create Cluster 1 with Instance 3 and Instance 4

Create Cluster 2 with Instance 5 and Instance 0

Example 2:

Server A runs Instance 0, 1, 2, and 3

Server B runs Instance 4, 5, 6, and 7

Server C runs Instance 8 and 9

Create Cluster 0 with Instance 0 and 4

Create Cluster 1 with Instance 1 and 5

Create Cluster 2 with Instance 2 and 6

Create Cluster 3 with Instance 3 and 9

Create Cluster 4 with Instance 7 and 8

12. Configure all iPlanet Application Server clusters for Per Component load balancing. Per Server load balancing will be confused by the sharing of servers between instances.

On each server, modify the rc2 startup scripts so that all Sync Primary instances are started as soon as possible. Delay the startup of all Sync Backup Instances. Determine which instances are to be Sync Primary or Sync Backup by evenly dividing the load between the physical servers. The reason for making these changes is that Sync Primary servers do more work, so it is desirable to evenly divide the work. Sync Primary instances are determined based on the startup order.

Example 1:

Continuing from Example 1 in the previous section. Primary instances could be 1, 3, and 5.

Example 2:

Continuing from Example 2 in the previous section. Primary instances could be 0, 1, 6, 7, and 8.

13. Install Web Connector on all web server instances. Allocate appropriate numbers of web server instances for each cluster that is allocated to ISP proxies. All other web server instances can be shared by the remaining cluster pairs.
 - Configure the web tier load balancer so that sessions return to their original web servers.
 - Configure the web tier load balancer so that known ISP proxies are associated with the web servers which have been allocated for that purpose.

- Configure the web tier load balancer so that application partitioning between clusters is supported (in cases where applications do not exist on all clusters).

NOTE Not all load balancing solutions can support all of these features. Resonate Central Dispatch is an example of a load balancer with these features.

Installing on Multiple Solaris Machines

The Silent Installation feature allows you to install the Application Server on multiple Solaris machines without running the installation program more than once.

To run Silent Install

1. Run the `setup -k` command on the first machine.

Proceed with the installation program. An `install.inf` file is generated in the `installDir/setup` directory. In addition, a log file, `userinput.log`, is generated in the `installDir/ias` directory. This file contains all input entered during the installation procedure.

2. Once you have completed the installation process, copy `install.inf` and `userinput.log` and add them to the `/tmp` directory of a second system.
3. Modify the copies of `install.inf` and `userinput.log`, as described in the following steps.
4. You may have to change some or all of the following values in `install.inf`, depending on your configuration requirements, such as, port numbers, domain name, etc.

Table 5-1 Settings in install.inf

Value	Description
FullMachineName	Name of the machine on which iPlanet Application Server is being installed
ServerRoot	Installation root directory
AdminDomain	Directory server's administration domain
ConfigDirectoryLdapURL	URL for the configuration information in the directory server.
UserDirectoryLdapURL	URL for the user information in the directory server
ServerPort	Local directory server port
ServerIdentifier	Local directory server identifier
Port	Local Administration port

5. Change the following keys in the `userinput.log` file. You may need to change some or all of the following values, depending on your configuration requirements:

Table 5-2 Settings in userinput.log file

Value	Description
NAS_backup_dir	Directory used to back up files, usually <code><ServerRoot>/backup</code>
LDAP_ServerRoot	Same as <code>ServerRoot</code> in <code>install.inf</code>
LDAP_Hostname	Same as <code>FullMachineName</code> in <code>install.inf</code>
LDAP_ServerIdentifier	Same as <code>ServerIdentifier</code> in <code>install.inf</code>
LDAP_ServerPort	Same as <code>ServerPort</code> in <code>install.inf</code>
AdminServer_Port	Same as <code>Port</code> in <code>install.inf</code>
LDAP_AdminDomain	Same as <code>AdminDomain</code> in <code>install.inf</code>
LDAP_UserDirectoryLdapURL	Same as <code>UserDirectoryLdapURL</code> in <code>install.inf</code>

Table 5-2 Settings in `userinput.log` file

Value	Description
NAS_home	Root of iPlanet Application Server installation. Usually <code><ServerRoot>/ias</code>
NAS_userinputlog	Path for storing <code>userinput.log</code> file
BASEDIR	Same as NAS_home
LocalHostName	Name of the machine on which silent install is being done
LocalIPAddress	IP address of the machine on which silent install is being done
KIVAKey	Product Key
LDAP_nasconfig	Global configuration name under which iPlanet Application Server configuration information is stored in the directory server.
NSRootDir	Path of the Web Server instance
nsinst	Same as NSRootDir
webserver_version	If you are running iPlanet Web Server 4.1, then this value is 4.1. If you are running 6.0, then use the value 6.0

6. Enter the port numbers for KAS, KXS, KJS, KCS, etc.
7. Enter the logvol root's sizes for each of the kjs engines, such as, `TXN_DirectoryRoot_logVol_1`
8. Enter passwords in the following fields. You need not modify these values if you want to use the same passwords for all the multiple installations.
 - Password settings in the `install.inf` file:
 - `ConfigDirectoryAdminPwd`
 - `UserDirectoryAdminPwd`
 - `RootDNPwd`
 - `ServerAdminPwd`
 - Password settings in the `userinput.log` file

- LDAP_RootDNPwd
- LDAP_UserDirectoryAdminPwd
- PASSWORD

9. Run the following command on the second system to begin silent installation:
`setup -s -f fullpath/install.inf`

This performs an installation with exactly the same setup as the first system.

Advanced Installations for Windows

This chapter describes how to install and configure the iPlanet™ Application Server for the Windows platform. It contains the following information:

- What You're Installing
- Running the Custom Installer
- Verifying Installation
- Using the Sample Applications
- Installing on Multiple Windows Machines

For any late breaking updates to these instructions, check the Release Notes at:

<http://docs.sun.com/?p=prod/sl.ipasee>

For more information about configuring your application server after installation, refer to the *iPlanet Application Server Administrator's Guide*.

What You're Installing

The software you're installing for iPlanet Application Server, actually consists of a group or stack of components, including:

- iPlanet Directory Server, Enterprise Edition 5.0, SP1
- iPlanet Console, which has its own Administration Server
- iPlanet Application Server and its subcomponents:
 - iPlanet Application Server Web Connector Plug-in Component
 - iPlanet Application Server Core Server Components

- iPlanet Application Server Administration Tool
- iPlanet Application Server Deployment Tool
- PointBase Database Server

Installs the required PointBase files when you select the Application Server core components.

See Chapter 1, “Getting Started,” for an overview of the iPlanet Application Server features and components.

NOTE In addition to these components, Custom Installation allows you to install database clients, proprietary Type 2 iPlanet Application Server Database Drivers, and third party JDBC drivers.

Running the Custom Installer

Installing iPlanet Application Server using the custom installation wizard is divided into the following topics:

- “To Start Custom Installation,” on page 123
- “To Configure the Directory Server,” on page 126
- “To Configure iPlanet Application Servers,” on page 133
- “To Configure Database Connectivity,” on page 134
- “To Configure iPlanet Application Server Clusters,” on page 138
- “To Use the Sample Applications,” on page 141

NOTE Meet the Minimum System Requirements and Prerequisites for Installation, as given in “Chapter 2, “Preparing to Install”.

To Start Custom Installation

1. If you are installing from a CD-ROM, the installation wizard should start automatically. If it does not, browse the CD-ROM drive to locate and launch `setup.exe`.

2. Click Next after the Welcome screen appears.

3. Click Yes to accept the license agreement.

You must accept the License agreement to continue.

4. Click Next to install the iPlanet Server and core components.

Select the iPlanet Administration Console to install it as a standalone application. Selecting the iPlanet Server and core components will install the Administration Console by default on the same machine on which you are installing the application server.

The Type of Installation panel appears.

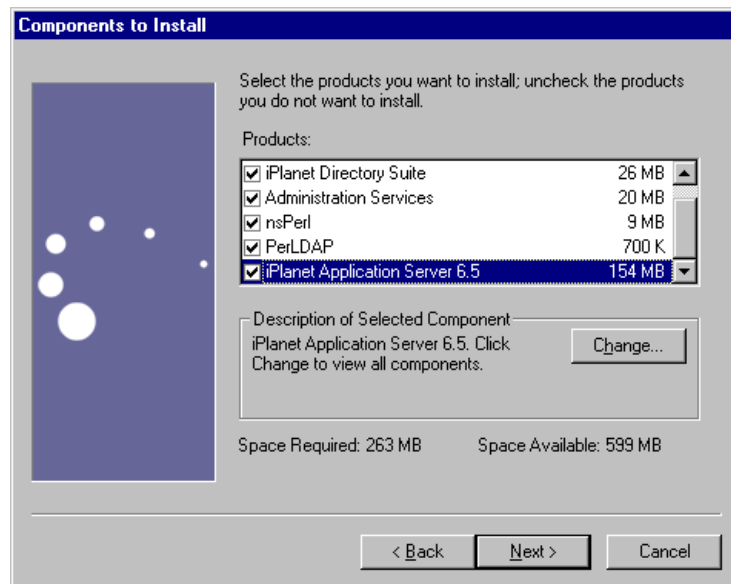
5. Select Custom as the type of installation and Click Next.

The Location of Installation panel appears.

6. Click Next on the Location of Installation panel to accept the default pathway, or click the ellipsis (...) to browse through your computers' folders and select another directory.

Do not use a directory name that includes spaces.

The Components to Install screen appears.



7. Click Next to accept the default choices on the Components to Install panel. The default choices indicate those installed during a full installation.

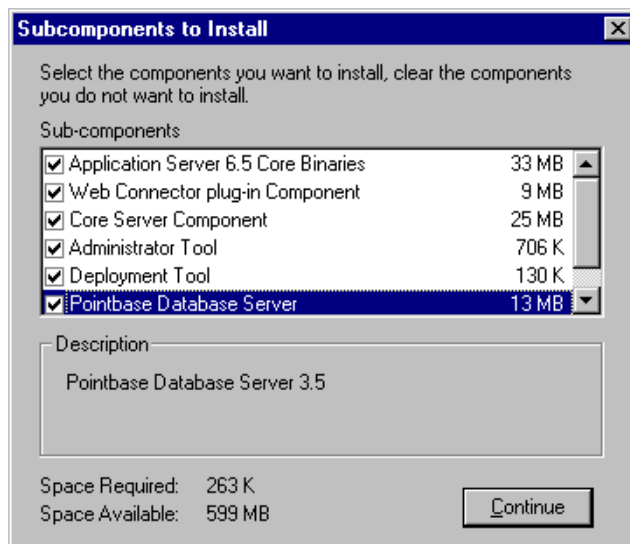
Click the Change button to further refine your choices. This displays the subcomponents associated with each component selected.

The Components to Install panel enables you to:

- Deselect the Directory Suite component if you already have a directory service available.
- Deselect Administration Services if you don't want the iPlanet Administration Console.

NOTE The nsPerl and PerlLDAP components are required by the directory server component. To deselect them, you must first deselect the iPlanet Directory Suite component.

iPlanet Application Server bundles the PointBase database server, which is installed by default. If you do not want to install PointBase, select iPlanet Application Server 6.5 > Change, and uncheck the box next to PointBase Database Server.



Within iPlanet Application Server installation, there are several panels pertaining to installing and configuring iPlanet Directory Server 5.0, SP1. The Directory Server stores the application server's configuration and directory data.

-
- NOTE**
- If you don't install Directory Server with iPlanet Application Server, you must designate an existing Directory Server as the configuration directory. The Directory Server you designate as the configuration directory must contain the data tree: `o=NetscapeRoot`.
-

To Configure the Directory Server

The Custom Installation Wizard panels set up the following:

- Directory Server
- Registers the Directory Server's data tree by indicating what the Directory Server stores:
 - Configuration data
 - Directory data
- Sets up following administrators:
 - Configuration Data Administrator
 - Directory Data Administrator, known as Directory Manager
- Records general settings for the Directory server's
 - LDAP communication port
 - Local host machine
 - Data Tree Root Suffix for the iPlanet Application Server you're installing
- Sets Administrative Domain boundaries for the Directory Server

For an overview of the various functions of the Directory Server, the *iPlanet Directory Server Installation Guide*.

NOTE For information about the Directory Server's Synchronous Service for Windows, see the *iPlanet Directory Server Installation Guide* at: <http://docs.sun.com/>.

These panels and their function are described in the following steps.

1. Select the directory server that will hold the configuration directory.

The configuration directory contains the data tree used by the iPlanet Application Server. The Directory Server stores these configuration settings in the data tree: `o=NetscapeRoot`, and under the suffix that you set up to identify your organization. Multiple server installations can store their configuration settings in this configuration directory.

Choose one of the following options:

- Specify a new Directory Server (the one you are installing) as the configuration directory by keeping the default setting, or
- Use an existing Directory Server by selecting "Use existing configuration Directory Server," and then fill in the information used to identify that server:
 - Host name and port number
 - Default binding: `admin`
 - Password

2. Select the Directory Server that will store iPlanet Application Server data.

The Directory Server gives you the option to distribute data amongst multiple Directory Server databases. It does this by using a plug-in that chains together distributed data. For more information, see *iPlanet Directory Server Deployment Guide*, which is available on the Web at <http://docs.sun.com/>.

Choose one of the following options:

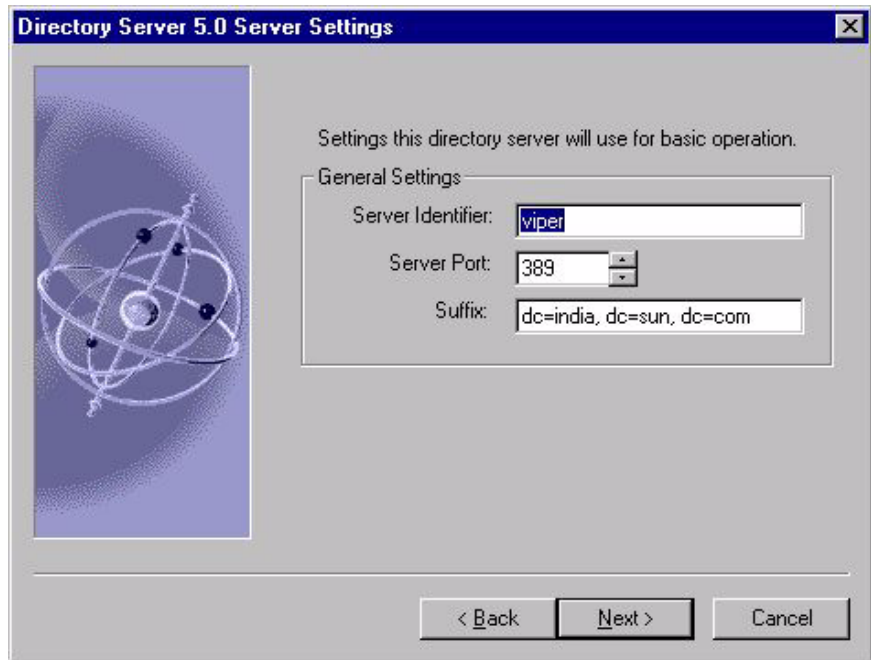
- To store directory data in the newly installed Directory Server, select the default option.
- To use an existing Directory Server for data storage, select that option and enter its general settings:
 - Host name and port number.

- Default binding or Distinguished Name (DN). By default it's `cn=Directory Manager`.
- Suffix: `dc=sales, dc=sun, dc=com`. For example, if the DNS name is `sales.sun.com`, then the suffix would be `dc=sales, dc=sun, dc=com`.

Click Next to continue with the Directory Server Settings.

3. Specify the Directory Server's General Settings

These settings consist of an identifier for the Directory Server's host machine, the port number of the LDAP communication port, and the data information tree suffix that is used to identify the root of the database tree for this iPlanet Application Server installation or the Directory Server.



The suffix is the entry at the top of the Directory Server data tree, below which iPlanet Application Server data is stored. For more information on standard directory suffixes, see the *iPlanet Directory Server Administrator's Guide*.

- The Server Identifier is set to the local host (the computer on which you are installing the directory server.)

- The default Server Port number is 389 (the standard LDAP port number); if the port is in use, a randomly generated number will be used.
 - The default domain name is set to the computer you're installing the Application Server on.
4. Enter the Administrator ID and password for this configuration server instance.

NOTE	This Administrator ID and password will be required if you ever want to uninstall iPlanet Application Server and Directory Server.
-------------	--

5. Set up the directory server's Administration Domain.

The default is set to the installation computer's domain. If you need to change this value, you should use a name that corresponds to the organizations that control the servers in each domain.

Since a Directory Server may store Configuration information for multiple domains, the Administration Domain is used to keep these separate. The Directory Server administration domain allows you to logically group servers together so that you can more easily distribute server administrative tasks.

A common scenario is for two divisions in a company is to have each want control of their individual servers. However, you may still want some centralized control of all the servers in your enterprise. Administration domains allow you to meet these conflicting goals.

For more advanced configurations and information about using the Directory Server to store information about multiple domains, see the *iPlanet Directory Server Administrator's Guide*.

6. Enter a Directory Administrator (Manager) user name and password.
7. Enter the Directory Manager DN or keep the default.

The Directory Manager's Distinguished Name is the special directory entry to which access control does not apply. You can think of the Directory Manager as your directory's super user.

In most cases, it is best to keep the default value, which is set to the common name of Directory Manager, `cn=Directory Manager`

8. Enter the Directory Manager's password; it must be at least 8 characters long.

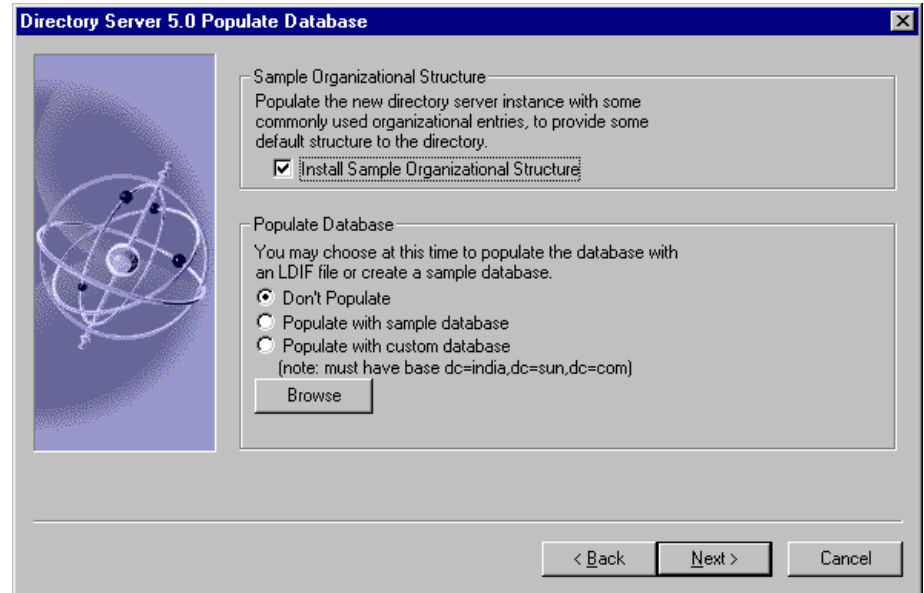
9. Specify the Supplier and Consumers for Directory Manager.

Accept the default supplier and consumer replication settings, unless you have another Replication Configuration design to implement.

Replication is the process by which directory data is automatically copied from one Directory Server to another.

A server that holds a replica that is copied to a replica on a different server is called a *supplier*. A server that holds a replica that is copied from a different server is called a *consumer*. For more information on replication concepts, see *iPlanet Directory Server Deployment Guide*.

10. Accept the default to populate the directory server with commonly used entries.



These sample entries are provided to help you to start running iPlanet Application Server.

11. Choose to populate the database by selecting the appropriate radio button.

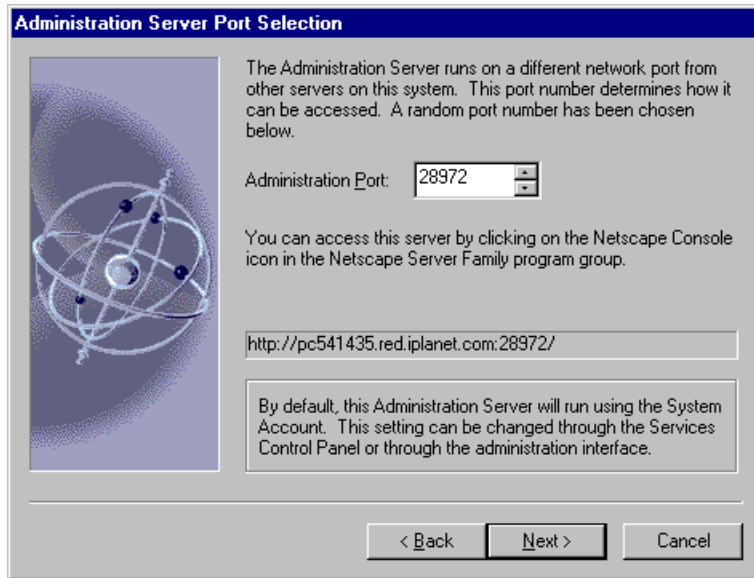
If you have a custom database, select the `Populate with custom database` option > click `Browse`. Enter the full path and filename of a file in LDIF format to populate the directory with the custom database.

12. Click `Next` to enable schema checking. We recommended that you keep the default.

13. Click Next to accept the default or enter a specific IP address to bind to your Administration Server.

NOTE Enter the correct IP address as no verification is performed.

14. Click Next to accept the default port number for the Administration Server.



The iPlanet Administration Console requires this port number to administer the Directory Server.

15. Accept the default, or enter a unique global configuration name for this installation of iPlanet Application Server.

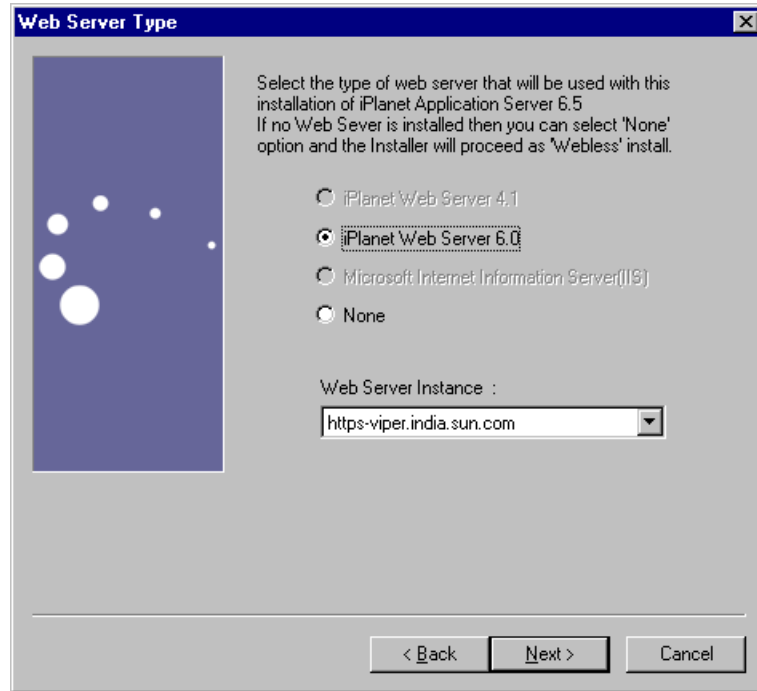
The name you assign is stored in the configuration directory, under o=NetscapeRoot tree, along with the global configuration names of any other iPlanet Application Server installations.

16. Enter the product key for iPlanet Application Server.

The product key is in the Welcome letter you received with the product and is required before installation can continue.

17. Select the Web Server type and instance that you have installed and running.

In case of multiple instances of iPlanet Web Server, select one to associate with iPlanet Application Server.



NOTE

- If you are using a Web Server other than IIS or iPlanet Web Server, you must enter the doc and cgi-bin directories.
- To use the Apache Web Server, you must configure iPlanet Application Server to work with either the iPlanet Web Server or Microsoft Internet Information Server during installation. After installing the iPlanet Application Server, install and configure the Apache Web Server.

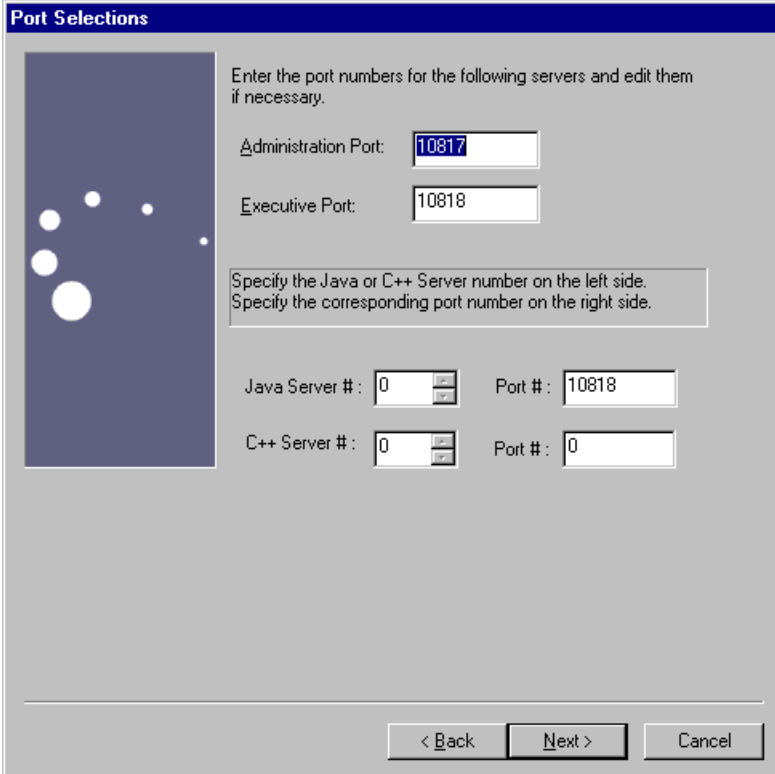
For more information on how to install and configure the Apache Web Server, see “Installing the Web Connector Plug-in,” on page 152

- Make sure to set the registry key permissions for the `\SOFTWARE\iPlanet` key to Full Control for all options.

Next, you will configure the port numbers and the number of Java and C++ servers.

To Configure iPlanet Application Servers

1. Enter the port numbers for the Administrative Server (KAS), the Executive Server (KXS), the Java Servers (KJS), and C++ Servers (KCS).



The image shows a 'Port Selections' dialog box from the iPlanet Application Server installer. It has a blue title bar and a grey background. On the left is a dark blue square with several white circles of varying sizes. The main area contains text instructions and input fields. The instructions say: 'Enter the port numbers for the following servers and edit them if necessary.' Below this are two rows of labels and text boxes: 'Administration Port:' with a text box containing '10817', and 'Executive Port:' with a text box containing '10818'. Below these is a bordered box containing the text: 'Specify the Java or C++ Server number on the left side. Specify the corresponding port number on the right side.' Below this box are two rows of labels and text boxes: 'Java Server #:' with a spinner box set to '0' and a 'Port #:' text box containing '10818', and 'C++ Server #:' with a spinner box set to '0' and a 'Port #:' text box containing '0'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Port Selections

Enter the port numbers for the following servers and edit them if necessary.

Administration Port: 10817

Executive Port: 10818

Specify the Java or C++ Server number on the left side.
Specify the corresponding port number on the right side.

Java Server #: 0 Port #: 10818

C++ Server #: 0 Port #: 0

< Back Next > Cancel

All port numbers you specify for listener ports must be within the acceptable range (1 to 65535), and must be unique (not used by any other applications on your system).

NOTE If the port number is already in use, the service does not start up when you run iPlanet Application Server.

Enter the number of Java Servers (KJS) and C++ Servers (KCS) to use to process applications.

The default values are 1; increase these values to handle high processing loads. You can also adjust the values after installation using the Administration Tool. See the *iPlanet Application Server Administrator's Guide* for more information.

2. Enter the iPlanet Application Server administrator's username and password.

These are used to authenticate to the Administration Server, which is used by the Administration Tool and the Deployment Tool.

Next up are panels that enable you to configure database clients.

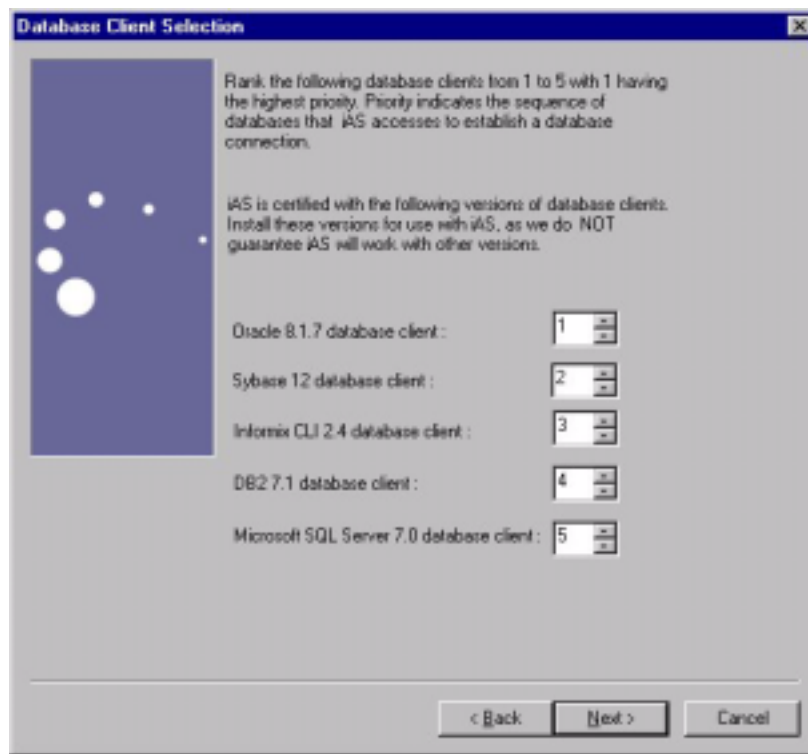
To Configure Database Connectivity

This section includes procedures on setting up the database clients, native and third party JDBC drivers.

- "To configure Native Database Client Priority," on page 134
- "To Configure Third Party JDBC Drivers," on page 136
- "To Configure Third Party JDBC Drivers," on page 136

To configure Native Database Client Priority

Rank the installed database clients in order of connection priority.



The installation program lists all supported database clients. The clients allow your applications to connect to your database back ends. Rank the clients according to connection priority, whether you've installed them yet or not. Client software can be added after installation. Sample applications are configured for the highest priority database.

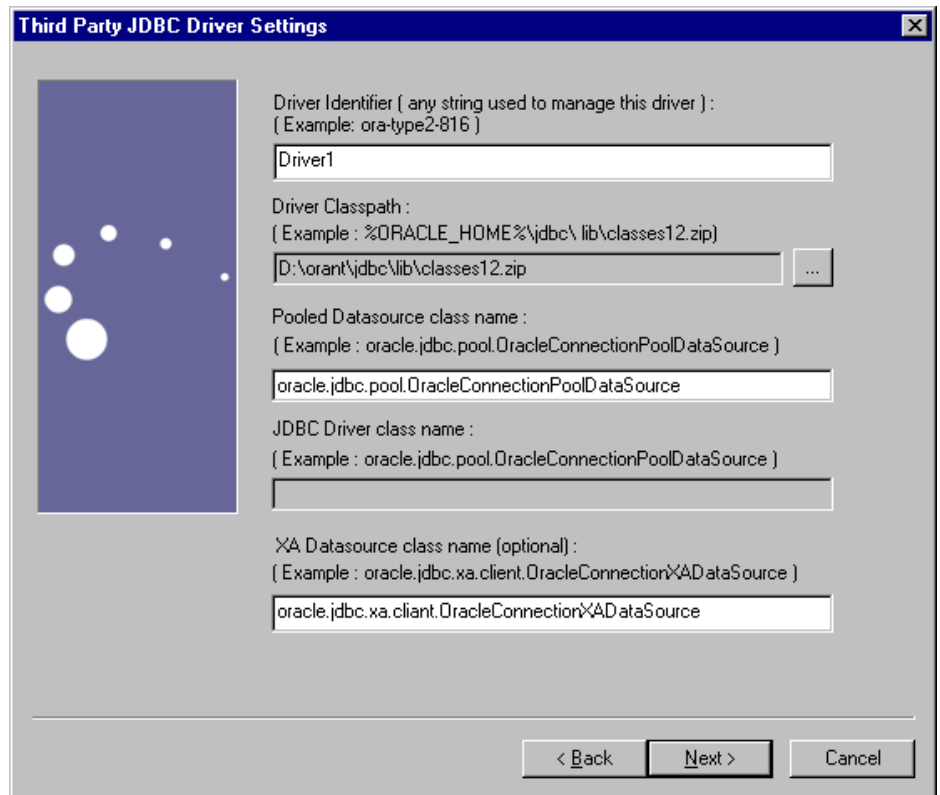
Registration of iPlanet Type 2 JDBC drivers for the supported database platforms is automatic since iPlanet Application Server automatically recognizes the presence of the supported native client libraries.

To Configure Third Party JDBC Drivers

1. Select Yes if you want to configure third party JDBC drivers.

You can also configure third party JDBC drivers after installation using the iPlanet Application Server Administration Tool.

If you answer yes, enter the number of drivers you want to configure before clicking Next. The following dialog box appears:



The dialog box titled "Third Party JDBC Driver Settings" contains the following fields and labels:

- Driver Identifier** (any string used to manage this driver) :
(Example: ora-type2-816)
Text box containing: Driver1
- Driver Classpath** :
(Example : %ORACLE_HOME%\jdbc\lib\classes12.zip)
Text box containing: D:\orant\jdbc\lib\classes12.zip
- Pooled Datasource class name** :
(Example : oracle.jdbc.pool.OracleConnectionPoolDataSource)
Text box containing: oracle.jdbc.pool.OracleConnectionPoolDataSource
- JDBC Driver class name** :
(Example : oracle.jdbc.pool.OracleConnectionPoolDataSource)
Text box (empty)
- XA Datasource class name (optional)** :
(Example : oracle.jdbc.xa.client.OracleConnectionXADataSource)
Text box containing: oracle.jdbc.xa.client.OracleConnectionXADataSource

At the bottom are three buttons: < Back, Next >, and Cancel.

2. Enter a Driver Identifier for the driver, for example drive2.

The Driver Name is a logical name by which you identify the driver to iPlanet Application Server. This name is used to link datasource definitions back to a physical driver type. The name can be of any string value you choose. Examples include: driver2, ora-type4, ora-type2, and jconnect.

3. Enter the Driver class path, for example
Oracle_Home/jdbc/lib/classes12.zip

The Driver class path is the fully qualified path to the driver classes, JAR, or ZIP file. This zip file holds the library classes for the driver. Specify the complete path as shown in the following example:

```
d:\oracle\jdbc\lib\classes12.zip.
```

NOTE Do not specify the class path if you are setting up a native JDBC driver.

Registration of iPlanet Type 2 JDBC drivers for the supported database platforms is automatic since iPlanet Application Server automatically recognizes the presence of the supported native client libraries.

4. Enter the Pooled Datasource class name, for example

```
oracle.jdbc.pool.OracleConnectionPoolDataSource.
```

NOTE If this Pooled Datasource Classname is `com.iplanet.ias.jdbc.IASConnectionPoolDataSource`, then you have to specify the JDBC Driver Class name specific to the driver. For example:

```
com.pointbase.jdbc.jdbcUniversalDriver.
```

This option is required for drivers which only support Driver Manager, for example PointBase, which is bundled with iPlanet Application Server.

iPlanet Application Server provides wrappers to support pooled connections for such drivers. The name of the wrapper is:

```
com.iplanet.ias.jdbc.iASConnectionPoolDataSource
```

5. Enter the XA Datasource classname, for example

`Database.Jdbc.xa.client.DatabaseXADatasource`. If your database is Oracle, type `oracle.xa.jdbc.client.OracleConnectionXADatasource`.

6. Click Add to register the driver.

You can choose to configure more drivers or click Cancel to abort the process.

7. Click OK to commit the changes.

NOTE

- PointBase database server and its third party JDBC driver is automatically registered with the Administration Server. It also populates the sample databases of e-Store, J2EEGuide, Database, and Bank sample applications.
 - After installation you must register the datasource for the third party JDBC drivers.
 - For more information, see *iPlanet Application Server Administrator's Guide* and the online help of the Deployment Tool.
-

To Configure Internationalization

1. Select Yes on the *Internationalization* panel to enable support for standard Java internationalization. Click Next.

Enabling I18N support allows multi-lingual applications to be deployed to iPlanet Application Server.

Next up are configuration options for setting up iPlanet Application Server clusters.

To Configure iPlanet Application Server Clusters

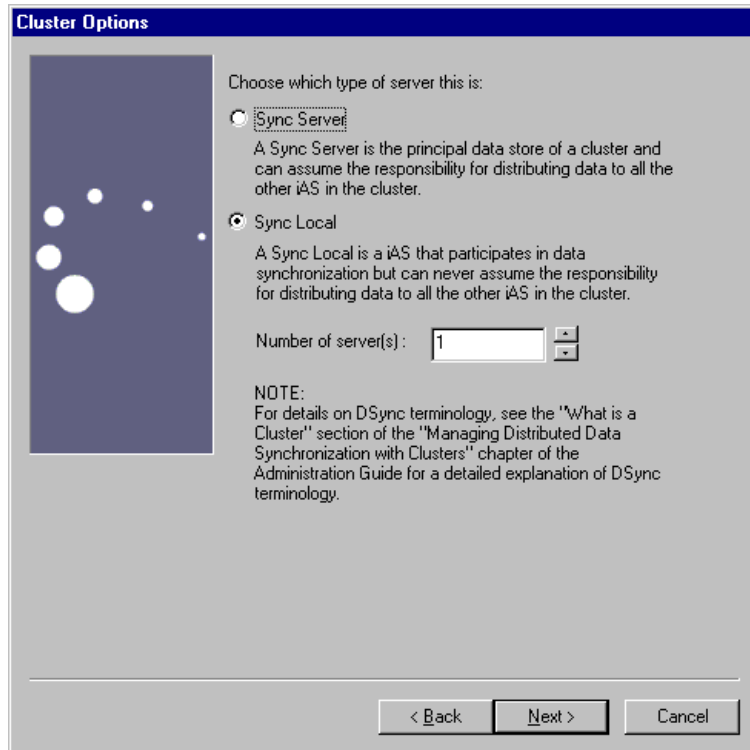
NOTE

Follow instructions for installing and verifying the simple cluster on the Windows platform at:

<http://developer.ipplanet.com/appserver/samples/cluster/docs/nt-cluster.html>

1. Select “Yes” if you intend to synchronize session and state information across multiple servers for failover and fault tolerance.
2. Enter the name of the cluster that this instance of iPlanet Application Server participates in.

3. Click on Sync Server or Sync Local to indicate whether this iPlanet Application Server is a synchronization server (Sync. Server) or a local server (Sync Local.)

The image shows a Windows-style dialog box titled "Cluster Options". On the left is a dark blue square with several white circles of varying sizes. The main area is light gray. At the top, it says "Choose which type of server this is:". There are two radio button options: "Sync Server" (which is selected with a dotted border) and "Sync Local". Below each option is a descriptive paragraph. For "Sync Server", it says: "A Sync Server is the principal data store of a cluster and can assume the responsibility for distributing data to all the other iAS in the cluster." For "Sync Local", it says: "A Sync Local is a iAS that participates in data synchronization but can never assume the responsibility for distributing data to all the other iAS in the cluster." Below these is a text field labeled "Number of server(s):" containing the number "1", with up and down arrow buttons. A "NOTE:" section follows, providing a reference to the "Managing Distributed Data Synchronization with Clusters" chapter of the Administration Guide. At the bottom are three buttons: "< Back", "Next >", and "Cancel".

4. Enter the total number of synchronization servers that you plan to have in this cluster.

A Sync Local server uses data synchronization services, but is not eligible to become a Sync Primary or the Sync Backup Server.

5. If this server is a synchronization server (you selected Sync Server in the previous step) enter its IP address, Executive Server (KXS) port number, and its priority number for taking over as the primary synchronization server.

Sync Server candidate for cluster Default

All Sync Servers within a cluster must be ranked according to priority. Priority determines which Sync Backup server will become the Sync Primary if the Sync Primary becomes inaccessible. It also determines which Sync Alternate will become a Sync Backup if a Sync Backup becomes inaccessible.

Enter the IP address and Executive Server (KXS) port number for the Sync Server corresponding to the Sync Server candidate number listed here.

Sync Server Candidate : 1

IP address :

Executive Server port (KXS) :

Note : 1 has the highest priority.

Priority :

< Back Next > Cancel

For more information on setting up sync servers, backups etc., see “Configuring iPlanet Application Server Clusters,” on page 157.

Additional instructions for installing and verifying a simple cluster on the Windows platform are available at:

<http://developer.iplanet.com/appserver/samples/cluster/docs/nt-cluster.html>

6. Click Install to complete the installation process.

The installation program notifies you when all the iPlanet Application Server files are in place. Select OK on the final dialog to reboot your computer, so that the new settings can take effect.

Verifying Installation

You can use a pre-installed application to verify that iPlanet Application Server is running. Since this basic application, which uses servlets and JSPs, does not rely on a backend database, it runs without any post-installation setup.

To Verify Installation

1. Open your browser and enter the following URL:
`http://<yourwebserver>:<portnumber>/ias-samples/index.html`
2. Press Enter.
3. Click on the *Quick Test* link, under Sample Applications.
4. Press the shift key and click on the browser's Reload button to ensure the application repeatedly returns a new HTML stream.

Using the Sample Applications

To better understand specific technology features provided by iPlanet Application Server, run the iPlanet Application Server Technology Samples.

To Use the Sample Applications

1. Start running iPlanet Application Server.
2. Open your browser, enter the following URL, and press Enter:
`http://yourwebserver:portnumber/ias-samples/index.html`
3. Select the iPlanet Application Server J2EE Application Samples link and select a specific sample application. Follow the application-specific setup instructions to establish the necessary database settings and to run the application.

After you become familiar with the iPlanet Application Server sample applications, run the Sun Samples, which are applications based on those found at `www.java.sun.com`. The Java Pet Store example in particular demonstrates how a popular J2EE application is deployed to iPlanet Application Server.

You can review the source code of the sample applications and associated J2EE XML Deployment Descriptors by browsing in the following location:


```
installDir/ias/ias-samples/
```

You can also find compile scripts at this site for experimenting with the sample code.

Installing on Multiple Windows Machines

The Silent Installation feature allows you to install the Application Server on multiple Windows machines without running the installation program more than once.

To execute a Silent installation, perform the following procedure:

1. Install on the first machine by running the `setup -k` command.
Choose one of the installation types and proceed with the installation program. An `install.inf` file is generated in the `installDir/setup` directory.
2. Copy the `install.inf` to the machine on which you want to install iPlanet Application Server.
3. You may have to change some or all of the following values in `install.inf`, depending on your configuration requirements, such as, port numbers, domain name, etc. Default values are set for several of the entries.

Table 6-1 Settings in `install.inf`

Value	Description
FullMachineName	Name of the machine on which iPlanet Application Server is being installed
ServerRoot	Installation root directory
AdminDomain	Directory server's administration domain
ConfigDirectoryLdapURL	URL for the configuration information in the directory server
UserDirectoryLdapURL	URL for the user information in the directory server
ServerPort	Local directory server port
ServerIdentifier	Local directory server identifier
ServerIpAddress	IP address of the machine on which you are performing Silent installation
Suffix	Suffix for the configuration directory server
WebServerInstanceName	Name of the web server instance

Table 6-1 Settings in install.inf

Value	Description
WS_HOME	Path of the web server instance
Port	Local administration port
LDAPHostName	Same as FullMachineName
LDAPPort	Same as ServerPort
LDAPConfigName	Global configuration name in the directory server, under which iPlanet Application Server configuration information is stored.

4. Change the following passwords, if required:
- ConfigDirectoryAdminPwd
- UserDirectoryAdminPwd
- RootDNPwd
- LDAPUserPassword(Same as RootDNPwd)
5. Run the following command on the second system to begin silent installation:
- setup -s -f <fullpath_install.inf>
- Check the status of Setup.exe in Windows Task Manager.
6. Restart the system when the process entry for Setup.exe disappears from Windows Task Manager.

NOTE	The command <code>setup -help</code> lists the syntax usage for Silent installation.
-------------	--

Uninstalling

This chapter describes the procedures required for uninstalling iPlanet Application Server and the associated subcomponents.

The following sections are described in this chapter:

- General Guidelines
- Uninstalling iPlanet Application Server on Windows Platforms
- Uninstalling iPlanet Application Server on Solaris Platforms

General Guidelines

By default, all components are selected for uninstallation. Confirm that no other servers are using the directory server. If the directory server is being used by another server, de-select it and do not uninstall the directory server.

NOTE	Do not uninstall iPlanet Application Server by deleting directories or modifying parameters in the registry.
-------------	--

During the uninstall process, you are prompted to provide a user name and password with administrator access to the configuration directory. Enter the user name and password given during installation. Another user name and password can be entered, if that user name has administrator privileges to the configuration directory.

The following directories remain after you uninstall iPlanet Application Server:

- iPlanet Application Server root directory
- Custom directories you created under the iPlanet Application Server directory

- `ias_installDir/APPS` directory

After uninstalling iPlanet Application Server, decide if you want to remove these directories, particularly the `custom` and `APPS` directories, which may contain files you wish to keep and applications you've developed.

NOTE Before running the iPlanet Application Server uninstall program, make sure that Directory Server is running.

Uninstalling iPlanet Application Server on Windows Platforms

To uninstall iPlanet Application Server on Windows platforms, perform the following steps:

1. Click the Uninstall icon in the iPlanet Application Server 6.5 program group.

CAUTION When you click `Uninstall`, iPlanet Application Server and associated services will stop immediately.

Therefore, ensure that you really want to uninstall the application server before clicking the Uninstall button.

2. Choose the components and subcomponents you wish to uninstall.
3. When prompted, enter a user name and password with administrator access to the configuration Directory Server.

If you do not know, or do not want to use the user name and password given during installation, enter another user name and password having administrator privileges on the configuration Directory Server.
4. Enter the configuration Directory Server information.

Uninstalling iPlanet Application Server on Solaris Platforms

To uninstall iPlanet Application Server on Solaris platforms, perform the following steps:

1. From the iPlanet installation directory (the default is `/usr/iPlanet/iAS6`), type `uninstall` and press Enter.
2. Specify the components and subcomponents you want to uninstall.
3. Enter a user ID and password that has administrator privileges on the configuration Directory Server.

You will receive the message “Uninstallation completed” when the software finishes removing all the files.

NOTE Some of the directories and files created by the installer, and those created by the user are not removed during uninstallation. Typically, the following directories are left after uninstallation:

- `admin-serv`
- `httpacl`
- `ias_APPS`
- `pointbase`
- `setup`
- `bin`
- `ias`
- `lib`
- `shared`
- `README.txt`

You can manually delete these files.

Configuring iPlanet Application Server

This appendix explains how to configure iPlanet™ Application Server on Windows and Solaris® platforms.

This appendix includes the following topics:

- Configuring Port Numbers
- Configuring Web Servers
- Installing the Web Connector Plug-in
- Running PointBase
- Configuring iPlanet Application Server Clusters
- Reasons for Installing Multiple Instances
- Troubleshooting

Configuring Port Numbers

All ports you specify are listener ports. Valid port numbers must be within the acceptable range (1 to 65535 on Windows, 1025 to 32768 on Solaris) and must be unique (not used by any other applications on your system).

The default port numbers are as follows:

- 10817 for the Administrative Server (KAS)
- 10818 for the Executive Server (KXS)

- 10819 for the Java Server (KJS) on Windows. On Solaris, this port is used for the CGI to Executive Server (KXS) communication.
- 10820 for the C++ Server (KCS) on Windows. On Solaris, this port is used for the Java™ Server (KJS).
- 10821 for the C++ Server (KCS) on Solaris
- 9010 for IIOP by the CXS engine
- 9092 for the PointBase database
- 389 for the directory server

In most cases, use the default port numbers suggested by the installation program, unless you are configuring multiple Java and C++ Servers, which require a unique port number for each additional Java and C++ engine.

Configuring Web Servers

If you use one of the supported Web servers on the same machine as iPlanet Application Server, the connector plug-in configuration is automatic.

On Solaris, install iPlanet Application Server as the same user, or as a member of the same group that installed the web server iPlanet Application Server will interface with.

If you are installing iPlanet Application Server over an NFS-mounted file system, make sure you have the same read-write permission on the following directories as the user who installed the web server:

- gxlib
- APPS
- registry
- kdb

These are subdirectories in the iPlanet Application Server installation directory.

Manually Configuring a Web Server

When you install iPlanet Application Server, your web server is automatically configured for the Web Connector plug-in, meaning that all necessary directories and settings on the web server are updated.

If you have problems with the connection between iPlanet Application Server and your web server, you may need to manually reconfigure the web server after you've installed the Web Connector plug-in.

See the *iPlanet Application Server Administrator's Guide* for more information.

Webless Installations

In a webless installation, the web server and iPlanet Application Server reside on separate machines. You should consider security issues related to your firewall setup. If a firewall will exist between the iPlanet Application Server machine and the web server machine, consult with your security administrator before performing a webless installation. Make sure that the necessary ports on the firewall are open to allow the Executive Server (KXS) and the Web Connector plug-in to communicate.

Installing the Web Connector Plug-in

The Web Connector plug-in passes requests from your Web server to the iPlanet Application Server. iPlanet provides Web Connector plug-ins for the following web servers:

- iPlanet Web Server
- Microsoft Internet Information Server (Windows only)

If you install iPlanet Application Server on a different machine than where the Web Server resides, you are configuring what is referred to as a “webless installation” of iPlanet Application Server. If this is the case, you must install the iPlanet Application Server Web Connector plug-in on the web server machine.

Before you install the Web Connector plug-in, do the following:

1. Check whether or not the iPlanet Application Server 6.5 Web Connector plug-in has already been installed. If it's already installed, the Web Server instance is already configured for iPlanet Application Server and you do not need to re-install the plug-in.

If the plug-in is not installed, continue with Step 2.

2. Stop running your Web Server instance.
3. Log on as a user with administrative privileges before installing the iPlanet Application Server Web Connector plug-in.

On Solaris, log on as the root user or as a user from the same group as the root user, who installed iPlanet Application Server before installing the Web Connector plug-in.

This procedure assumes that you have already installed iPlanet Application Server and Directory Server.

For information on installing and configuring the Plugin on Apache, see *iPlanet Application Server Administrator's Guide*.

To Install the Web Connector Plug-in on Solaris

1. After you finish installing iPlanet Application Server as a webless installation, take the installation CD-ROM to the machine (or machines) that hosts the Web Server and run the installation program.

2. Follow the instructions of the installation program.

For more information on the installation procedure, see Chapter 3, “Easy iPlanet Application Server Installations on Solaris”.

3. When prompted, select “iPlanet Servers” as the components to install.
4. Select Typical as the installation type.
5. Specify a target installation directory. Do not include spaces in the path name.
6. When prompted for the components you want to install, choose to install only the iPlanet Application Server.
7. When prompted to install the iPlanet Application Server components, select the iPlanet Application Server Web Connector Component.
8. Follow the instructions of the installation program.

More information about the iPlanet Application Server Web Connector Component is contained in the *iPlanet Application Server Administrator's Guide*, and in the Deployment Tool online help system.

To Install the Web Connector Plug-in on Windows

1. After you finish installing iPlanet Application Server in a webless installation, take the installation CD-ROM to the machine (or machines) that hosts the web server and run the installation program.

2. When prompted, select “iPlanet Servers” as the components to install.

For more information on the installation procedure, see Chapter 4, “Easy iPlanet Application Server Installations on Windows”.

3. Select Typical as the installation type.
4. Specify a target installation directory. Do not include spaces in the path name.
5. When prompted for the components you want to install, select only “iPlanet Application Server 6.5” component.
6. Click the Change button.

The iPlanet Application Server subcomponent screen appears.

7. Select the “Web Connector Plug-in Component” and “Core Server Components” from the list of subcomponents.

8. Follow the instructions of the installation program.
9. Select OK on the final dialog to reboot your computer, so the new settings can take effect.

For more information about the iPlanet Application Server Web Connector Component, see the *iPlanet Application Server Administrator's Guide*, and in the Deployment Tool Online Help.

Registering the Plug-in on IIS 5.0 running on Windows 2000

On systems running Windows 2000 with IIS 5.0, the Web Connector Plug-in should be registered as an *In-process* IIS 5.0 service. By default, the Plug-in is registered as an *Out-of-process* IIS service.

Use the following steps to register the Web Connector Plug-in as an *In-process* service of IIS 5.0.

To register the Plug-in on IIS 5.0

1. Go to Start >Settings> Control Panel > Administrative Tools > Computer Management
The Computer Management window will open.
2. In the left pane, click on the + sign to expand Services and Applications > Internet Information Services > Default Web Site.
3. Right-click Cgi-bin and select Properties
4. Select the Virtual Directory tab
5. Under Applications Settings, click Create.
6. Select the pull-down menu next to Application Protection.
7. Select `Low(IIS Process)`
8. Click OK.

Running PointBase

An ORDBMS package - PointBase Network 3.5, is bundled with the iPlanet Application Server. PointBase enables you to test your applications without having to install, or have access to, a production level database.

PointBase is one of the options available during installation, under Application Server core components. You can choose to install or not install PointBase by selecting the `PointBase DataBase Server` option.

PointBase database server and its third party JDBC driver is automatically registered with the Administration Server. It also populates the sample databases of e-Store, J2EEGuide, Database, and Bank sample applications.

For more information on how to register database drivers and deploy applications, see the *iPlanet Application Server Administrator's Guide*.

To Start PointBase

On Solaris, go to the directory `<iASInstallDir>/pointbase/network/bin` and type:

```
pointbaseServer start
```

To stop, type:

```
pointbaseServer stop
```

This procedure works on Windows as well.

On Windows, click Start, then select Programs > PointBase Network 3.5 > PointBase Server to start the PointBase application.

To shutdown, use the `Shutdown` option from the PointBase administration console.

NOTE

- The PointBase server is started automatically after installation of iPlanet Application Server is complete.
 - On Solaris, after installation is complete, the PointBase database package's administration console will be displayed. If you get an error message, and you are unable to view the dialog box, set the `DISPLAY` terminal variable to `X`.
-

By default, PointBase runs on port 9092. Therefore, make sure that no other service is running on port 9092 before installing iPlanet Application Server. Since each PointBase server uses port 9092 by default, only one PointBase instance can run on a machine at any given moment.

Also, ensure that other iPlanet Application Server services do not use the same port.

To Administer PointBase

Two administration utilities are available with PointBase Network 3.5—the GUI-based `Pointbase Console` and the command line utility `PointBase Commander`.

Both these tools are available in the following location:

On Windows

- `<iASInstallDir>\pointbase\client\examples\batch\windows\startconsole`
- `<iASInstallDir>\pointbase\client\examples\batch\windows\startcommander`

The administrative tools can also be accessed through the Start menu:

Go to Start, select Programs > PointBase Network 3.5 and then select PointBase Console or PointBase Commander.

On Solaris

- To run `startconsole`, go to `<iASInstallDir>/pointbase/client/examples/batch/unix/startconsole`
- To run `startcommander`, go to `<iASInstallDir>/pointbase/client/examples/batch/unix/startcommander`

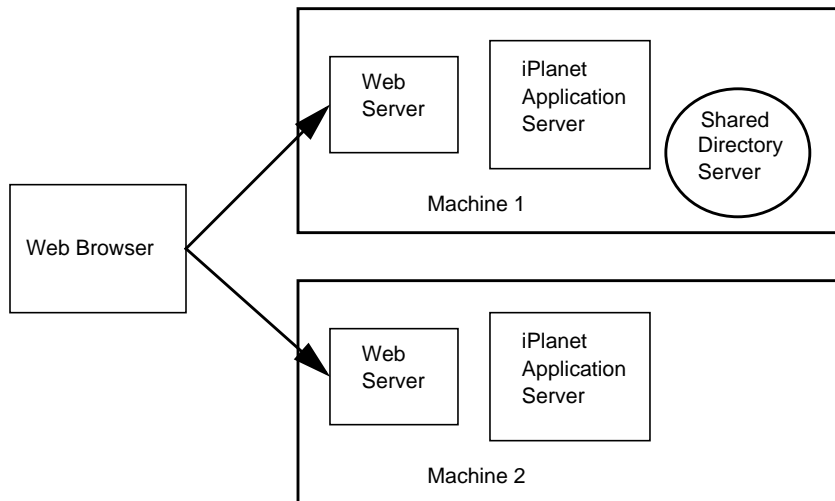
CAUTION We recommend that you do not use the PointBase Console and Commander available in `<iASInstallDir>\pointbase\client`, as they are not optimized for your iPlanet Application Server installation.

Configuring iPlanet Application Server Clusters

A simple cluster configuration is demonstrated in the instructions on the iPlanet Developer's Web site. This simplistic cluster configuration is not representative of a true production configuration, but is sufficient to demonstrate the behavior of the iPlanet Application Server.

The configuration consists of two machines that each have a Web server instance and an iPlanet Application Server instance installed. One machine also has a Directory Server instance that is used by the application servers on both machines, as shown in the following illustration.

Figure A-1 A simple iPlanet Application Server cluster configuration



In this simple cluster, configuration data is stored in the directory server on the first machine. When the second application server is installed, it uses the same directory server for configuration information. It's preferable to use the same data tree in the directory server, so that the same configuration information can be shared between all servers and Web connectors.

During installation of the second application server, you must enter the same value for the cluster name and global configuration name as specified during the first application server installation.

In this example, the Web servers are on the same machine as the iPlanet Application Servers. If the Web servers were housed on a separate tier of machines, then you would enter the same global configuration name and cluster name during the Web connector installation. See the iPlanet Application Server Samples for complete instructions on installing and configuring a simple cluster on Windows or Solaris.

NOTE This is not a production configuration. If it were a production configuration, it would most likely have the Web servers on separate machines and a second Directory Server configured to act as a backup for the first Directory Server. For information on how to set up the iPlanet Directory Servers for replication and failover, see the *iPlanet Directory Server Installation Guide* at:
<http://docs.sun.com>

Clusters and Data Synchronization

Distributed data synchronization maintains the integrity of shared information across multiple iPlanet Application Server machines. This is crucial for partitioned and distributed applications that are hosted on multiple iPlanet Application Server machines.

A cluster is more than one instance of iPlanet Application Server, each installed on a separate machine, that can participate as a group in synchronization of state and session data. Each server within a cluster can assume one of several roles. Most important for this installation discussion is the category of Sync Server, which includes the Sync Primary, Sync Backup, and Sync Alternate servers.

The Sync Primary is the primary data store, to which all other servers in a cluster communicate for the latest distributed data information.

A Sync Backup mirrors the information on the Sync Primary, and takes over the role of the Sync Primary if the original Sync Primary fails.

A Sync Alternate is eligible to become a Sync Backup. If the number of Sync Backups falls below the set maximum, the Sync Alternate with the highest priority relative to other Sync Alternates is promoted to Sync Backup.

NOTE If your configuration consists of only one instance of iPlanet Application Server, then cluster planning is not necessary.

When configuring your cluster, consider how many servers have the potential to become the Sync Primary. The maximum is the number of iPlanet Application Server machines in your network.

The Sync Primary is determined by which machine you start up first, after all servers are installed, and not by which machine has the highest priority assignment.

Note the priority rating you assign to the iPlanet Application Server machines in the cluster. For each installation of iPlanet Application Server in the cluster; you must re-enter the IP address, KXS port number, and priority number for every server in the cluster.

You should assign the highest priority to the iPlanet Application Server instance you prefer to be the Sync Primary, and start that machine up first. Assign the next highest priority to the Sync Backup; and assign those remaining to Sync Alternates, in the desired order of promotion.

You do not have to install the servers in the same priority order, as long as the priority rating and application server identification information is consistent across each installation.

For more information on configuring distributed data synchronization, see the *iPlanet Application Server Administrator's Guide*.

Reasons for Installing Multiple Instances

Installing multiple instances of iPlanet Application Server provides numerous advantages in both development and production environments. The following topics elaborate on the associated benefits and issues when running multiple instances.

- Isolating Code
- Improving Scalability
- Failover Issues
- Multi-cluster Issues
- Resource Issues
- Anticipated Performance Benefits

Isolating Code

For Developers to ensure that a development team can work efficiently on shared systems, it is important to run code in separate processes, as in a Java Virtual Machine (JVM) for Java code, so that bugs in one developer's code will not bring down the development environment for the entire team. The current implementation of the iPlanet Application Server can isolate application components to individual instances of the application server, but cannot resolve to JVMs within an instance. Consequently, developers who share computer resources need to have multiple instances of the application server installed on their shared system(s). For developer installations, multi-instance installations should include separate web, application server, and directory instances.

In a production environment, it is usually necessary to update releases of the application without taking down the server. To accomplish this, iPlanet Application Server requires multiple JVMs and a stop/start for each JVM process. To reduce the impact of an update for one application on the rest of the applications, multiple instances of the application server can provide multiple platforms on which to deploy the unrelated application components. In that way, a single instance can be stopped/started to update any given application.

Improving Scalability

Contention for resources causes performance to increase by lesser and lesser amounts as processors are added. By installing multiple instances, and binding processes to processors, a single large system looks like a number of smaller virtual systems. Dividing up the resources in this manner lessens resource contention and enables higher overall system performance.

Failover Issues

iPlanet Application Server clusters provide high availability (HA) by storing state and session information on one of the servers in the cluster, called the Sync Primary, and copying to another server in the cluster, called the Sync Backup. The Sync Primary and Sync Backup are determined by the boot sequence of the application server instances. The first instance in the cluster to come up becomes the Sync Primary, and the second instance becomes the Sync Backup.

If any of the instances of a cluster are on the same system, the odds are extremely high that both the Sync Primary and Sync Backup will be located on the same computer system. Failure of a single computer could bring down the entire cluster. To avoid this, each instance on the server should be clustered with at least one other instance on a separate server. This implies that a production site will be composed of multiple clusters. The number of clusters is minimally the largest number of instances that are created on a single server. For optimal performance, clusters should be composed of pairs of instances.

Multi-cluster Issues

To ensure that requests are routed correctly after a web server failure, the topology of a multi-cluster installation should allocate specific web servers to each cluster. Consequently, the configuration information for the clusters should either be in separate subtrees of one iPlanet Directory Server or in separate iPlanet Directory Servers.

Each webserver uses a plug-in to route requests to the iPlanet Application Servers. This plug-in, referred to as the web connector, identifies the available application servers in the cluster through the entries in the cluster's shared directory server.

A session beginning in one cluster, and subsequently load balanced to a different cluster, which does not have access to the state/session information generated by preceding requests creates a problem. To prevent this situation, the load balancer for the web servers must be sufficiently sophisticated to apply sticky load balancing for all requests associated with a particular session.

Load balancing solutions generally use two methods to accomplish sticky load balancing for sessions: base the stickiness on a cookie with the session ID, or base the stickiness on the source IP address of the request. For SSL encrypted sessions, the contents of the cookie are not available to the load balancer, so the source IP address is used. Unfortunately, some ISPs use proxies for their customers' web browsing sessions. Since the session can be load balanced between these proxies, the source IP address for the request can change, even though the request belongs to the same session.

Currently, there are three solutions for this situation:

- Use an SSL appliance between the Internet and the web tier's load balancer so that the cookies are already decoded, or
- Use a load balancing solution that allows the Network Administrator to enter known ISP proxy addresses to be consistently routed to a particular cluster, or

- Keep state and session information in a shared (between clusters) resource, such as a database.

Resource Issues

This section discusses resource sharing and configuration options in an iPlanet Application Server cluster that can impact resource utilization. The following topics are covered:

- Unique Network Ports
- Shared Directory Configuration Trees
- Login

Unique Network Ports

During installation, the iPlanet Application Server must be configured to communicate on particular network ports for its individual services. Use the Custom Installation to configure these ports to non-default values. For the installation of multiple instances on a single server, it is necessary to select different network ports for each instance, to avoid contention for resources.

For example, you typically install the Administrator process to port 10817, the Executive process to port 10818, and the first Java service to port 10820. If the first instance is installed with those defaults, you might install second instance with the Administrator process at port 11817, Executive at port 11818, and first Java service at port 11820.

Shared Directory Configuration Trees

For ease of administration and optimal load balancing across all of the iPlanet Application Server instances, the simplest configuration shares a common directory server with a common configuration tree (default is `iasconfig`). Due to the potential failure scenario described above in Multi-cluster Issues, you should separate all instances associated with the cluster allocated to serving a given ISPs proxies into a separate configuration tree. A subset of the web server instances will be allocated to that cluster as well.

Login

For each instance on a server, you should create a separate login. During installation, the iPlanet Application Server processes should be owned by the associated login. Separating ownership of the different instances eliminates ambiguity for the startup and shutdown scripts.

Anticipated Performance Benefits

Estimating performance for the many possible configurations is a complicated process. Use the Performance Tool for estimates. An example of the potential performance boost might be to compare the performance of a cluster of (2) 12-way E4500 servers to a multi-instance deployment using the same hardware: (12) clusters of (2) instances each. The multi-instance deployment should perform about twice as fast as the initial configuration.

Troubleshooting

The following list of installation issues represent the common errors faced during or after installing iPlanet Application Server.

- Before Installation
- After Installation

Before Installation

Before installing iPlanet Application Server, consider the following issues:

- Check for required operating system patches. See the Release Notes to determine what patches you may need.

Check the latest Release Notes for workarounds to any problems you might encounter with installation at:

<http://docs.sun.com/?p=prod/s1.ipasee>.

- Installation/upgradation will fail on Windows if iPlanet Application Server installables are placed in a directory containing spaces or special characters.

Ensure that the iPlanet Application Server installables are placed in a directory, which has no spaces or special characters.

- In custom installation mode, at the point where the user is asked if he wants to populate the Directory Server with entries, if 'None' is chosen then no entry is created.

After installation, connecting to the server fails since the user is not in the LDAP information.

Instead of choosing 'None', you should select the 'Suggest' option.

- Creation of administrator user entry in the remote user directory fails if that directory is read-only.

The administrator user entry must exist in the user LDAP directory for registering the server through iPlanet Application Server Administration Tool (iASAT).

To enable iPlanet Application Server to authenticate against a remote user directory server, complete the installation and then perform the following steps:

- a. Create an adminuser.ldif file with the following entries:**

```
dn: uid=iasadmin., ou=People, o=iplanet.com
changetype: add
cn: Nas Administrator
sn: Nas Administrator
givenname: iAS admin
objectclass: top
objectclass: person
objectclass: inetorgperson
ou: People
uid: iasadmin
userpassword: password
```

- b. Run the ldapmodify command:**

```
ldapmodify iASInstallDir/shared/bin> -D "cn=Directory Manager" -p <
ldap_PortNo.> -w <password> -a -f adminuser.ldif.
```

After Installation

After you install iPlanet Application Server, consider the following issues.

- A fresh installation of iPlanet Application Server on a Windows machine causes KXS crash.

Restart the machine after installation.

- After installing iPlanet Application Server, make sure that the iPlanet Application Server `gxlib` directory (install directory/`ias/gxlib`) and the registry directory (install directory/`ias/registry`) are accessible by the web server owner and user.
- Ensure that “CGI file type” is enabled on your web server. For iPlanet Web Server, go to the Server Administrator page, and under the Programs folder, click Yes for CGI file type.
- When running applications, if the iPlanet Application Server Class Loader is unable to find the `AppLogic` class file through the `SYSTEM_JAVA` parameter (the registry parameter that contains both the `CLASSPATH` and `GX_CLASSPATH` settings), the request is handed over to the JAVA Class Loader, which in turn reads the `CLASSPATH` environment variable to find the class file. This allows `AppLogics` and `servlets` to execute even if the user `CLASSPATH` is not specified.

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