

Installation Guide

Netscape Application Server

Version 4.0

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This preface contains the following topics:

- Using the Documentation
- About this Guide
- How This Guide Is Organized
- Documentation Conventions

Using the Documentation

The following table lists the tasks and concepts that are described in the Netscape Application Server (NAS) and Netscape Application Builder (NAB) printed manuals and online readme file. 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 as online files in PDF and HTML format.

For information about	See the following	Shipped with
Late-breaking information about the software and the documentation	readme.htm	NAS 4.0 Developer Edition (Solaris), NAS 4.0, NAB 4.0
Installing Netscape Application Server and its various components (Web Connector plug-in, Netscape Application Server Administrator), and configuring the sample applications	Installation Guide	NAS 4.0 Developer Edition (Solaris), NAS 4.0
Installing Netscape Application Builder	install.htm	NAB 4.0

For information about	See the following	Shipped with
Basic features of NAS, such as its software components, general capabilities, and system architecture	Overview	NAS 4.0 Developer Edition (Solaris), NAS 4.0, NAB 4.0
Deploying Netscape Application Server at your site, by performing the following tasks: <ul style="list-style-type: none">• Planning your Netscape Application Server environment• Integrating the product within your existing enterprise and network topology• Developing server capacity and performance goals• Running stress tests to measure server performance• Fine-tuning the server to improve performance	Deployment Guide	NAS 4.0
Administering one or more application servers using the Netscape Application Server Administrator tool to perform the following tasks: <ul style="list-style-type: none">• Deploying applications with the Deployment Manager tool• Monitoring and logging server activity• Setting up users and groups• Administering database connectivity• Administering transactions• Load balancing servers• Managing distributed data synchronization	Administration Guide	NAS 4.0

For information about	See the following	Shipped with
Migrating your applications to the new Netscape Application Server 4.0 programming model from version 2.1, including a sample migration of an Online Bank application provided with Netscape Application Server	Migration Guide	NAS 4.0 Developer Edition (Solaris), NAS 4.0, NAB 4.0
<p>Creating NAS 4.0 applications within an integrated development environment by performing the following tasks:</p> <ul style="list-style-type: none"> • Creating and managing projects • Using wizards • Creating data-access logic • Creating presentation logic and layout • Creating business logic • Compiling, testing, and debugging applications • Deploying and downloading applications • Working with source control • Using third-party tools 	User's Guide	NAB 4.0

For information about	See the following	Shipped with
<p>Creating NAS 4.0 applications that follow the new open Java standards model (Servlets, EJBs, JSPs, and JDBC), by performing the following tasks:</p> <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 	Programmer's Guide (Java)	NAS 4.0 Developer Edition (Solaris), NAB 4.0
Using the public classes and interfaces, and their methods in the Netscape Application Server class library to write Java applications	Server Foundation Class Reference (Java)	NAS 4.0 Developer Edition (Solaris), NAB 4.0
<p>Creating NAS C++ applications using the NAS class library by performing the following tasks:</p> <ul style="list-style-type: none"> • Designing applications • Writing AppLogics • Creating HTML templates • Creating queries • Running and debugging applications 	Programmer's Guide (C++)	Order separately
Using the public classes and interfaces, and their methods in the Netscape Application Server class library to write C++ applications	Server Foundation Class Reference (C++)	Order separately

About this Guide

The *Installation Guide* provides the concepts and steps you need to install Netscape Application Server (NAS) and its various components (Web Connector plug-in, Netscape Application Server Administrator) on the NT and Unix platforms. Information about configuring the sample applications delivered with NAS is also provided.

The information in this guide is intended for technology officers, administrators, developers, and anyone else who is responsible for installing NAS at your site.

How This Guide Is Organized

This guide is divided into two chapters. Read Chapter 1 if you are installing NAS on the NT platform. Read Chapter 2 if you are installing NAS on the Unix platform.

- Chapter 1, “Installing Netscape Application Server on Windows NT,” explains all the steps and concepts you need to install NAS on the NT platform. Installation worksheets are included at the end of the chapter to help you track and record data about your installation decisions.
- Chapter 2, “Installing Netscape Application Server on Unix,” explains all the steps and concepts you need to install NAS on the Unix platform. Installation worksheets are included at the end of the chapter to help you track and record data about your installation decisions.

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 slashes are used instead of backslashes to separate directories.

This guide uses URLs of the form:

`http://server.domain/path/file.html`

In these URLs, *server* is the name of server on which you run your application; *domain* is your Internet domain name; *path* is the directory structure on the server; and *file* is an individual filename. Italic items in URLs are placeholders.

This guide uses the following font conventions:

- The monospace font is used for sample code and code listings, API and language elements (such as function names and class names), file names, path names, directory names, and HTML tags.
- *Italic* type is used for book titles, emphasis, variables and placeholders, and words used in the literal sense.

Installing Netscape Application Server on Windows NT

This chapter explains how to install Netscape Application Server (NAS) on the NT platform. It includes the following topics:

- Checking Hardware and Software Requirements
- Planning Your Installation
- Installing Netscape Application Server
- Using the Sample Applications
- Post-Installation Notes
- Installing the Web Connector Plug-in
- Installing Netscape Application Server Administrator
- Uninstalling Netscape Application Server
- Installation Planning Worksheets

Read this chapter carefully before installing Netscape Application Server on Windows NT.

Checking Hardware and Software Requirements

The following table lists the hardware and software requirements for installing and running a single instance of Netscape Application Server.

Device	Requirement
Computer/ Operating system	Intel Pentium microprocessor running Microsoft Windows NT version 4.0 with Service Pack 3
Memory	Per CPU: 64 MB minimum; 128MB recommended
Available disk space	<p>Total disk space: 200 MB</p> <ul style="list-style-type: none"> • 52 MB - Netscape Application Server 4.0 (including Administrator and Web Connector Plug-in) Note: Swap space requirements are two to five times your CPU's memory. • 40 MB - Directory Sever 4.0 • 65 MB - Netscape Enterprise Server 3.6 • 34 MB - Netscape Communicator 4.5 <p>CD-ROM drive</p>
Network software	TCP/IP
Other software	<ul style="list-style-type: none"> • One of the following web servers - Netscape Enterprise Server 3.6 Microsoft Internet Information Server 4.0 • One of the following web browsers - Netscape Communicator 4.5 Microsoft Internet Explorer 4.0 • Database connectivity software (see "Database Configuration Issues" on page 22, for a list of the supported versions)

Planning Your Installation

Before you install Netscape Application Server (NAS), think about the following issues and carefully plan how you want to configure your NAS system. Knowing this information in advance helps you to properly complete the installation.

Installation planning worksheets are provided at the end of this chapter to help you track the information you need to install Netscape Application Server. It is recommended that you make a copy of these worksheets and jot down information on them as you read through this section.

Note: Keep in mind that *after* you have installed NAS, you can change many of the configuration settings initially specified during the installation. For information about how to perform post-installation configuration tasks, see the *Administration Guide*.

Basic Installation Issues

- This version represents a major upgrade of Netscape Application Server. Install on a machine where no earlier versions of this product have been installed.
- When you run the installation program, you install Netscape Application Server, Netscape Console, Netscape Administration Server, and Netscape Directory Server. Decide in advance which product or combination of products you want to install.
 - **Netscape Application Server** includes Netscape Application Server, Netscape Application Server Administrator, the Web Connector plug-in used to communicate between NAS and the web server, and the Deployment Manager.
 - **Netscape Console** provides the common user interfaces for all Netscape server products. From it you can perform common server administration functions such as stopping and starting servers, installing new server instances, and managing user and group information. Netscape Console can be installed stand-alone on any machine on your network and used to manage remote servers.

- **Netscape Administration Server** is a common front end to all Netscape servers. It receives communications from Netscape Console and passes those communications on the appropriate Netscape server. Your site will have at least one Administration Server for each server root in which you have installed a Netscape server.
- **Netscape Directory Server** is Netscape's LDAP implementation. The Directory Server runs as the `slapd` service on your machine. This is the server that manages the directory databases and responds to client requests.

The installation program asks whether you want to install Netscape Servers or Netscape Console. It is recommended that you select the Netscape Servers option, which includes Netscape Application Server, Netscape Console, and Netscape Directory Server. Netscape Console includes only the Netscape Console product.

- The default installation directory for Netscape Servers is `c:\Netscape\Server4`. If you use this path, the Netscape Application Server installation directory is set to `c:\Netscape\Server4\nas`. Decide if you'd rather install to a different directory. It is strongly recommended that you use the default installation directory.

Directory Server Issues

- Before you run the installation program, read the Netscape Directory Server documentation, particularly the *Netscape Directory Server 4.0 Installation Guide*, for information about setting up Directory Server and details about the issues discussed in this section. All Directory Server documentation is located in the following places:
 - In *Netscape Server Family root directory*\manual\en\slapd
 - At <http://home.netscape.com/eng/server/directory/4.0/>
 - From the Help menu in Directory Server.
- If you install Directory Server with this installation of Netscape 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.

The configuration directory contains the `o=NetscapeRoot` tree used by your Netscape servers. The `o=NetscapeRoot` tree is where all the configuration settings of your Netscape servers are stored.

- If you *do not* install Directory Server with this installation of NAS, you must designate an existing Directory Server as the configuration directory. Make sure that the Directory Server you designate as the configuration directory contains the `o=NetscapeRoot` tree.

The NAS installation program will prompt you for the following information about the existing Directory Server:

- The host name and port number for the machine where the existing Directory Server is installed.
- Login ID and password to connect to the existing Directory Server installation.
- Administrator login ID and password
- Multiple NAS installations can store their configuration settings on the configuration Directory Server. To avoid your settings being overwritten by another NAS installation's configuration settings, assign a unique global configuration name to your NAS installation's settings. This name appears in the `o=NetscapeRoot` tree along with the global configuration names of other NAS installations.

During installation, you are asked to provide the global configuration name for the configuration settings of the NAS you are currently installing. Note that if you want to share configuration settings with other NAS installations, simply enter the same global configuration name for each installation.

- If you install Directory Server with this installation of Netscape Application Server, you must designate this installation of Directory Server as the storage directory (as well as the configuration directory), even if another installation of Directory Server already exists at your site.
- If you *do not* install Directory Server with this installation of NAS, gather the following information about the existing storage Directory Server:
 - The host name and port number for the machine where the existing Directory Server is installed
 - Login ID and password for the existing Directory Server

- The top level domain name (suffix) of your Directory Server structure. This is the directory entry that represents the first entry in the directory tree. You will need at least one directory suffix for the tree that will contain your enterprise's data. It is recommended that you select a directory suffix that corresponds to the DNS host name used by your enterprise. For example, if your organization uses the DNS name of `airius.com`, then select a suffix of `o=airius.com`.
- The configuration directory contains an administration domain, which allows you to group Netscape servers together so that you can more easily distribute server administrative tasks across organizations while retaining centralized control. Decide if you want to use administration domains, and if so, select the name(s) you want to use. It is recommended that you use names that correspond to the organizations that will control the servers in each domain.
- The installation program asks you to specify a Directory Manager distinguished name (DN) and password. Directory Manager DN is the special directory entry to which access control does not apply. Think of directory manager as your directory's superuser.

The default Directory Manager DN is `cn=Directory Manager`. Because the Directory Manager DN is a special entry that is not stored in the directory tree (instead it is stored in `slapd.conf`), it does not have to conform to any suffix configured for your Directory Server. Also, you should not create an actual Directory Server entry to use with the Directory Manager DN.

The Directory Manager password must be at least 8 characters long.

- The Netscape Administration Server is a common front end to all Netscape servers. It receives communications from Netscape Console and passes those communications on to the appropriate Netscape server. Your site will have at least one Administration Server for each server root in which you have installed a Netscape server. During installation you are prompted for an Administration Server port number. This is the port number that your system administrator must specify to access the Administration Server.

Make sure the port number you select for the Administration Server is unique and has not been assigned earlier during the installation process to the non-SSL port number for the configuration server. Be sure to use the "Installation Planning Worksheets" at the end of this chapter to write down

all the different port numbers and ensure that you do not inadvertently assign ones that are already in use by other products such as Directory Server.

Basic Netscape Application Server Configuration Issues

- Decide which NAS components you are installing on your machine. Then determine if you have previously installed one of the following on this machine:
 - Netscape Application Server
 - Netscape Application Server Administrator
 - Web Connector plug-in
 - Deployment Manager

If an earlier version of any of these components already exists on your machine, uninstall the earlier version before installing the current NAS 4.0 version. The installation program does not upgrade earlier versions or releases.

- Decide how many Netscape Application Server instances you want to run. An instance of Netscape Application Server is defined as one installation of Netscape Application Server with one Executive Server (KXS).
- Only one instance of Netscape Application Server should run per machine. You should not install multiple Netscape Application Servers on the same machine.
- When you install Netscape Application Server, you must specify a product key. The product key is available on the Welcome letter you received with the Netscape Application Server that you purchased.
- Know the number of Java Servers (KJS) you want to run for each instance of a Netscape Application Server. For information about Java Servers, see Chapter 1, “About Netscape Application Server Architecture,” in the *Administration Guide*.
- Know the number of C++ Servers (KCS) you want to run for each instance of a Netscape Application Server. For information about C++ Servers, see Chapter 1, “About Netscape Application Server Architecture,” in the *Administration Guide*.

Know the available port numbers on your machine so that you can assign ports to the Administrative, Executive, Java, and C++ Servers. All ports you specify are listener ports. Valid port numbers must be within the acceptable range (1 to 65535) and *must be unique* (not used by any other applications on your system). Be sure to use the “Installation Planning Worksheets” at the end of this chapter to write down all the different port numbers and ensure that you do not inadvertently assign ones that are already in use by other products such as Directory Server or the Netscape Administration Server.

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). You can configure multiple Java Servers.
- 10820 for the C++ Server (KCS). You can configure multiple C++ Servers.

In most cases, the default port numbers suggested by the installation program are adequate, unless you are configuring multiple Java and C++ Servers, in which case you assign a unique number to each additional Java and C++ engine.

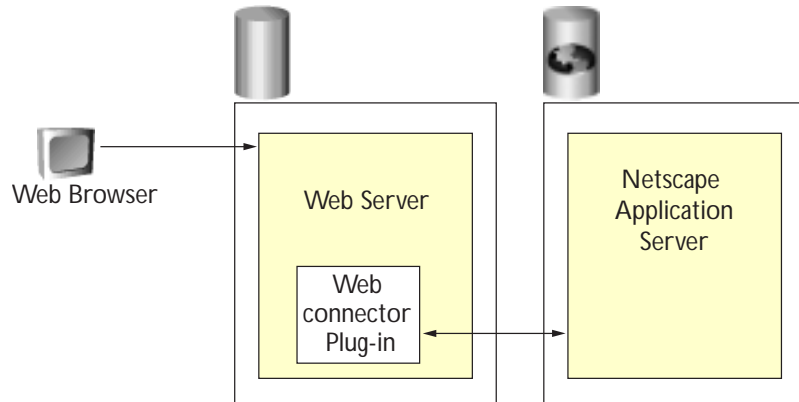
Upgrading Issues

You cannot upgrade from an earlier release or version of Netscape Application Server. If you are installing on a machine that has an earlier release already on it, even an earlier release of NAS 4.0, you must uninstall the earlier release prior to installing the current NAS 4.0 release. Follow carefully the uninstallation instructions of the earlier release.

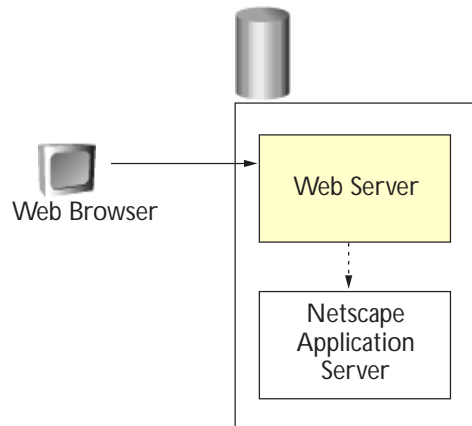
Web Server Configuration Issues

- Know whether your web server runs on the machine where you are about to install Netscape Application Server or whether it resides on another machine. If it is on another machine, you perform what is referred to as a “webless” installation of Netscape Application Server.

The following diagram illustrates a webless installation, where the web server and Netscape Application Server reside on separate machines.



The following diagram illustrates a non-webless installation, where Netscape Application Server and the web server reside on the same machine.



- If you are performing a webless installation of Netscape Application Server, know the type of web server you have and remember to install the Web Connector plug-in on the web server after you finish installing Netscape Application Server. See “Checking Hardware and Software Requirements” on page 14 for information about supported web server versions and types.

- Consider security issues related to your firewall setup. In a webless install of Netscape Application Server, if a firewall will exist between the Netscape Application Server machine and the web server machine, before installing Netscape Application Server, consult with your security administrator to ensure that the necessary ports on the firewall are open so that the Executive Server (KXS) and the Web Connector plug-in can communicate. For information about the Executive Server, see Chapter 1, “About Netscape Application Server Architecture” in the *Administration Guide*. For more information about firewall configuration, see Chapter 2, “Planning Your Environment,” in the *Deployment Guide*.
- Install and configure the web server and web browser *before* installing Netscape Application Server.
- If you use one of the supported web servers on the same machine as the Netscape Application Server, the connector plug-in configuration is automatic. For installations of Netscape Application Server, understand the difference between the following two directories and know their locations:
 - The web server document directory is the directory where the web server gets the files it serves to a web browser, such as HTML, GIF, and JPEG. The installation program will detect the HTML directory for all supported web servers.

Database Configuration Issues

- Determine the database connectivity configuration for this installation of Netscape Application Server. During installation of Netscape Application Server, you are asked to rank the client databases in priority order. Sample applications installed with Netscape Application Server will be configured to connect to the database that is assigned the top priority.

In addition, 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 attempts connecting to the configured databases in the priority order you specify during installation.

Note that Netscape Application Server supports a variety of database client versions, with each one interfacing with a variety of database servers. The following table lists Netscape Application Server database compatibility information:

DB Client	DB Server
Oracle 8.05	Oracle 8.05
Sybase 11.1.1	Sybase 11.9.2
DB2 5.2	DB2 5.2
ODBC 3	Microsoft SQL Server 6.5
Informix CLI 2.83	Informix Server 7.3

- Install and configure all database servers *before* installing Netscape Application Server.

Transaction Manager Issues

Transaction manager is a feature that coordinates global transactions within a Java Server (KJS process). A global transaction can:

- Update a database using one or more Enterprise Java Beans (EJB) running concurrently for the same global transaction, from within one or more KJS processes. This occurs when an EJB triggers another EJB to run and they both participate in the same transaction.
- Update multiple databases that are distributed over different geographic locations.
- Update multiple databases of different types (Oracle, Sybase, and so on).

Transaction manager runs within a KJS process and creates two files: a `restart` file and a `restart.bak` file. In addition, you need to provide a log file for each KJS process.

During installation, be prepared to provide the following transaction manager information:

- A mirror directory for storing the `restart.bak` file of each KJS process.

The default directory, `nas install directory\CCS0\TXNMGR_MIRROR\`, resides on the same disk as the NAS installation directory, which is the same disk used to store the `restart` file.

It is recommended that you specify a different physical drive at installation time so that the `restart.bak` file is stored in a different physical location than `restart`, in case `restart` ever becomes unavailable. If you decide to specify a different drive path, make sure you create the directory on that drive prior to running the installation program.

For example, assuming that the Netscape Application Server installation directory is on the c: drive, instead of specifying `c:\nas install directory\CCS0\TXNMGR_MIRROR` at installation time, create the same path on your d: drive and specify `d:\nas install directory\CCS0\TXNMGR_MIRROR`.

- For each KJS process, a log volume disk name for storing the log file.

The default name is `nas install directory\CCS0\TXNMGR\ENGnumber\logVol`, where `logVol` is the file name, not the raw device name.

For each KJS process, `ENGnumber` changes to match the process number. So, for KJS1, the directory is `nas install directory\CCS0\TXNMGR\ENG1`; for KJS2, the directory is `nas install directory\CCS0\TXNMGR\ENG2`, and so on.

It is recommended that you do the following:

- Create a raw partition on a physical drive *prior* to running the installation program and then, at installation, specify the path for this partition, including the raw device name. Refer to your operating system documentation for information on how to create a raw device.
- If you intend to specify a file name, use the default drive and log volume disk name provided by the installation program.
- If you specify the name of a log volume disk that is a raw partition, *make sure to indicate during installation that it is a raw partition*.
- If you specify a raw partition, you must specify a starting page number (Offset value) during the installation. You must also specify the number of the pages (Size value) in the log file. Make sure that the size allocated for the log file is greater than 4MB; in other words, the file should be greater than or equal to 1000 pages, at a size of roughly 4KB per page.

- If you do not create a raw partition on a disk drive, and do not want to use the default drive and file name because you'd rather store the log file elsewhere, create a directory and file on a different disk drive, specify this directory name at installation time, and make sure you do not specify that it is a raw partition. Note that the file must be greater than 4MB, so make sure you have sufficient disk space wherever you create the directory and file. Refer to your operating system documentation for information on how to create a directory and file on a different disk drive.

Resource Manager Issues

Resource manager lets you connect to a database back end for global transactions. Configure one resource manager for each database back end that you want to connect to. If you decide that you want to configure Netscape Application Server with resource manager, you must define the following information for each resource manager: the database type, whether or not the resource manager is enabled, and an open string.

If you enable a resource manager, when the KJS process starts up the transaction manager within that KJS process attempts a connection using the resource manager information you provide.

Resource Manager Database Type Information

The following list contains the database types you can specify for a resource manager:

- Oracle
- Sybase
- DB2
- Microsoft SQL

Resource Manager Open String Information

The following table provides the open string formats for the different types of database back ends:

Database	Format	Example
Oracle	Oracle_XA + Acc=P/user/password (or Acc=P//) + SesTm=session_time_limit + (optional_fields) DB=db_name + GPwd=P/group_password + LogDir=log_dir + MaxCur=maximum_#_of_open_cursors + SqlNet=connect_string	Oracle_XA+SqlNet= ksample1+DB=ksample1+Ac c=P/kdemo/kdemo+SesTm= 90+LogDir=/export/TxnLog/ tmp+Threads=True
Sybase	U username -P password -N lrm_name [-V version] [-C connections] -L logfile [-T trace_flag]	-Usa -P -Nksample_rm -Txa -L/tmp/syb_xa_log
DB2	database name, user name, password	ksample, inst1, inst1
Microsoft SQL	TM=ENCINA, RmRecoveryGuid= <i>resource manager ID</i> Note: The resource manager ID is available in the following location of the Microsoft SQL Server registry: [HKEY_LOCAL_MACHINE\SOFTWARE \Microsoft\MSSQLServer\MSSQLServer] "ResourceMgrID"="{resource manager ID}"	TM=ENCINA, RmRecoveryGuid= 123456982470245075204502 450420579

Prior to running the installation program, you should also configure your database back ends for XA transactions. Consult your database documentation for details.

Note that if you do not elect to configure resource manager at installation time, you can always configure it at a later time using Netscape Application Server Administrator.

Clustering and Data Synchronization Issues

- Decide if this NAS machine will participate in distributed data synchronization, also referred to as clustering. Distributed data synchronization maintains the integrity of shared information across multiple Netscape Application Servers. This is crucial for partitioned and distributed applications that are hosted on multiple Netscape Application Servers.

For more information about distributed data synchronization, see Chapter 14, “Managing Distributed Data Synchronization,” in the *Administration Guide*.

- If this or any other NAS machine you install will participate in distributed data synchronization, carefully plan your clusters and the role of each server in the cluster *before installation*.

A cluster is a group of Netscape Application Servers, installed on separate machines, 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 Netscape Application Server, then cluster planning is not necessary.

- Decide how many Sync Servers are in the cluster, in other words how many servers have the potential to become the Sync Primary. At most, this can be equal to the number of Netscape Application Servers installed on your network.
- Know the IP address of the machine that each Sync Server in the cluster resides on and the Executive Server (KXS) port number of each Netscape Application Server.

- Decide in advance the priority order, or rating, of the Sync Servers. Note that the Sync Primary is not determined by which machine has the highest priority assignment, but rather by which machine you start up first after all servers are installed.
- Make sure to note the priority rating you assign to the Netscape Application Servers in the cluster. For each installation of a Netscape Application Server in the cluster, you must re-enter the IP address-KXS port number-priority number combination for every the server in the cluster.
- It is recommended that you assign the highest priority to the Netscape Application Server you prefer to be the Sync Primary, and that you start that machine up first; assign the next highest priority to the Sync Backup, and to the remaining Sync Alternates in the desired order of promotion.
- You do not have to install the servers in the same order as the priority you assign, as long as the priority rating and Application Server identification information is consistent across each installation.

Installing Netscape Application Server

Before you install Netscape Application Server, see “Planning Your Installation” on page 15. The section explains important concepts and information required to properly install and configure Netscape Application Server. Also, refer to the “Installation Planning Worksheets” on page 56 at the end of this chapter to record information you’ll need for the steps outlined here.

The Netscape Application Server installation program performs the following tasks:

- Installs Netscape Application Server.
- Installs Netscape Application Server Administrator. You can choose to install Netscape Application Server Administrator without installing Netscape Application Server.
- Installs sample applications.

- Installs and configures the Web Connector plug-in for supported web servers. You can choose to install the Web Connector plug-in separately, on a different machine than the one where you install Netscape Application Server.
- Installs Netscape Directory Server
- Installs Netscape Console
- Installs Netscape Administration Server
- Installs the Java JRE under the installation directory.

Note: You must be logged on to Windows NT as a user with administrator privileges to install Netscape Application Server.

To install Netscape Application Server

1. Insert the Netscape Application Server Install CD-ROM into the CD-ROM drive.
2. Click Start on the Windows NT taskbar and click Run, or choose File - Run from the Windows NT Program Manager and click Run.
3. Click Browse and go to the CD-ROM drive (for example, d:\).
4. Open the NT folder and run the file `setup.exe`.
5. Follow the instructions of the installation program.
6. When prompted for the installation, click Netscape Servers. This gives you the choice to install Netscape Application Server, Netscape Directory Server, Netscape Console, Netscape Application Server Administrator, and the Web connector plug-in.

(Selecting Netscape Console installs Netscape Console as a standalone application.)

7. When prompted for the installation type, click Typical.

8. Select the installation directory. The default directory is `c:\Netscape\Server4`. Note that if you use the default, Netscape Application Server is installed in `c:\Netscape\Server4\NAS`.

You cannot use a directory name that includes spaces.

9. Do one of the following:

To install Netscape Application Server *along with* Directory Server, select all of the following components (these are the default selections), and proceed to Step 10 before continuing to the next screen in the installation program:

- Netscape Server Family Core Components
- Netscape Directory Suite
- Administration Services
- Netscape Application Server 4.0

The first three components (Netscape Server Family Core Components, Netscape Directory Suite, Administration Services) install Directory Server software. Although listed on the screen, *do not select Netscape Directory Server 4.0 Synch Service*.

To install Netscape Application Server *without* Directory Server, select only Netscape Application Server 4.0 and proceed to Step 10 before continuing to the next screen in the installation program:

10. Click Change to select subcomponents and then choose the Netscape Application Server component(s) you wish to install:
 - Web Connector Component (Web Connector)
 - Core Server Component (NAS, without the Web Connector plug-in)
 - Administrator Component (Netscape Application Server Administrator)
 - Deployment Manager Component

If you want to install NAS without the Web Connector plug-in, select Core Server Component, and proceed to Step 11.

If you want to install NAS with the Web Connector plug-in, select both Web Connector Component (Web Connector) and Core Server Component (Webless), and proceed to Step 11.

If you want to install only the Web Connector plug-in, select Web Connector Component (Web Connector) and go to the section “Installing the Web Connector Plug-in” on page 46.

If you want to install only the Administrator (Netscape Application Server Administrator), select Administrator Component, and go to the section “Installing Netscape Application Server Administrator” on page 52.

If you select only Deployment Manager Component, proceed with the installation process until it is complete.

11. If you specified in Step 9 that you want to install Directory Server, continue to the next step.

Otherwise, if you do not want to install Directory Server, do the following:

1. Enter the following information for the configuration Directory Server that you want this NAS installation to be configured with:
 - Host name and port number* of the machine where the existing installation of Directory Server resides
 - Login ID* to the machine where Directory Server is installed in “Bind As” (the default value is `cn=Directory Manager`)
 - Password* to the machine where Directory Server is installed
 2. Click “Store data in an existing directory server” and then enter the following information for the storage Directory Server that you want this NAS installation to be configured with:
 - Host name and port number* of the machine where Directory Server is installed
 - Login ID* to the machine where Directory Server is installed in “Bind As”
 - Password* to the machine where Directory Server is installed
 - Top level domain name* in Suffix
 3. Go to Step 15 to enter the Administration Domain where Netscape software is stored on Directory Server.
 4. Then go to Step 18 to proceed to the NAS portion of the installation process.
12. If you are installing Directory Server with this installation of NAS, you must click the following options:

- This instance will be the configuration directory server
 - Store data in this directory server
13. Enter the settings to be used by the Directory Server you are installing:
 - Host name of the machine in Server Identifier
 - Server Port number
 - Top level domain name in Suffix
 14. Enter the Administrator ID and password to the configuration directory.

Important: This is the Administrator ID and password required to uninstall NAS and Directory Server. Make a note of this information, as you will need it if you uninstall either of these products.
 15. Enter the name of the Administration Domain where Netscape software information is stored on Directory Server.
 16. Enter the Directory Manager distinguished name (DN) and password. The default value for the distinguished name is `cn=Directory Manager`.
 17. Enter the port number for the Directory Server Administration Server. This is required for using the Console to administer the Directory Server.

This is the last step of the Directory Server portion of the installation process. The steps that follow install NAS.
 18. Enter the unique global configuration name of the configuration settings for this installation of NAS. The name you assign is stored on the configuration Directory Server, under the `o=NetscapeRoot` tree along with the global configuration names of other NAS installations
 19. Enter the product key of Netscape Application Server. See the Welcome letter you received with the product for the correct key.
 20. When prompted for the type of web server to be used with this installation of Netscape Application Server, click one of the supported web server types and, if you clicked Netscape Enterprise Server, enter the web server instance name.

21. Enter the number of Java Servers (KJS) and C++ Servers (KCS) used to process applications. The default value is 1; increase this to handle high processing loads.
22. Enter the port numbers for the Administrative Server (KAS), the Executive Server (KXS), the Java Servers (KJS), and C++ Servers (KCS). All port numbers you specify are 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 that the default port number is always suggested by the installation program, whether or not the port number is already being used by another service. If it is already in use, make sure you change the value to a unique port number. Otherwise, the service you are assigning a port number to will not start up when you run NAS.

23. When prompted for the Administration Server user ID and password, enter the user ID and password that will be required to log on to the Administration Server through the Administrator tool (Netscape Application Server Administrator).

Make sure this user ID and password account has been created in Directory Server.

24. Rank the installed databases in priority order.

The installation program lists all supported database client types. The clients are required for your applications to connect to your database back ends. You must rank the clients in order of connectivity priority, whether you've installed the clients or not. You can always install the client software after running the NAS installation program. Note that sample applications are configured for the highest priority database.

25. Enter the mirror directory path where the transaction manager `restart.bak` file for each KJS engine process gets stored.

The default disk drive is the drive on which you are installing NAS. It is strongly recommended that you specify a path on a separate disk drive. If you do, make sure you create the directory on that drive, *prior* to running the installation program.

26. Enter the log volume disk name where the transaction manager log file gets stored for each Java Server.

It is strongly recommended that you create a raw partition on disk *prior* to running the installation program and that you specify the name of the raw device here.

27. Indicate if the specified disk name is a raw partition. If you indicate that it is, make sure that the name you specify in Step 26 is that of a raw device.
28. If the log volume is a raw partition, indicate the number of pages (Size) in the raw partition and the starting page number (the Offset value). Make sure that the size allocated for the log file is greater than 4MB; in other words, the file should be greater than or equal to 1000 pages, at a size of roughly 4KB per page.
29. Indicate whether or not you want to configure Netscape Application Server with resource manager.
30. If you indicate Yes in Step 29, specify the number of resource managers you want to use.
31. If you indicate Yes in Step 29, specify the following information for each resource manager:
 - Resource manager name (user-defined)
 - Database type
 - Open string
(See “Resource Manager Issues” on page 25 for information about open string formats.)
 - Whether or not the resource manager is enabled.
32. When prompted whether the server will synchronize data across servers, click Yes if you intend to synchronize session and state information across multiple servers for failover and fault tolerance.

If you click No, go to Step 37.

For more information about data synchronization, see Chapter 14, “Managing Distributed Data Synchronization,” in the *Administration Guide*.

33. If you answered Yes in Step 32, enter the name of the cluster that this Netscape Application Server will participate in.

34. Indicate if you are currently installing a Sync Server or a Sync Local. If you are installing a Sync Local, then this server will use data synchronization services, but is not eligible to become a Sync Primary or the Sync Backup.
35. Enter the total number of Sync Servers that you plan to have in the cluster.
36. For each Sync Server in the cluster, specify the following information:
 - IP address
 - Executive Server port number
 - Priority ratingChoose which Sync Server has the highest priority for taking over as Sync Primary and rate all other servers in the cluster in order of priority.
37. Review the summary provided by the installation program of the configuration you have selected. If necessary, go back and make changes.
38. When the installation is complete, reboot the computer so that the new settings take effect.

Verifying the Installation Version Number

After you install Netscape Application Server, you can verify the version number of the installation at any time.

Run the following command from the installation bin directory (*nas install directory\bin*):

```
version.bat
```

The version number of the NAS installation stored in that directory displays.

Using the Sample Applications

Netscape Application Server offers sample applications written in both C++ and Java. Once you have installed Netscape Application Server and your database servers and clients, you can use the sample applications to ensure that the server is working properly.

Two sample applications in particular, Online Bookstore and the Java-based version of Online Bank, both discussed in this section, demonstrate the NAS 4.0 programming model and its implementation of the following technologies: EJBs, servlets, JSP, JDBC, and transaction manager.

To use the Java-based sample applications, configure transaction manager and enable and configure resource manager. For information about these features, see page 23 and page 25.

The following table lists the sample applications provided with Netscape Application Server.

Sample Application	Description	Development Language
Online Bookstore	Online shopping cart application for purchasing books	Java
Online Bank (2.1)	Online customer banking application demonstrating security and session management. For information about migrating to the NAS 4.0 version of this application, see the <i>Migration Guide</i> .	Java
Online Bank (4.0)	Online customer banking application demonstrating security and session management	Java
Online Bank	Online customer banking application demonstrating security and session management	C++
Fortune	Simple application used to verify that NAS has been installed properly	Java
Fortune & Lottery	Simple applications used to verify that NAS has been installed properly	C++

It is recommended that you first run the Fortune and Lottery applications to test that NAS has been installed properly. Then, after verifying that the server is installed properly, run the Online Bookstore and Online Bank applications to understand the NAS 4.0 programming model and its implementation of servlets, JSPs, EJBs, JDBC, and transaction manager.

In the instructions that follow, *nas install directory* refers to the directory where you have installed NAS. The default is
`c:\Netscape\Server4\nas`.

Online Bookstore Sample Application

This section explains how to configure the Online Bookstore sample application.

Configuring the Databases

The setup files for configuring the databases to work with the sample application are:

- `setup_ora.bat`
- `setup_syb.bat`
- `setup_db2.bat`
- `setup_mssql.bat`

These files configure the databases, update registry settings, set up the resource managers, and populate the database tables.

To configure databases for the sample application, run the appropriate database setup batch file using the following syntax (all parameters listed here are required) from the *nas install directory*\APPS\nsOnlineBookstore\database directory:

```
[Database setup file name] [DataSource] [Database] [DB User] [DB
Password] [Resource manager name]
```

It is strongly recommended that you specify the same user-defined resource manager you specified during installation (Step 31 on page 34). Make sure you use the resource manager name that maps to the database type you are configuring here.

DB2 Database

Note that if you configure the sample application to run with DB2, you can browse the catalog and search for books but you cannot check out items into your shopping cart. If you want to use the checkout feature, configure the sample application with one of the other database types.

Microsoft SQL Server Database

For Microsoft SQL Server:

- Before you run `setup_mssql.bat`, open the file and set the value of the GUID in the open string to equal the ResourceMgrID entry in your NAS registry.
- Use the following syntax when you run `setup_mssql.bat`:

```
[Database batch file name] [DataSource] [Database] [DB User] [DB  
Password] [DB Server] [Resource manager name]
```

It is strongly recommended that you specify the same user-defined resource manager name you specified during installation (Step 31 on page 34).

Oracle Database

For Oracle, use SQL*PLUS to troubleshoot any errors that may be generated when you run `setup_ora.bat`.

Sybase Database

For Sybase, make sure you enable row level locking before using the sample application. This avoids application deadlocking. Refer to your Sybase documentation for details about how to enable row level locking.

Sybase clients require a threaded TLI driver. Edit the DRIVERS section of the Sybase configuration file `$SYBASE/config/libtcl.cfg` with the following information:

```
[DRIVERS]  
  
;libtli.so=tcp unused ; This is the non-threaded tli driver.  
libtli_r.so=tcp unused ; This is the threaded tli driver.
```

Make sure you restart Sybase after you make these edits to the configuration file.

Updating the Sample Application

If you change any of the source files of the Online Bookstore application after installing and configuring it, you must edit the `bsdefaults.mak` file by resetting the path for `javac.exe` and `ejbc.exe` in the `PATH` environment variable. The `bsdefaults.mak` file is located in `nas install directory\APPS\GXApp\nsOnlineBookstore\src`.

To invoke the `nmake` command, which includes `bsdefaults.mak`, type the following at the prompt:

```
nmake /f bookstore.mak
```

If you want to update source files in a particular directory, invoke the `.mak` file located in that directory.

For example, to rebuild files in the custom directory, do the following:

1. From the DOS prompt, run the following command to go to the `custom` directory:

```
cd custom
```

2. From the DOS prompt to run the following command to invoke the `.mak` file in the `custom` directory:

```
nmake /f custom.mak
```

Creating a Group and a User

The sample application has two primary features: the ability to purchase books from the bookstore and the ability to manage the bookstore from the manager's office. To manage the bookstore, you must create a user with special privileges. Because the sample application takes advantage of LDAP integration, such a user is verified by the Directory Server configured with Netscape Application Server. Therefore you must create this user on Directory Server.

1. Click Start on the Windows NT taskbar and click Programs - Netscape Server Family - Netscape Console.
2. Enter the Console Administrator user ID and password.
3. Click the "Users and Groups" tab.

4. Choose New User in the drop-down list on the lower right portion of the panel and click Create.
5. In the "Select Organizational Unit" dialog, select People and click OK.
6. Enter the name, user ID, and password for the user you want to create and click OK.
7. Click the "Users and Groups" tab.
8. Choose New Group in the drop-down list on the lower right portion of the panel and click Create.
9. In the "Select Organizational Unit" dialog, select Groups and click OK.
10. Under Create Group, enter the name of the Group you want to create, for example: BookAdmin. If the group already exists, go to Step 11.
11. Click the Members tab and then click Add.
12. Click Users and then click Search.
13. Choose the name of the user you created in Step 6 and click OK.
14. If you created a new group in Step 10, do the following:
 1. Open the file `nas install directory/APPS/GXApp/ldap/ldapInfo.properties`
 2. Add the following line in the file: `ADMIN_GROUP_DN = cn=name of group created in Step 10, ou=Group, o=mcom.com`
 3. Save the file.

The user you created is stored on the Directory Server with which this NAS installation is configured. Whenever you administer the application, this user is verified by the Directory Server.

Online Bank Sample Application

This section explains how to configure the NAS 4.0 Java-based version of the Online Bank sample application. For information about migrating from the NAS 2.1 Java-based version of this same application, see the *Migration Guide*.

Configuring the Databases

The setup files for configuring the databases to work with the sample application are:

- `setup_ora.bat`
- `setup_syb.bat`
- `setup_db2.bat`
- `setup_mssql.bat`

These files configure the databases, update the registry, and populate the database tables.

To configure databases for the sample application, run the appropriate database setup batch file using the following syntax (all parameters listed here are required) from the *nas install directory*\APPS\nsOnlineBank\database directory:

```
[Database batch file name] [DataSource] [Database] [DB User] [DB  
Password]
```

You must also run the following scripts for each database type:

- `Log_ora.sql`
- `Log_syb.sql`
- `Log_db2.sql`
- `Log_mssql.sql`

Microsoft SQL Server Database

For Microsoft SQL Server use the following syntax when you run `setup_mssql.bat`:

```
[Database batch file name] [DataSource] [Database] [DB User] [DB Password] [DB Server]
```

Oracle Database

For Oracle, use `SQL*PLUS` to troubleshoot any errors that may be generated when you run `setup_ora.bat`.

Sybase Database

For Sybase, make sure you enable row level locking before using the sample application. This avoids application deadlocking. Refer to your Sybase documentation for details about how to enable row level locking.

Sybase clients require a threaded TLI driver. Edit the `DRIVERS` section of the Sybase configuration file `$SYBASE/config/libtcl.cfg` with the following information:

```
[DRIVERS]

;libtli.so=tcp unused ; This is the non-threaded tli driver.
libtli_r.so=tcp unused ; This is the threaded tli driver.
```

Make sure you restart Sybase after you make these edits to the configuration file.

Updating the Sample Application

If you change any of the source files of the Online Bookstore application after installing and configuring it, you must edit the `bsdefaults.mak` file by resetting the path for `javac.exe` and `ejbc.exe` in the `PATH` environment variable. The `bsdefaults.mak` file is located in `nas install directory\APPS\GXApp\nsOnlineBank\src`.

To invoke the `nmake` command, which includes `bsdefaults.mak`, type the following at the prompt:

```
nmake /f bank.mak
```

If you want to update source files in a particular directory, invoke the `.mak` file located in that directory.

For example, to rebuild files in the customer directory, do the following:

1. From the DOS prompt, run the following command to go to the `customer` directory:

```
cd customer
```

2. From the DOS prompt to run the following command to invoke the `.mak` file in the `customer` directory:

```
nmake /f customer.mak
```

Running a Sample Application

1. Start running NAS.

Verify that an active KXS process and KJS process is running.

2. Open Netscape Navigator, enter the following URL, and press Enter:

```
http://yourwebserver:portnumber/GXApp/index.html
```

3. Click the link for one of the following sample applications:

- C++ Fortune & Lottery
- C++ Online Bank
- Java Fortune
- Java Online Bookstore
- Java Online Bank (2.1)
- Java Online Bank (4.0)

4. If you are running the Online Bookstore application:

- Click the Bookstore image on the left portion of the page to enter the book store area of the application.
- Click the Book Administrator image on the right portion of the page to enter administration area of the application.

Post-Installation Notes

This section includes post-installation information about Netscape Application Server.

Environment Size Variables

After installation, if you notice any NAS processes consuming 100% of your system resources, increase the size of the environment space on your NT machine. Edit the file `Config.nt`, found in the `System32` directory of your system root (normally `c:\winnt` or `c:\winnt4`) by adding the following line, and then restart your machine:

```
SHELL=%systemroot%\system32\command.com /e:2048
```

If you still experience the problem after restarting your machine, try increasing the environment size further by specifying `/e:4096`, instead of `/e:2048`, in the line above.

Class Loader Issues

When running applications, if the NAS 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), NAS hands the request 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.

Database System Environment Variables

After installation, verify that system environment variables for databases are properly set.

To verify the variables, click Control Panel - System - Environment. If any variable is not set according to the guidelines provided here, change it under "System Variables" to the proper setting:

For **Sybase**:

Variable: DSQUERY

Value: *sybase server name*

For **Oracle**:

Variable: ORACLE_SID

Value: *oracle server ID*

Variable: ORACLE_HOME

Value: *oracle install directory*

For **DB2**:

Variable: DB2INSTANCE

Value: *db2 instance name*

For **INFORMIX**:

Variable: INFORMIXSERVER

Value: *informix server*

Sybase Client Configuration

Sybase clients require a threaded TLI driver. Edit the DRIVERS section of the Sybase configuration file `$SYBASE/config/libtcl.cfg` with the following information:

```
[DRIVERS]
;libtli.so=tcp unused ; This is the non-threaded tli driver.
libtli_r.so=tcp unused ; This is the threaded tli driver.
```

Make sure you restart Sybase after you make these edits to the configuration file.

Establishing Database Connections After Installation

If you did not specify a home and library for a particular database client during installation, and want your applications to establish connections with that database, you must set environment variables in the script of the engine (KJS, KCS, KXS) that will connect to the database.

If you wish to establish connections to a database from your Java-based applications that use DAE2 or DAE, you must set environment variables in the KJS engine script. This script is located in *nas install directory\bin\kjs*. When you open the file, you'll see the environment variables for all the databases listed together. Set the home and library variables to the full directory path of the home and library directories for the database client. For example, if you wish to make a connection to an Oracle database, set the ORACLE_HOME and ORCLLIB variables to the full directory path of the home and library directories of your Oracle database.

For DAE connections from the KCS and KXS engines, set the environment variables for the desired database or databases in these scripts:

```
nas install directory\bin\kcs  
nas install directory\bin\kxs
```

Installing the Web Connector Plug-in

The Web Connector plug-in passes requests from your web server to applications on Netscape Application Server (NAS).

Netscape provides Web Connector plug-ins for the following web servers:

- Netscape Enterprise Server
- Microsoft Internet Information Server

See “Checking Hardware and Software Requirements” on page 14 for information about supported web server versions.

If you install NAS on a different machine than where the web server resides, you are configuring what is referred to as a “webless installation” of NAS. If this is the case, you must install the NAS Web Connector plug-in on the web server machine.

Before you install the Web Connector plug-in, do the following:

- Check whether or not the NAS 4.0 Web Connector plug-in has already been installed. If it has, the web server instance is already configured for your Netscape Application Server and you do not need to re-install the plug-in.
- Stop running your web server instance.

Use the following procedure to install the Netscape Application Server Web Connector plug-in on a machine running the Windows NT operating system. This procedure assumes that you have already installed NAS and Directory Server.

Note: If your web server resides on a Unix machine, see Chapter 2, “Installing Netscape Application Server on Unix,” for information on how to install the Netscape Application Server Web Connector plug-in.

You must be logged on to Windows NT as an administrator before installing the Netscape Application Server Web Connector plug-in on a Windows NT machine.

To install the Web Connector plug-in

1. Insert the Netscape Application Server Install CD-ROM into the CD-ROM drive.
2. Click Start on the Windows NT taskbar and click Run, or choose File - Run from the Windows NT Program Manager and click Run.
3. Click Browse and go to the CD-ROM drive (for example, d:\).
4. Open the NT folder and run the file `setup.exe`.
5. Follow the instructions of the installation program.
6. When prompted for the installation, click Netscape Servers.
7. When prompted for the installation type, click Typical.

8. Select the installation directory. The default directory is `c:\Netscape\Server4`. Note that if you use the default, Netscape Application Server is installed in `c:\Netscape\Server4\NAS`.

You cannot use a directory name that includes spaces.
9. Choose Netscape Application Server 4.0 and click Change to select subcomponents.
10. Choose Web Connector Component (Web Connector).
11. Enter the host name and non-SSL port number for the configuration Directory Server that you want this Web Connector plug-in and the corresponding NAS installation to be configured with.
12. When prompted for the type of web server to be used with this installation of Netscape Application Server, click one of the supported web server types.
13. If you click Netscape Enterprise Server, enter the web server instance name.
14. Enter the domain name of the current machine.
15. Enter the IP address of the machine where Netscape Application Server is installed. This is a separate machine from the one where you are currently installing the Web Connector plug-in.
16. Enter the Executive Server (KXS) port number of the Netscape Application Server that the Web Connector plug-in will work with.
17. Review the Web Connector plug-in configuration list.
18. When the installation program finishes running, reboot the web server machine.

Manually Configuring a Web Server

When you install Netscape Application Server, your web server is automatically configured for the Web Connector plug-in, meaning that all the necessary directories and settings on the web server are updated. However, there may be occasions, when, after you've installed the Web Connector plug-in, you must

manually reconfigure the web server. This procedure is recommended only if you are having problems with the connection between Netscape Application Server and your web server.

The following steps explain how to manually configure a web server to use the Web Connector plug-in, whether your web server resides on the same or a different machine than where the Netscape Application Server is installed.

If you perform only Step 1 (enabling CGI) of this procedure, the Web Connector will run as a CGI script. If you perform the entire procedure, the Web Connector will run as a plug-in, which is more efficient since the plug-in is faster than a CGI script.

Note that all CGI environment variables are automatically sent to Netscape Application Server AppLogics, servlets, and EJBs, so you do not have to modify the registry on the web server machine. However, if any special HTTP/CGI variables need to be retrieved by the Web Connector plug-in and sent to the AppLogic, then you must add them to the registry.

You must be logged on as the same administrator user who installed the web server.

Note: If your web server is installed on a Unix machine, see the Chapter 2, “Installing Netscape Application Server on Unix,” for information about how to manually configure a web server.

To reconfigure the Netscape web server

1. Enable CGI, if it is not already enabled:
 1. Go to the Netscape program group and click Administer Netscape Servers.
 2. Enter the administrator ID and password, and click OK.
 3. On the Netscape Server Selector screen, click on the web server instance you want to configure.
 4. On the main menu bar across the top of the page, click Programs.
 5. On the CGI directory screen under URL prefix, type cgi-bin.
 6. Under the CGI directory, enter the cgi-bin path.

drive letter:/Netscape/SuiteSpot/docs/cgi-bin

Now, you are ready to configure the Web Connector plug-in.

2. Make a copy of the `obj.conf` file before modifying it and place the copy in the following directory:

```
drive_letter:\Netscape\SuiteSpot\https-machinename\conf_bk
```

3. Open the `obj.conf` file in the web server configuration directory to begin editing.

For example:

Netscape Enterprise Server

```
drive letter:\Netscape\SuiteSpot\https-machinename\config
```

4. At the end of the `Init` section of the `obj.conf` file, add the following as two separate lines:

```
Init fn="load-modules" funcs=  
"nas_name_trans,gxrequest,gxlog,gxinit,gxredirect,gxhtmlrequest"  
shlib="nas install directory/bin/example: gxnsapi351.dll"  
  
Init fn="gxinit"
```

5. In the `Object name=default` section, just before the line `NameTrans fn=document-root root="drive_letter:/netscape home directory/SuiteSpot/docs"`, add the following as two separate lines:

```
NameTrans fn="pfx2dir" from="/cgi-bin" dir="drive_letter:/netscape  
home directory/SuiteSpot/docs/cgi-bin" name="cgi"  
  
NameTrans from="/" fn="nas_name_trans"
```

6. In the `Object name=default` section, just after the line `ObjectType fn=force-type type=text/plain`, also add the following line:

```
Service fn="gxredirect" fnname="imagemap" method="(GET|HEAD)" type=  
"magnus-internal/imagemap"
```

7. In the `Objectname=cgi` section(s), insert the following line immediately before the line `Service fn="send-cgi"`:

```
Service fn="gxrequest"
```

And then insert the following line immediately after the line `Service fn="send-cgi"`:

```
AddLog fn="gxlog"
```

8. After the `Objectname=cgi` section(s), add the following sections:

```
<Object name="nassspl">
```

```
ObjectType fn="force-type" type="magnus-internal/cgi"
```

```
Service fn="gxrequest"
```

```
AddLog fn="gxlog"
```

```
</Object>
```

```
<Object name="nashtml">
```

```
Service fn="gxhtmlrequest"
```

```
AddLog fn="flex-log" name="access"
```

```
</Object>
```

9. Make a copy of the current version of the file `obj.conf` and copy it to the back up version (so that the backup is consistent with the current version) in the following directory:

```
drive_letter:\Netscape\SuiteSpot\https-machinename\conf_bk
```

10. Restart the web server.

Reconfiguring the Microsoft Internet Information Server

Keep in mind the following information when reconfiguring Microsoft IIS:

- Rename the `gxisapi.dll` library to `gx.dll` and leave it in the `cgi-bin` directory of the IIS `wwwroot` (`inetput/wwwroot/cgi-bin/`).
- Configure the ISAPI filter file, `gx.dll`, in the following registry entry:

```
My Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\
```

Under `Parameters`, add string key, `Filter DLLs`, with the following value:

```
c:\inetpub\wwwroot\cgi-bin\gx.dll
```

Installing Netscape Application Server Administrator

You may choose to install the Netscape Application Server Administrator as a standalone installation on another machine. You can then administer all or some of your Netscape Application Servers from this other machine, using the Administrator tool.

This section explains how to install Netscape Application Server Administrator.

To install Netscape Application Server Administrator

1. Insert the Netscape Application Server Install CD-ROM into the CD-ROM drive.
2. Click Start on the Windows NT taskbar and click Run, or choose File - Run from the Windows NT Program Manager and click Run.
3. Click Browse and go to the CD-ROM drive (for example, d:\).
4. Open the NT folder and run the file `setup.exe`.
5. Follow the instructions of the installation program.
6. When prompted for the installation, click Netscape Servers.
7. When prompted for the installation type, click Typical.
8. Select the installation directory. The default directory is `c:\Netscape\Server4`. Note that if you use the default, Netscape Application Server is installed in `c:\Netscape\Server4\nas`.

You cannot use a directory name that includes spaces.

9. Choose Netscape Application Server 4.0 and click Change to select subcomponents.
10. Choose Administrator Component (Netscape Application Server Administrator) as the component you wish to install.
11. Review the Netscape Application Server Administrator configuration list.

12. When prompted for the Server Administrator user name and password, enter the user name and password to log on to the NAS Administrator tool.

You must specify one of the following:

- A user name and password combination that already exists on Directory Server
- A new user name and password combination, making sure that the user name is unique and does not already exist as part of a user name and password account on Directory Server.

13. After the installation program finishes running, reboot your machine.

Uninstalling Netscape Application Server

Note the following before uninstalling Netscape Application Server (NAS) or its related components:

- When uninstalling NAS, use the procedure described in this section. *Do not* uninstall NAS by deleting directories or modifying parameters in the registry.
- This procedure is for uninstalling NAS and its subcomponents only. If you installed Directory Server along with NAS, other servers may also have since been configured with that Directory Server. Uninstalling the Directory Server could cause problems for these other servers. Therefore, you should not uninstall Directory Server with NAS, unless you are absolutely certain that the only system configured with this installation of Directory Server is the NAS you are uninstalling.
- The following directories remain after you uninstall Netscape Application Server:
 - Netscape Application Server root directory
 - Any custom directories you created under the NAS directory
 - `nas install directory\APPS` directory

After uninstalling NAS, decide if you want to remove these directories, particularly the custom and APPS directories which may contain applications you've developed and files you wish to keep.

- Before running the Netscape Application Server uninstallation program, make sure that Directory Server is running. Do not uninstall Directory Server *before* you uninstall NAS.
- During the uninstallation process, you are prompted to provide a username and password with administrator access to the configuration Directory Server. If you do not want to use the user name and password you entered at the beginning of the installation process, enter another user name and password, *as long as it has administrator privileges on the configuration Directory Server*.
- Some Netscape Application Server files remain in the installation directory after uninstalling. These files are marked by your machine's operating system for deletion and are removed when you reboot your machine. *You must reboot immediately after you uninstall* Netscape Application Server.
- If you do not reboot the machine after uninstalling Netscape Application Server and if you re-install Netscape Application Server immediately, you might receive missing file messages such as 'Cannot find gxutil.dll', and so on. Such errors occur if a file was unable to be removed during the uninstall process and hence it was marked for removal after system reboot. To prevent this behavior, reboot after uninstall and before re-installing the product.

To uninstall Netscape Application Server

1. Click the Uninstall icon in the Netscape Application Server 4.0 program group.
2. Follow the uninstall instructions.
3. Choose the components you wish to uninstall.

Note: During the uninstall of Netscape Application Server, you may be prompted by the following message to remove some shared libraries:

“Setup has determined that this is a shared file, but it is not being used by any other applications. Do you want to remove this file?”

Select “No to All” to indicate that you do not want to remove the shared libraries.

4. When prompted, enter a user name and password with administrator access to the configuration Directory Server. If you do not want to use the user name and password you entered at the beginning of the installation process (Step 14 on page 32), enter another user name and password, as long as it has administrator privileges on the configuration Directory Server.
5. Re-enter the configuration Directory Server information you entered in Step 4.
6. Reboot your system after you uninstall Netscape Application Server.
7. Remove the Netscape Application Server root directory.
8. Remove the Netscape Application Server item from the Start menu. To do so:
 1. Click Start - Settings - Taskbar.
 2. Click the Start Menu Programs tab.
 3. Click Advanced.
 4. Click Winnt - Profiles - All Users - Start Menu - Programs.
 5. Remove the following items:
 - Netscape Application Server 4.0
 - Netscape Server Family

To verify that Netscape Application Server has been uninstalled

1. Click Start - Settings - Control Panel.
2. Click the Services icon.
3. Verify whether or not Netscape Application Server 4.0 is still listed as a service in the Services dialog box.

4. If Netscape Application Server 4.0 is still listed as a service, remove the Netscape key from the registry by running regedit. Search the following locations for the key:
 - HKEY_LOCAL_MACHINE\Software\Netscape\Application Server\
 - HKEY_LOCAL_MACHINE\System\CONTROLSET001
 - HKEY_LOCAL_MACHINE\System\CONTROLSET002

Installation Planning Worksheets

The following worksheets will help you plan your Netscape Application Server installation. For each instance of Netscape Application Server that you intend to install, make a copy of the set of worksheets and fill them out with the pertinent data. The worksheets are divided into the following categories of information that the installation program requires:

- Table 1.1 Basic installation information
- Table 1.2 Directory Server installation information
- Table 1.3 Netscape Application Server installation information

Refer to these worksheets during installation.

Table 1.1 Basic installation information

No.	Data	Enter your value	Description
1	Machine IP address		The IP address of the machine on which you are installing Netscape Application Server (NAS)
2	Target installation / server root directory		<p>The name of the directory where you want this installation to store files.</p> <p>The default is: c:\Netscape\Server4</p> <p>See “Basic Installation Issues” on page 15 for details.</p>
3	Netscape Server components	<input type="checkbox"/> Netscape Server Family Core Components <input type="checkbox"/> Netscape Directory Suite <input type="checkbox"/> Administration Services <input type="checkbox"/> Netscape Application Server	<p>The Netscape server software you are installing.</p> <p>The first three items—Netscape Server Family Core Components, Netscape Directory Suite, and Administration Services—install Directory Server. The last item installs Netscape Application Server.</p> <p>See Step 9 on page 30 for details.</p>

Table 1.1 Basic installation information

No.	Data	Enter your value	Description
4	Netscape Application Server components	<div><input type="checkbox"/> Web Connector plug-in component</div> <div><input type="checkbox"/> Netscape Application Server, without the Web Connector plug-in and without Netscape Application Server Administrator</div> <div><input type="checkbox"/> Netscape Application Server Administrator component</div> <div><input type="checkbox"/> Deployment Manager component</div>	<div>The Netscape Application Server component(s) you are installing.</div> <div>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</div>

Table 1.2 Directory Server installation information

No.	Data	Enter your value	Description
1	Is Directory Server already installed at your site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Even if you decide to install Directory Server with this installation of NAS, another Directory Server may already be installed at your site.</p> <p>See "Directory Server Issues" on page 16 for details.</p>
2	Do you want to install Directory Server as part of this installation?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>You can elect to install or not install Directory Server with this installation.</p> <p>See "Directory Server Issues" on page 16 for details.</p>
3	Configuration Directory Server information	Host Name: _____ Non-SSL Port: _____ Login ID (Bind As): _____ Password: _____	<p>The Host Name and Non-SSL Port Number of the configuration Directory Server. If you are installing Directory Server along with this installation of NAS, you must designate this Directory Server as the configuration Directory Server.</p> <p>See "Directory Server Issues" on page 16 for details.</p>

Table 1.2 Directory Server installation information

No.	Data	Enter your value	Description
4	Configuration Directory Server Administrator ID and Password	Administrator ID: _____ Password: _____ 	This is the Administrator ID and password to uninstall NAS and Directory Server. See “Directory Server Issues” on page 16 for details.
5	Storage Directory Server information	Host Name: _____ Login ID (Bind As): _____ Password: _____ Top-level domain name (Suffix): _____ 	If you are installing Directory Server as part of this installation, indicate that you want this Directory Server to be the storage directory. See “Directory Server Issues” on page 16 for details.
6	Settings for your existing Directory Server	Host Name (Server Identifier): _____ Port number: _____ Top-level domain name (Suffix): _____ 	If you are not installing Directory Server as part of this NAS installation, gather the information of the Directory Server that is already installed at your site. See “Directory Server Issues” on page 16 for details.

Table 1.2 Directory Server installation information

No.	Data	Enter your value	Description
7	Administration Domain		<p>The name of the Administration Domain where Netscape software information is stored on Directory Server.</p> <p>See “Directory Server Issues” on page 16 for details.</p>
8	Directory Manager Distinguished Name and Password	Distinguished Name (DN): _____ Password: _____	<p>Default value for the distinguished name is <code>cn=Directory Manager</code>.</p> <p>See “Directory Server Issues” on page 16 for details.</p>
9	Directory Server Administration Server Port Number		<p>Required for using the Console to administer Directory Server.</p> <p>See “Basic Installation Issues” on page 15 and “Directory Server Issues” on page 16 for details.</p>
10	Global Configuration Name		<p>The unique global configuration name of the configuration settings for this installation of NAS.</p> <p>See “Directory Server Issues” on page 16 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
1	Product key		<p>The product key for this installation of NAS.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>
2	Webless installation	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Decide if you are installing NAS on a machine where the web server is also installed or if NAS is on a separate machine (webless).</p>
3	Web server type	<input type="checkbox"/> NES 3.6 <input type="checkbox"/> Microsoft IIS 4.0	<p>The kind of web server this installation of NAS will use.</p> <p>See “Web Server Configuration Issues” on page 20 for details.</p>
4	NES 3.6 web server instance name		<p>If you are using NAS with NES 3.6, specify the web server instance name.</p> <p>See “Web Server Configuration Issues” on page 20 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
5	Number of Java Servers (KJS)		<p>The number of Java Servers to be used to process applications.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>
6	Number of C++ Servers (KCS)		<p>The number of C++ Servers to be used to process applications.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>
7	Administrative Server (KAS) port number		<p>The port number on this machine for your Administrative Server.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>
8	Executive Server (KXS) port number		<p>The port number on this machine for your Executive Server.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
9	Java Server (KJS) port number(s)		<p>The port number(s) on this machine for your Java Server(s).</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>
10	C++ Server (KCS) port number(s)		<p>The port number(s) on this machine for your C++ Server(s)</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 19 for details.</p>
11	Administration Server user ID and password	User ID: _____ Password: _____	<p>User ID and password to log on to the Administration Server via the Netscape Application Server Administrator tool. Account must already exist on Directory Server.</p> <p>See Step 23 on page 33 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
12	Database client priority	Database client: _____ Priority:____ Database client: _____ Priority:____ Database client: _____ Priority:____ Database client: _____ Priority:____ Database client: _____ Priority:____	The priority rating for the database clients installed on this machine. See “Database Configuration Issues” on page 22 and Step 24 on page 33 for details.
13	Mirror directory path		The location of the transaction manager <code>restart.bak</code> file for each Java Server (KJS). See “Transaction Manager Issues” on page 23 for details.
14	Log volume disk name	KJS1: _____ KJS2: _____ KJS3: _____ KJS4: _____	The name of the disk where the transaction manager log file is stored for each Java Server (KJS). See “Transaction Manager Issues” on page 23 for details.

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
15	Is the log volume disk a raw partition?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>It is strongly recommended that you create a raw partition <i>prior</i> to running the installation program, for dedicated storage of the transaction manager log file of each Java Server (KJS).</p> <p>See "Transaction Manager Issues" on page 23 for details.</p>
16	If the log volume disk is a raw partition, how many pages is it and what is the starting page number?	Size (No. of pages): _____ Offset value (Starting page number): _____	<p>During installation, you must specify the number of pages (total must be greater than 4 MB) and a starting page number for the log volume disk.</p> <p>See "Transaction Manager Issues" on page 23 for details.</p>
17	Do you want to configure this installation of NAS with resource manager?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Resource manager lets you connect to a database back end for global transactions.</p> <p>See "Resource Manager Issues" on page 25 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
18	Number of resource managers		<p>You can configure multiple resource managers, one for each database back end you want to connect to with a global transaction.</p> <p>See “Resource Manager Issues” on page 25 for details.</p>
19	<p>For the first resource manager, provide the following details:</p> <ul style="list-style-type: none"> • Resource manager user-defined name • Database type • Open string • Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type:</p> <p><input type="checkbox"/> Oracle</p> <p><input type="checkbox"/> Sybase</p> <p><input type="checkbox"/> MSSQL</p> <p>Open string: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Enabled:</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See “Resource Manager Issues” on page 25 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
20	<p>If you want to use a second resource manager, provide the following details:</p> <ul style="list-style-type: none"> • Resource manager user-defined name • Database type • Open string format • Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type:</p> <p><input type="checkbox"/> Oracle</p> <p><input type="checkbox"/> Sybase</p> <p><input type="checkbox"/> MSSQL</p> <p>Open string: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Enabled:</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 25 for details.</p>
21	<p>If you want to use a third resource manager, provide the following details:</p> <ul style="list-style-type: none"> • Resource manager user-defined name • Database type • Open string format • Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type:</p> <p><input type="checkbox"/> Oracle</p> <p><input type="checkbox"/> Sybase</p> <p><input type="checkbox"/> MSSQL</p> <p>Open string: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Enabled:</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 25 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
22	<p>If you want to use a fourth resource manager, provide the following details:</p> <ul style="list-style-type: none"> • Resource manager user-defined name • Database type • Open string format • Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type:</p> <p><input type="checkbox"/> Oracle</p> <p><input type="checkbox"/> Sybase</p> <p><input type="checkbox"/> MSSQL</p> <p>Open string: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Enabled:</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 25 for details.</p>
23	Will this installation of NAS participate in data synchronization?	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Distributed data synchronization also referred to as clustering, maintains the integrity of multiple Netscape Application Servers.</p> <p>See "Clustering and Data Synchronization Issues" on page 27 for details.</p>
24	Cluster name (Applies only to data synchronization)		<p>The name of the cluster that this server will belong to.</p> <p>See "Clustering and Data Synchronization Issues" on page 27 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
25	Sync Server Status (Applies only to data synchronization)	<input type="checkbox"/> Sync Server <input type="checkbox"/> Sync Local	<p>Is this installation a Sync Server (eligible to become a Sync Primary) or a Sync Local (not eligible to become a Sync Primary, Sync Backup, or Sync Alternate)?</p> <p>See “Clustering and Data Synchronization Issues” on page 27 for details.</p>
26	Number of Sync Servers (Applies only to data synchronization)		<p>The number of additional Sync Servers in the cluster that this installation belongs to.</p> <p>See “Clustering and Data Synchronization Issues” on page 27 for details.</p>

Table 1.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
27	Sync Server machine addresses, port numbers, and priority (Applies only to data synchronization)	Address:_____ Port number:_____ Priority:_____ Address:_____ Port number:_____ Priority:_____ Address:_____ Port number:_____ Priority:_____ Address:_____ Port number:_____ Priority:_____	The IP addresses of each Sync Server in the cluster, their corresponding port numbers, and their priority rating. See “Clustering and Data Synchronization Issues” on page 27 for details.

Installing Netscape Application Server on Unix

This chapter explains how to install Netscape Application Server (NAS) on the Unix platform. It includes the following topics:

- Checking Hardware and Software Requirements
- Planning Your Installation
- Installing Netscape Application Server
- Using the Sample Applications
- Post-Installation and Troubleshooting Notes
- Installing the Web Connector Plug-in
- Installing Netscape Application Server Administrator
- Uninstalling Netscape Application Server
- Installation Planning Worksheets

Read this chapter carefully before installing Netscape Application Server on Unix.

Checking Hardware and Software Requirements

The following table lists the hardware and software requirements for installing and running a single instance of Netscape Application Server.

Device	Requirement
Computer/ Operating system	Sun SPARC running Solaris 2.6 or 2.7 with separate patches for each version. See readme file for the list of valid patches.
Memory	Per CPU: 64 MB minimum; 128MB recommended
Available disk space	<p>Total disk space: 400 MB *</p> <ul style="list-style-type: none"> • 125 MB - Netscape Application Server 4.0 (including Administrator and Web Connector Plug-in) <p>Note: Swap space requirements are two to five times your CPU's memory.</p> <ul style="list-style-type: none"> • 120 MB - Directory Server 4.0 • 130 MB - Netscape Enterprise Server 3.6 • 20 MB - Netscape Communicator 4.5 <p>CD-ROM drive</p> <p>*Perform a manual check to make sure that enough space is available on your hard disk.</p>
Network software	TCP/IP
Other software	<ul style="list-style-type: none"> • Netscape Enterprise Server 3.6 web server • Netscape Communicator 4.5 • Database connectivity software (see "Database Configuration Issues" on page 82, for a list of the supported versions)

Planning Your Installation

Before you install Netscape Application Server (NAS), think about the following issues and carefully plan how you want to configure your NAS system. Knowing this information in advance helps you to properly complete the installation.

Installation planning worksheets are provided at the end of this chapter to help you track the information you need to install Netscape Application Server. It is recommended that you make a copy of these worksheets and jot down information on them as you read through this section.

Note: Keep in mind that *after* you have installed NAS, you can change many of the configuration settings initially specified during the installation. For information about how to perform post-installation configuration tasks, see the *Administration Guide*.

Basic Installation Issues

- This version represents a major upgrade of Netscape Application Server. Install on a machine where no earlier versions of this product have been installed.
- When you run the installation program, you install Netscape Application Server, Netscape Console, Netscape Administration Server, and Netscape Directory Server. Decide in advance which product or combination of products you want to install.
 - **Netscape Application Server** includes Netscape Application Server, Netscape Application Server Administrator, the Web Connector plug-in used to communicate between NAS and the web server, and the Deployment Manager.
 - **Netscape Console** provides the common user interfaces for all Netscape server products. From it you can perform common server administration functions such as stopping and starting servers, installing new server instances, and managing user and group information. Netscape Console can be installed stand-alone on any machine on your network and used to manage remote servers.

- **Netscape Administration Server** is a common front end to all Netscape servers. It receives communications from Netscape Console and passes those communications on the appropriate Netscape server. Your site will have at least one Administration Server for each server root in which you have installed a Netscape server.
- **Netscape Directory Server** is Netscape's LDAP implementation. The Directory Server runs as the `ns-slapd` process on your machine. This is the server that manages the directory databases and responds to client requests.

The installation program asks whether you want to install Netscape Servers or Netscape Console. It is recommended that you select the Netscape Servers option, which includes Netscape Application Server, Netscape Console, and Netscape Directory Server. Netscape Console includes only the Netscape Console product.

- The default installation directory for Netscape Servers is `/Netscape/Server4`. If you use this path, the Netscape Application Server installation directory is set to `/Netscape/Server4/nas`. It is strongly recommended that you use the default installation directory.

Directory Server Issues

- Before you run the installation program, read the Netscape Directory Server documentation, particularly the *Netscape Directory Server 4.0 Installation Guide*, for information about setting up Directory Server and details about the issues discussed in this section. All Directory Server documentation is located in the following places:
 - In *Netscape Server Family root directory*/manual/en/slapd
 - At <http://home.netscape.com/eng/server/directory/4.0/>
 - From the Help menu in Directory Server.
- If you install Directory Server with this installation of Netscape 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.

The configuration directory contains the `o=NetscapeRoot` tree used by your Netscape servers. The `o=NetscapeRoot` tree is where all the configuration settings of your Netscape servers are stored.

- If you *do not* install Directory Server with this installation of NAS, you must designate an existing Directory Server as the configuration directory. Make sure that the Directory Server you designate as the configuration directory contains the `o=NetscapeRoot` tree.

The NAS installation program will prompt you for the following information about the existing Directory Server:

- The host name and port number for the machine where the existing Directory Server is installed.
- Login ID and password to connect to the existing Directory Server installation.
- Administrator login ID and password
- Multiple NAS installations can store their configuration settings on the configuration Directory Server. To avoid your settings being overwritten by another NAS installation's configuration settings, assign a unique global configuration name to your NAS installation's settings. This name appears in the `o=NetscapeRoot` tree along with the global configuration names of other NAS installations.

During installation, you are asked to provide the global configuration name for the configuration settings of the NAS you are currently installing. Note that if you want to share configuration settings with other NAS installations, simply enter the same global configuration name for each installation.

- If you install Directory Server with this installation of Netscape Application Server, you must designate this installation of Directory Server as the storage directory (as well as the configuration directory), even if another installation of Directory Server already exists at your site.
- If you *do not* install Directory Server with this installation of NAS, gather the following information about the existing storage Directory Server:
 - The host name and port number for the machine where the existing Directory Server is installed
 - Login ID and password for the existing Directory Server

- The top level domain name (suffix) of your Directory Server structure. This is the directory entry that represents the first entry in the directory tree. You will need at least one directory suffix for the tree that will contain your enterprise's data. It is recommended that you select a directory suffix that corresponds to the DNS host name used by your enterprise. For example, if your organization uses the DNS name of `airius.com`, then select a suffix of `o=airius.com`.
- The configuration directory contains an administration domain, which allows you to group Netscape servers together so that you can more easily distribute server administrative tasks across organizations while retaining centralized control. Decide if you want to use administration domains, and if so, select the name(s) you want to use. It is recommended that you use names that correspond to the organizations that will control the servers in each domain.
- The installation program asks you to specify a Directory Manager distinguished name (DN) and password. Directory Manager DN is the special directory entry to which access control does not apply. Think of directory manager as your directory's superuser.

The default Directory Manager DN is `cn=Directory Manager`. Because the Directory Manager DN is a special entry that is not stored in the directory tree (instead it is stored in `slapd.conf`), it does not have to conform to any suffix configured for your Directory Server. Also, you should not create an actual Directory Server entry to use with the Directory Manager DN.

The Directory Manager password must be at least 8 characters long.

- The Netscape Administration Server is a common front end to all Netscape servers. It receives communications from Netscape Console and passes those communications on to the appropriate Netscape server. Your site will have at least one Administration Server for each server root in which you have installed a Netscape server. During installation you are prompted for an Administration Server port number. This is the port number that your system administrator must specify to access the Administration Server.

Make sure the port number you select for the Administration Server is unique and has not been assigned earlier during the installation process to the non-SSL port number for the configuration server. Be sure to use the "Installation Planning Worksheets" at the end of this chapter to write down

all the different port numbers and ensure that you do not inadvertently assign ones that are already in use by other products such as Directory Server.

Basic Netscape Application Server Configuration Issues

- Decide which NAS components you are installing on your machine. Then determine if you have previously installed one of the following on this machine:
 - Netscape Application Server
 - Netscape Application Server Administrator
 - Web Connector plug-in
 - Deployment Manager

If an earlier version of any of these components already exists on your machine, uninstall the earlier version before installing the current NAS 4.0 version. The installation program does not upgrade earlier versions or releases.

- Decide how many Netscape Application Server instances you want to run. An instance of Netscape Application Server is defined as one installation of Netscape Application Server with one Executive Server (KXS).
- When you install Netscape Application Server, you must specify a product key. The product key is available on the Welcome letter you received with the Netscape Application Server that you purchased.
- Know the number of Java Servers (KJS) you want to run for each instance of a Netscape Application Server. For information about Java Servers, see Chapter 1, “About Netscape Application Server Architecture,” in the *Administration Guide*.
- Know the number of C++ Servers (KCS) you want to run for each instance of a Netscape Application Server. For information about C++ Servers, see Chapter 1, “About Netscape Application Server Architecture,” in the *Administration Guide*.

Know the available port numbers on your machine so that you can assign ports to the Administrative, Executive, Java, and C++ Servers. All ports you specify are listener ports. Valid port numbers must be within the acceptable range (1025 to 32768) 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 CGI to Executive Server (KXS) communication
- 10820 for the Java Server (KJS). You can configure multiple Java Servers.
- 10821 for the C++ Server (KCS). You can configure multiple C++ Servers.

In most cases, the default port numbers suggested by the installation program are adequate, unless you are configuring multiple Java and C++ Servers, in which case you assign a unique number to each additional Java and C++ engine.

- Decide if you want to install Netscape Application Server so that it starts up automatically when you boot your system. If you decide yes, then log on to the system as the root user before installing Netscape Application Server.

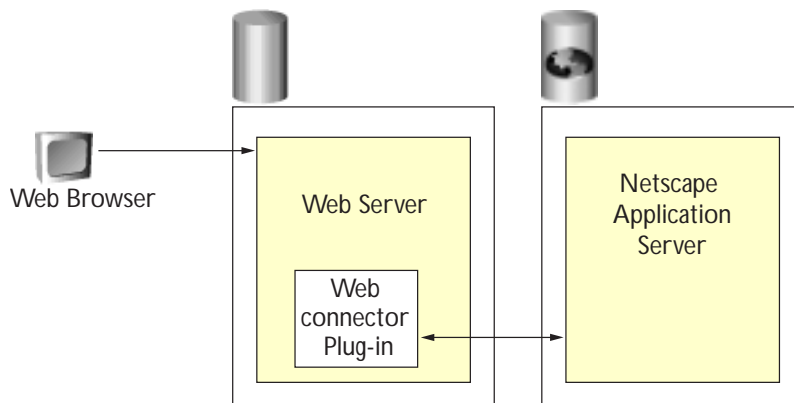
Upgrading Issues

You cannot upgrade from an earlier release or version of Netscape Application Server. If you are installing on a machine that has an earlier release already on it, even an earlier release of NAS 4.0, you must uninstall the earlier release prior to installing the current NAS 4.0 release. Follow carefully the uninstallation instructions of the earlier release.

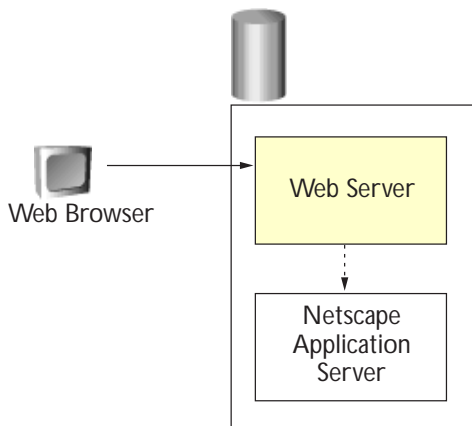
Web Server Configuration Issues

- Know whether your web server runs on the machine where you are about to install Netscape Application Server or whether it resides on another machine. If it is on another machine, you perform what is referred to as a “webless” installation of Netscape Application Server.

The following diagram illustrates a webless installation, where the web server and Netscape Application Server reside on separate machines.



The following diagram illustrates a non-webless installation, where Netscape Application Server and the web server reside on the same machine.



- Know the full path location of the web server.
- If you are performing a webless installation of Netscape Application Server, remember to install the Web Connector plug-in on the web server after you finish installing Netscape Application Server. See “Checking Hardware and Software Requirements” on page 74 for information about supported web server versions and types.

- Consider security issues related to your firewall setup. In a webless install of Netscape Application Server, if a firewall will exist between the Netscape Application Server machine and the web server machine, before installing Netscape Application Server, consult with your security administrator to ensure that the necessary ports on the firewall are open so that the Executive Server (KXS) and the Web Connector plug-in can communicate. For information about the Executive Server, see Chapter 1, “About Netscape Application Server Architecture” in the *Administration Guide*. For more information about firewall configuration, see Chapter 2, “Planning Your Environment,” in the *Deployment Guide*.
- Install and configure the web server and web browser *before* installing Netscape Application Server.
- Install Netscape Application Server as the same user or as a member of the same group that installed the web server with which your Netscape Application Server will interface.
- For automatic configuration of the connector plug-in for Netscape Enterprise Server (version 3.6), know the instance directory (the directory where web server configuration and start/stop scripts are stored) of the installed web server.

Note: If you are installing Netscape 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 NAS installation directory.

Database Configuration Issues

- Determine the database connectivity configuration for this installation of Netscape Application Server. During installation of Netscape Application Server, you are asked to rank the client databases in priority order. Sample applications installed with Netscape Application Server will be configured to connect to the database that is assigned the top priority.

In addition, 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 attempts connecting to the configured databases in the priority order you specify during installation.

Note that Netscape Application Server supports a variety of database client versions, with each one interfacing with a variety of database servers. The following table lists Netscape Application Server database compatibility information:

DB Client	DB Server
Oracle 8.05	Oracle 8.05
Sybase 11.1.1	Sybase 11.9.2
DB2 5.2	DB2 5.2
Informix CLI 2.83	Informix Server 7.3

- Install and configure all database servers *before* installing Netscape Application Server.
- Know the directory paths of the different database client libraries installed on your system. You are asked during the installation if you want to configure Netscape Application Server with connectivity to supported databases. For each Yes response, you are prompted to provide the home directory for the database client and the database library name.

Transaction Manager Issues

Transaction manager is a feature that coordinates global transactions within a Java Server (KJS process). A global transaction can:

- Update a database using one or more Enterprise Java Beans (EJB) running concurrently for the same global transaction, from within one or more KJS processes. This occurs when an EJB triggers another EJB to run and they both participate in the same transaction.
- Update multiple databases that are distributed over different geographic locations.
- Update multiple databases of different types (Oracle, Sybase, and so on).

Transaction manager runs within a KJS process and creates two files: a `restart` file and a `restart.bak` file. In addition, you need to provide a log file for each KJS process.

During installation, be prepared to provide the following transaction manager information:

- A mirror directory for storing the `restart.bak` file of each KJS process.

The default directory is `nas install directory/CCS0/TXNMGR_MIRROR/`.

Note that this is the same path that is used to store the `restart` file. It is recommended that you store `restart.bak` in a different location than `restart`. Consider using a pointer to the different physical disk drive.

- For each KJS process, a log volume disk name for storing the log file.

The default name is `nas install directory/CCS0/TXNMGR/ENGnumber/logVol`, where `logVol` is the device name.

For each KJS process, `ENGnumber` changes to match the process number. So, for KJS1, the directory is `nas install directory/CCS0/TXNMGR/ENG1`; for KJS2, the directory is `nas install directory/CCS0/TXNMGR/ENG2`, and so on.

It is recommended that you do the following:

- Create a raw partition on a physical drive *prior* to running the installation program and then, at installation, specify the path for this partition, including the raw device name. Refer to your operating system documentation for information on how to create a raw device.
- If you intend to specify a file name, use the default drive and log volume disk name provided by the installation program.
- If you specify the name of a log volume disk that is a raw partition, *make sure to indicate during installation that it is a raw partition*.
- If you specify a raw partition, you must specify a starting page number (Offset value) during the installation. You must also specify the number of the pages (Size value) in the log file. Make sure that the size allocated for the log file is greater than 4MB; in other words, the file should be greater than or equal to 1000 pages, at a size of roughly 4KB per page.

- If you do not create a raw partition on a disk drive, and do not want to use the default drive and file name because you'd rather store the log file elsewhere, create a directory and file on a different disk drive, specify this directory name at installation time, and make sure you do not specify that it is a raw partition. Note that the file must be greater than 4MB, so make sure you have sufficient disk space wherever you create the directory and file. Refer to your operating system documentation for information on how to create a directory and file on a different disk drive.

Resource Manager Issues

Resource manager lets you connect to a database back end for global transactions. Configure one resource manager for each database back end that you want to connect to. If you decide that you want to configure Netscape Application Server with resource manager, you must define the following information for each resource manager: the database type, whether or not the resource manager is enabled, and an open string.

If you enable a resource manager, when the KJS process starts up the transaction manager within that KJS process attempts a connection using the resource manager information you provide.

Resource Manager Database Type Information

The following list contains the database types you can specify for a resource manager:

- Oracle
- Sybase
- DB2

Resource Manager Open String Information

The following table provides the open string formats for the different types of database back ends:

Database	Format	Example
Oracle	Oracle_XA + Acc=P/user/password (or Acc=P//) + SesTm=session_time_limit + (optional_fields) DB=db_name + GPwd=P/group_password + LogDir=log_dir + MaxCur=maximum_#_of_open_cursors + SqlNet=connect_string	Oracle_XA+SqlNet= ksample1+DB=ksample1+Ac c=P/kdemo/kdemo+SesTm= 90+LogDir=/export/TxnLog/ tmp+Threads=True
Sybase	U username -P password -N lrm_name [-V version] [-C connections] -L logfile [-T trace_flag]	-Usa -P -Nksample_rm -Txa -L/tmp/syb_xa_log
DB2	database name, user name, password	ksample, inst1, inst1

Prior to running the installation program, you should also configure your database back ends for XA transactions. Consult your database documentation for details.

Note that if you do not elect to configure resource manager at installation time, you can always configure it at a later time using Netscape Application Server Administrator.

Clustering and Data Synchronization Issues

- Decide if this NAS machine will participate in distributed data synchronization, also referred to as clustering. Distributed data synchronization maintains the integrity of shared information across multiple Netscape Application Servers. This is crucial for partitioned and distributed applications that are hosted on multiple Netscape Application Servers.

For more information about distributed data synchronization, see Chapter 14, “Managing Distributed Data Synchronization,” in the *Administration Guide*.

- If this or any other NAS machine you install will participate in distributed data synchronization, carefully plan your clusters and the role of each server in the cluster *before installation*.

A cluster is a group of Netscape Application Servers, installed on separate machines, 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 Netscape Application Server, then cluster planning is not necessary.

- Decide how many Sync Servers are in the cluster, in other words how many servers have the potential to become the Sync Primary. At most, this can be equal to the number of Netscape Application Servers installed on your network.
- Know the IP address of the machine that each Sync Server in the cluster resides on and the Executive Server (KXS) port number of each Netscape Application Server.
- Decide in advance the priority order, or rating, of the Sync Servers. Note that the Sync Primary is not determined by which machine has the highest priority assignment, but rather by which machine you start up first after all servers are installed.

- Make sure to note the priority rating you assign to the Netscape Application Servers in the cluster. For each installation of a Netscape Application Server in the cluster, you must re-enter the IP address-KXS port number-priority number combination for every the server in the cluster.
- It is recommended that you assign the highest priority to the Netscape Application Server you prefer to be the Sync Primary, and that you start that machine up first; assign the next highest priority to the Sync Backup, and to the remaining Sync Alternates in the desired order of promotion.
- You do not have to install the servers in the same order as the priority you assign, as long as the priority rating and Application Server identification information is consistent across each installation.

Installing Netscape Application Server

Before you install Netscape Application Server, see “Planning Your Installation” on page 75.

The Netscape Application Server installation program performs the following tasks.

- Installs Netscape Application Server
- Installs Netscape Application Server Administrator. You can choose to install the Netscape Application Server Administrator tool without installing Netscape Application Server.
- Installs sample applications
- Installs and configures the Web Connector plug-in for Netscape Enterprise Server 3.6. You can choose to install the Web Connector plug-in separately, on a different machine than the one where you install Netscape Application Server.
- Installs Netscape Directory Server
- Installs Netscape Console
- Installs Netscape Administration Server
- Installs JRE 1.1.6 under the installation directory

Note: Log on to the system as the same user or as a member of the same group that installed the web server with which your Netscape Application Server will interface. If you install as a regular user, and elect to configure the Netscape Application Server for automatic startup, you will have to log on again as the root user after you install to enable automatic startup.

To install Netscape Application Server

1. Insert the Netscape Application Server Install CD-ROM into the CD-ROM drive.
2. Mount the CD-ROM on, for example, `/cdrom/cdrom0`.
3. At the shell prompt, run the following command:

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

4. Follow the instructions of the installation program.

During installation, press:

CTL+B to back up to the previous screen within an installation section. An installation section is defined by the title at the top of the screen. For example, “Netscape Server Products,” “Netscape Directory,” and “Application” are names of sections within the installation program. You cannot use CTL+B to go back to a screen in a different section than the one you are currently in.

CTL+C if you need to exit the installation. This results in an incomplete installation. If you want to install again, you must run the installation program from the beginning, starting at Step 1 of this procedure.

5. When prompted, press Enter or specify 1 to select “Netscape Servers” as the item to install.
6. Specify 2 to select an installation type of Typical.
7. Specify a target installation directory as the base directory within which all components are installed. Do not include spaces in the path name.
8. When prompted for the components you want to install, do one of the following:

To install Netscape Application Server *along with* Directory Server, press Enter. This selects *all* of the following components.

- Netscape Server Family Core Components
- Netscape Directory Suite
- Administration Services
This installs the Administration Services and Console, allowing you to administer your Netscape servers from the same machine as the Console.
- Netscape Application Server 4.0
This installs Netscape Application Server, Netscape Application Server Administrator, the Web Connector plug-in used to communicate between NAS and the web server, and Deployment Manager.

The first three components (Netscape Server Family Core Components, Netscape Directory Suite, Administration Services) install Directory Server software. The last component installs Netscape Application Server and its associated components.

To install Netscape Application Server *without* Directory Server, type 4 (a NAS-only installation), and go to Step 12.

9. When prompted to install the Netscape Server Family Core Components, press Enter to select all of the components listed.
10. When prompted to install the Directory Suite components, press Enter to select all of the components listed.
11. When prompted to install the Administration Services components, press Enter to select all of the components listed.
12. When prompted to install Netscape Application Server components, press Enter if you want to install all the listed components.
 1. NAS Web Connector Component
 2. Core Server Component (NAS without the Web Connector plug-in)
 3. Administrator Component (Netscape Application Server Administrator)
 4. Deployment Manager

If you want to install NAS without the Web Connector plug-in, specify 2 (Core Server Component) and 3 (Administrator Component) and proceed to Step 13.

If you want to install only the NAS Web Connector, specify 1 only and proceed to the section “Installing the Web Connector Plug-in.”

If you want to install only the Administrator (Netscape Application Server Administrator), specify 3 only and proceed to the section “Installing Netscape Application Server Administrator.”

If you want to install only the Deployment Manager, specify 4 only and press Enter to complete the installation process.

13. Specify the domain name of your machine. Press Enter to accept the default value provided here by the installation program.
14. Specify the Unix user and group name under which your Netscape Application Server and Directory Server installations will run.

You should have already set up this user and group prior to running the installation program. Specify a user that has no privileges elsewhere on the system, so as to avoid access to restricted servers, such as the configuration Directory Server, from NAS.

15. If you specified in Step 8 that you do not want to install Directory Server, enter the URL of the configuration Directory Server for this installation of NAS, and then go to Step 23.

If you specified in Step 8 that you want to install Directory Server, continue to the next step.

16. If you are installing Directory Server with this installation of NAS, specify this Directory Server as the configuration Directory Server. Only specify an existing Directory Server as the configuration Directory Server if you are not installing Directory Server with this installation of NAS.
17. If you are installing Directory Server with this installation of NAS, specify this Directory Server as the storage server. Only specify an existing Directory Server as the storage server if you are not installing Directory Server with this installation of NAS.

If you specify an existing installation as the storage Directory Server, enter the following information:

- Host name and port number of the machine where Directory Server is installed

- Login ID to the machine where Directory Server is installed in “Bind As”
 - Password to the machine where Directory Server is installed
 - Top level domain name in Suffix
18. Enter the port number to be used by the Directory Server you are installing. The default value is 389.
 19. When prompted for the Directory Server identifier, enter the host name of the Directory Server machine.
 20. Enter the administrator ID and password for the configuration Directory Server.

Important: This is the Administrator ID and password required to uninstall NAS and Directory Server. Make a note of this information, as you will need it if you uninstall either of these products.

21. When prompted for the suffix, enter the top level domain name.
22. Enter the Directory Manager distinguished name (DN) and password. The default value for the distinguished name is `cn=Directory Manager`
23. Enter the name of the Administration Domain where Netscape software information is stored on Directory Server.
24. Enter the port number for the Directory Server Administration Server. This is required for using the Console to administer the Directory Server.
25. Confirm the user which the Administration Server will run as.

This is the last step of the Directory Server portion of the installation process. All steps that follow install NAS.

26. Enter the host name of the current machine on which you are installing Netscape Application Server.
27. If you installed Directory Server earlier during this installation process (Step 13 through Step 25), indicate that you want NAS to be configured with this Directory Server.

If you did not install Directory Server earlier during this installation process, provide the following information about the already existing Directory Server that you want NAS to be configured with:

- Server identifier
 - Host name
 - Port number
 - Username (same value you entered in Step 22)
 - User password (same value you entered in Step 22)
28. Enter the unique global configuration name of the configuration settings for this installation of NAS. The name you assign is stored on the configuration Directory Server, under the `o=NetscapeRoot` tree along with the global configuration names of other NAS installations.
 29. Enter the product key of Netscape Application Server. The product key is available in the Welcome letter you received with the product.
 30. When prompted, enter port numbers for the Administrative Server (KAS), the Executive Server (KXS), and the web server (CGI to KXS).

All port numbers you specify are for listener ports, must be within the acceptable range (1025 to 32768), and must be unique (not used by any other services on your system). In most cases, the default port numbers supplied by the installation program are adequate.

31. Enter the number of Java Servers (KJS) that you intend to use to process applications with this installation of Netscape Application Server, and the port number(s) for the Java Server(s).

All Java Server port numbers you specify are for 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). In most cases, the default port numbers supplied by the installation program are adequate.

32. Enter the number of C++ Servers (KCS) that you intend to use to process applications with this installation of Netscape Application Server, and the port number(s) for the C++ Server(s).

All C++ port numbers you specify are for 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). In most cases, the default port numbers supplied by the installation program are adequate.

33. When prompted for the Server Administrator username and password, enter the username and password to log on to the NAS Administrator tool.

34. Provide all the necessary database connectivity information.

The installation program lists the database clients supported by Netscape Application Server. The clients are required for your NAS applications to process data. You must indicate if you want to configure this instance of Netscape Application Server to connect with each of the supported database clients. For each client that you specify Yes, you must provide the installation program with the client's home directory and library name.

For more information about prioritizing and configuring databases, see "Database Configuration Issues" on page 82.

35. If you specified at least one database in Step 34, rank the installed databases in priority order. Specify the top priority database first. (If you only specified one database in Step 34, then list that one here as the top priority database).

36. Enter the mirror directory path where the transaction manager `restart.bak` file of each KJS process gets stored.

The default directory is *nas install directory/CCS0/TXNMGR_MIRROR/*. This is the same path that is used to store the `restart` file. It is recommended that you store `restart.bak` in a different location than `restart`. Consider using a pointer to the different physical disk drive.

37. For each Java Server specified in Step 31, specify the following information:

- Log volume disk name where the transaction manager log file gets stored. The default name is *nas install directory/CCS0/TXNMGR/ENGnumber*, where *number* represents the KJS engine process number.
- Whether or not the log volume disk is a raw partition. If you specify Yes, make sure that the name you enter here is that of a raw device.
- If the log volume disk is a raw partition, indicate the number of pages (Size) in the raw partition and the starting page number (the Offset value). Make sure that the size allocated for the log file is greater than 4MB; in other words, the file should be greater than or equal to 1000 pages, at a size of 4KB per page.

38. When prompted, indicate if you want to enable resource manger.

39. If you answer Yes in Step 38, specify the number of resource managers you want to enable.
40. If you answer Yes in Step 38, specify the following information for each resource manager:
 - User-defined resource manager name
 - Database type
 - Open string (See “Resource Manager Open String Information” on page 85 for information about open string formats)
 - Whether or not the resource manager is enabled
41. When prompted whether the server will synchronize data across servers (Dsync), specify Yes if you intend to synchronize session and state information across multiple servers for failover and fault tolerance. If you specify No, then proceed to Step 47.

For more information about data synchronization, see Chapter 14, “Managing Distributed Data Synchronization,” in the *Administration Guide*.

To proceed with data synchronization, also referred to as cluster configuration, *you must plan your clusters ahead of time*. For information about planning clusters, see “Clustering and Data Synchronization Issues” on page 86.

42. When prompted for the cluster name, enter the name of the cluster that this Netscape Application Server will belong to.

The cluster you specify may already exist, or this installation of Netscape Application Server may be the first server assigned to the cluster.
43. Indicate if this instance of Netscape Application Server is a Sync Server or a Sync Local.
44. Enter the number of Sync Servers that you plan to have in the cluster.
45. For each Sync Server in the cluster, specify the following information:
 - IP address

- Sync Server priority—You are asked to start by specifying the highest priority Sync Server in the cluster, that is, the server that is first in line to take over for the Sync Primary if it fails. Next, you are asked to specify the next highest priority Sync Server, and so on, until you have ranked all the Sync Servers you specified in Step 44.

For each installation of a Netscape Application Server within the cluster you specified in Step 42, *specify the same set of IP addresses and port numbers*. The addresses and port number configurations must match across installations for the cluster to function properly.

46. Specify the number of Sync Backup servers that should be active while the cluster is running.
47. Indicate whether or not you want to run Netscape Application Server automatically when you reboot the machine. You can only complete this step if you are logged on as root.

Verifying the Installation Version Number

After you install Netscape Application Server, you can verify the version number of the installation at any time.

Run the following command from the installation bin directory (*nas install directory/bin/*):

```
version
```

The version number of the NAS installation stored in that directory displays.

Using the Sample Applications

Netscape Application Server offers sample applications written in both C++ and Java. Once you have installed Netscape Application Server and your database servers and clients, you can use the sample applications to ensure that the server is working properly.

Two sample applications in particular, Online Bookstore and the Java-based version of Online Bank, both discussed in this section, demonstrate the NAS 4.0 programming model and its implementation of the following technologies: EJBs, servlets, JSP, JDBC, and transaction manager.

To use the Java-based sample applications, configure transaction manager and enable and configure resource manager. For information about these features, see page 83 and page 85.

The following table lists the sample applications provided with Netscape Application Server.

Sample Application	Description	Development Language
Online Bookstore	Online shopping cart application for purchasing books	Java
Online Bank (2.1)	Online customer banking application demonstrating security and session management. For information about migrating to the NAS 4.0 version of this application, see the <i>Migration Guide</i> .	Java
Online Bank (4.0)	Online customer banking application demonstrating security and session management	Java
Online Bank	Online customer banking application demonstrating security and session management	C++
Fortune	Simple application used to verify that NAS has been installed properly	Java
Fortune & Lottery	Simple applications used to verify that NAS has been installed properly	C++

It is recommended that you first run the Fortune and Lottery applications to test that NAS has been installed properly. Then, after verifying that the server is installed properly, run the Online Bookstore and Online Bank applications to understand the NAS 4.0 programming model and its implementation of servlets, JSPs, EJBs, JDBC, and transaction manager.

In the instructions that follow, *nas install directory* refers to the directory where you have installed NAS. The default is `c:/Netscape/Server4/nas`.

Online Bookstore Sample Application

This section explains how to configure the Online Bookstore sample application.

Configuring the Databases

From the *nas install directory*/APPS/nsOnlineBookstore/database directory, run the shell script for the database you want to configure using the following syntax:

```
[Database shell script file name] [DataSource] [Database] [DB User]  
[DB Password] [Resource manager name]
```

The database shell script files are:

- `setup_ora.sh`
- `setup_syb.sh`
- `setup_db2.sh`

These files configure the databases, update the registry, set up the resource managers, and populate the database tables.

For [Resource manager name], it is strongly recommended that you specify the same user-defined resource manager name you specified during installation (Step 40 on page 95). Make sure you specify the resource manager name that maps to the database type you are configuring here.

DB2 Database

Note that if you configure the sample application to run with DB2, you can browse the catalog and search for books but you cannot check out items into your shopping cart. If you want to use the checkout feature, configure the sample application with one of the other database types.

Sybase Database

For Sybase, make sure you enable row level locking before using the sample application. This avoids application deadlocking. Refer to your Sybase documentation for details about how to enable row level locking.

Sybase clients require a threaded TLI driver. Edit the DRIVERS section of the Sybase configuration file `$SYBASE/config/libtcl.cfg` with the following information:

```
[DRIVERS]

;libtli.so=tcp unused ; This is the non-threaded tli driver.

libtli_r.so=tcp unused ; This is the threaded tli driver.
```

Make sure you restart Sybase after you make these edits to the configuration file.

Updating the Sample Application

If you change any of the source files of the Online Bookstore application after installing and configuring it, you must invoke the `defaults.mak` file, located in *nas install directory*/`APPS/GXApp/nsOnlineBookstore/src`, to rebuild the sample application.

To invoke the makefile, which includes `defaults.mak`, type the following command at the prompt:

```
make -f makefile
```

If you want to update source files in a particular directory, run the makefile located in that directory.

Creating a Group and a User

The sample application has two primary features: the ability to purchase books from the bookstore and the ability to manage the bookstore from the manager's office. To manage the bookstore, you must create a user with special privileges.

Because the sample application takes advantage of LDAP integration, any user you create is verified by the Directory Server configured with NAS. Therefore you must create this user on Directory Server.

1. Start the Netscape Console.
2. Enter the Console Administrator user ID and password.
3. Click the "Users and Groups" tab.
4. Choose New User in the drop-down list on the lower right portion of the panel and click Create.
5. In the "Select Organizational Unit" dialog, select People and click OK.
6. Enter the name, user ID, and password for the user you want to create and click OK.
7. Click the "Users and Groups" tab.
8. Choose New Group in the drop-down list on the lower right portion of the panel and click Create.
9. In the "Select Organizational Unit" dialog, select Groups and click OK.
10. Under Create Group, enter the name of the Group you want to create, for example: BookAdmin. If the group already exists, go to Step 11.
11. Click the Members tab and then click Add.
12. Click Users and then click Search.
13. Choose the name of the user you created in Step 6 and click OK.
14. If you created a new group in Step 10, do the following:
 1. Open the file *nas install directory/APPS/GXApp/ldap/ldapInfo.properties*
 2. Add the following line in the file: *ADMIN_GROUP_DN = cn=name of group created in Step 10, ou=Group, o=mcom.com*
 3. Save the file.

The user you created is stored on the Directory Server with which this NAS installation is configured. Whenever you administer the application, this user is verified by the Directory Server.

Online Bank Sample Application

This section explains how to configure the NAS 4.0 version of the Online Bank sample application. For information about migrating from the NAS 2.1 Java-based version of this application, see the *Migration Guide*.

Configuring the Databases

From the `nas install directory/APPS/nsOnlineBank/database` directory, run the shell script for the database you want to configure using the following syntax:

```
[Database shell script file name] [DataSource] [Database] [DB User]
[DB Password]
```

The database shell script files are:

- `setup_ora.sh`
- `setup_syb.sh`
- `setup_db2.sh`

These files configure the databases, update registry settings, and populate the database tables.

You must also run the following scripts for each database type:

- `Log_ora.sql`
- `Log_syb.sql`
- `Log_db2.sql`

Sybase Database

For Sybase, make sure you enable row level locking before using the sample application. This avoids application deadlocking. Refer to your Sybase documentation for details about how to enable row level locking.

Sybase clients require a threaded TLI driver. Edit the DRIVERS section of the Sybase configuration file `$SYBASE/config/libtcl.cfg` with the following information:

```
[DRIVERS]

;libtli.so=tcp unused ; This is the non-threaded tli driver.
libtli_r.so=tcp unused ; This is the threaded tli driver.
```

Make sure you restart Sybase after you make these edits to the configuration file.

Updating the Sample Application

If you change any of the source files of the Online Bank application after installing and configuring it, you must invoke the `defaults.mak` file, located in *nas install directory*/APPS/GXApp/nsOnlineBank/src, to rebuild the sample application.

To invoke the makefile, which includes `defaults.mak`, type the following command at the prompt:

```
make -f makefile
```

If you want to update source files in a particular directory, run the makefile located in that directory.

Running a Sample Application

To run the sample applications on a NAS installation that includes the Web Connector plug-in, run the `sample.sh` script. Then click the link for the sample application.

To run the sample applications on a NAS installation that does not include the Web Connector plug-in, do the following:

1. Start running NAS.

Verify that an active KXS process and KJS process is running.

2. Open Netscape Navigator, enter the following URL, and press Enter:

```
http://yourwebserver:portnumber/GXApp/index.html
```

3. Click the link for one of the following sample applications:
 - C++ Fortune & Lottery
 - C++ Online Bank
 - Java Fortune
 - Java Online Bookstore
 - Java Online Bank (2.1)
 - Java Online Bank (4.0)
4. If you are running the Online Bookstore application:
 - Click the Bookstore image on the left portion of the page to enter the book store area of the application.
 - Click the Book Administrator image on the right portion of the page to enter administration area of the application.

Post-Installation and Troubleshooting Notes

After you install Netscape Application Server, consider the following issues.

- The Netscape 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 Netscape Application Server user is installed as the root user, a file permission problem will exist. The web server won't start because it won't have access to the registry file `reg.dat`.
- If Netscape Enterprise Server 3.6 has been installed as root, the user must have root access to start it.
- After installing Netscape Application Server, make sure that the NAS `gxl`ib directory (`nas install directory/nas/gxl`ib) and the registry directory (`nas install directory/nas/registry`) are accessible by the web server owner and user.
- Check for required Solaris patches. See the readme file for information about how to determine what patches you need.
- Ensure that "CGI file type" is enabled on your web server. For Netscape Enterprise Server, go to the Server Administrator page, and under the Programs folder, click Yes for CGI file type.

- When running applications, if the NAS 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), NAS hands the request 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.

Setting Environment Variables for Databases

Although system environment variables for databases are set during installation, verify that they have not changed.

To verify, type `env` at the prompt. Review the list of environment variables. If a any variable in the system environment is not set according to the guidelines provided here, change it to the proper setting.

For **Sybase**:

- For Bourne Shell:
`DSQUERY=sybase servername; export DSQUERY`
- For C Shell:
`setenv DSQUERY sybase servername`

Replace `sybase servername` with the name of the Sybase server.

For **Oracle**:

- For Bourne Shell:
`ORACLE_SID=oracle SID export ORACLE_SID`
`ORACLE_HOME=oracle install directory; export ORACLE_HOME`
- For C Shell
`setenv ORACLE_SID oracle SID`
`setenv ORACLE_HOME oracle install directory`

Replace `oracle SID` with the server identifier of the Oracle server.

For **DB2**:

- For Bourne Shell:

```
DB2INSTANCE= db2instance; export DB2INSTANCE
```

- For C Shell

```
setenv DB2INSTANCE db2instance
```

Replace *db2instance* with the instance name of the DB2 server.

For **INFORMIX**:

- For Bourne Shell:

```
INFORMIXSERVER=informixserver; export INFORMIXSERVER
```

- For C Shell

```
setenv INFORMIXSERVER informixserver
```

Replace *informixserver* with the Informix server identifier.

Sybase Client Configuration

Sybase clients require a threaded TLI driver. Edit the DRIVERS section of the Sybase configuration file `$SYBASE/config/libtcl.cfg` with the following information:

```
[DRIVERS]
;libtli.so=tcp unused ; This is the non-threaded tli driver.
libtli_r.so=tcp unused ; This is the threaded tli driver.
```

Make sure you restart Sybase after you make these edits to the configuration file.

Establishing Database Connections After Installation

If you did not specify a home and library for a particular database client during installation, and want your applications to establish connections with that database, you must set environment variables in the script of the engine (KJS, KCS, KXS) that will connect to the database.

If you wish to establish connections to a database from your Java-based applications that use DAE2 or DAE, you must set environment variables in the KJS engine script. This script is located in *nas install directory/bin/kjs*. When you open the file, you'll see the environment variables for all the databases listed together. Set the home and library variables to the full directory path of the home and library directories for the database client. For example, if you wish to make a connection to an Oracle database, set the ORACLE_HOME and ORCLLIB variables to the full directory path of the home and library directories of your Oracle database.

For DAE connections from the KCS and KXS engines, set the environment variables for the desired database or databases in these scripts:

```
nas install directory/bin/kcs
nas install directory/bin/kxs
```

Setting OS Stream Buffer Size

You may need to adjust the size of the operating system stream buffer to maintain optimum Netscape Application Server performance.

Add the following line to the file */etc/system*:

```
set strmsgsz=0
```

Installing the Web Connector Plug-in

The Web Connector plug-in passes requests from your web server to applications on Netscape Application Server (NAS).

See “Checking Hardware and Software Requirements” on page 74 for information about supported web server versions.

If you install NAS on a different machine than where the web server resides, you are configuring what is referred to as a “webless installation” of NAS. If this is the case, you must install the NAS Web Connector plug-in on the web server machine.

Before you install the Web Connector plug-in, do the following:

- Check whether or not the NAS 4.0 Web Connector plug-in has already been installed. If it has, the web server instance is already configured for your Netscape Application Server and you do not need to re-install the plug-in.
- Stop running your web server instance.
- Log on as the root user, or as a user from the same group as the root user, who installed Netscape Application Server before installing the Web Connector plug-in

Use the following procedure to install the Netscape Application Server Web Connector plug-in on a machine running Unix. This procedure assumes that you have already installed NAS and Directory Server.

Note: If your web server resides on a Windows NT machine, see Chapter 1, “Installing Netscape Application Server on Windows NT,” for information on how to install the Netscape Application Server Web Connector plug-in on an NT machine.

To install the Web Connector plug-in

1. After you finish installing Netscape Application Server as a webless installation, take the installation CD-ROM to the machine or machines that host the web server.
2. Mount the CD-ROM on, for example, `/cdrom/cdrom0`.
3. At the shell prompt, run the following command:

`/cdrom/cdrom0/solaris/setup`
4. Follow the instructions of the installation program.
5. When prompted, press Enter or specify 1 to select “Netscape Servers” as an installation.
6. Specify 2 to select an installation type of Typical.
7. Specify a target installation directory. Do not include spaces in the path name.
8. When prompted for the components you want to install, specify 4 to select a NAS-only installation.

9. When prompted to install the Netscape Application Server components, specify 1 to select the NAS Web Connector Component.
10. Specify the domain name of your machine. Press Enter to accept the default value provided here by the installation program.
11. Specify the Unix user and group name under which your Netscape Application Server and Directory Server installations will run.

You should have already set up this user and group prior to running the installation program. Specify a user that has no privileges elsewhere on the system, so as to avoid access to restricted servers, such as the configuration Directory Server, from NAS.

12. Enter the URL of the configuration Directory Server that your NAS installation was configured with. This is the same URL you entered in Step 15 on page 91 of “Installing Netscape Application Server.”
13. Enter the name of the Administration Domain where Netscape software information is stored on Directory Server. You must enter the same name you entered in Step 23 on page 92 of “Installing Netscape Application Server.”
14. Enter the administrator ID and password for the configuration Directory Server. You must enter the same ID and password you entered in Step 20 on page 92 of “Installing Netscape Application Server.”

Important: This is the Administrator ID and password required to uninstall the Web Connector plug-in. Make a note of this information, as you will need it if you uninstall the Web Connector plug-in.

15. Enter the host name of the current machine on which you are installing the Web Connector plug-in.
16. Provide the following information about the Directory Server you configured NAS with (you must enter the same information you entered in Step 27 on page 92):
 - Server identifier
 - Host name
 - Port number
 - Username

- User password
17. Enter the path of the web server instance, or enter 'cgi,' if you are using CGI.
 18. Enter the IP address of the machine where NAS is installed.
 19. Enter the port number for the web server to Executive Server (KXS) communication, specified earlier (Step 30 on page 93) when you installed NAS without the Web Connector plug-in.

Manually Configuring a Web Server

When you install Netscape Application Server, your web server is automatically configured for the Web Connector plug-in, meaning that all the necessary directories and settings on the web server are updated. However, there may be occasions, when, after you've installed the Web Connector plug-in, you must manually reconfigure the web server. This procedure is recommended only if you are having problems with the connection between Netscape Application Server and your web server.

The following steps explain how to manually configure a web server to use the Web Connector plug-in, whether your web server resides on the same or a different machine than where the Netscape Application Server is installed.

If you perform only Step 1 (enabling CGI) of this procedure, the Web Connector will run as a CGI script. If you perform the entire procedure, the Web Connector will run as a plug-in, which is more efficient since the plug-in is faster than a CGI script.

Note that all CGI environment variables are automatically sent to Netscape Application Server AppLogics, servlets, and EJBs, so you do not have to modify the registry on the web server machine. However, if any special HTTP/CGI variables need to be retrieved by the Web Connector plug-in and sent to the AppLogic, then you must add them to the registry.

For Netscape Enterprise Server 3.6, if the Web Administrator server is installed by the root user, you must log on as root, or as a user from the same group as the root user, to bring up the web server

Note: If your web server is installed on a Windows NT machine, see Chapter 1, “Installing Netscape Application Server on Windows NT,” for information about how to manually configure a web server on an NT machine.

To reconfigure the Netscape web server

1. Enable CGI, if it is not already enabled:
 1. Go to the Netscape program group and click Administer Netscape Servers.
 2. Enter the administrator ID and password, and click OK.
 3. On the Netscape Server Selector screen, click on the web server instance you want to configure.
 4. On the main menu bar across the top of the page, click Programs.
 5. On the CGI directory screen under URL prefix, type cgi-bin.
 6. Under the CGI directory, enter the cgi-bin path.

Now, you are ready to configure the Web Connector plug-in.

2. Make a copy of the `obj.conf` file before modifying it and place the copy in the following directory:

```
netscape home dir/https-machinename/conf_bk
```

3. Open the `obj.conf` file in the web server configuration directory to begin editing.

For example:

```
Netscape home dir/https-machinename/config
```

4. At the end of the `Init` section of the `obj.conf` file, add the following as two separate lines:

```
Init fn="load-modules" funcs=  
"nas_name_trans,gxrequest,gxlog,gxinit,gxredirect,gxhtmlrequest"  
shlib="NAS root/gxlib/libgxnsapi30.so"  
  
Init fn="gxinit"
```

5. In the Object `name=default` section, just before the line `NameTrans fn=document-root root="drive_letter:/netscape home directory/SuiteSpot/docs"`, add the following as two separate lines:

```
NameTrans fn="pfx2dir" from="/cgi-bin" dir="drive_letter:/netscape
home directory/SuiteSpot/docs/cgi-bin" name="cgi"
```

```
NameTrans from="/" fn="nas_name_trans"
```

6. In the Object `name=default` section, just after the line `ObjectType fn=force-type type=text/plain`, also add the following line:

```
Service fn="gxredirect" fnname="imagemap" method="(GET|HEAD)" type=
"magnus-internal/imagemap"
```

7. In the Objectname=`cgi` section(s), insert the following line immediately before the line `Service fn="send-cgi"`:

```
Service fn="gxrequest"
```

And then insert the following line immediately after the line `Service fn="send-cgi"`:

```
AddLog fn="gxlog"
```

8. After the Objectname=`cgi` section(s), add the following sections:

```
<Object name="nassspl">
ObjectType fn="force-type" type="magnus-internal/cgi"
Service fn="gxrequest"
AddLog fn="gxlog"
</Object>
```

```
<Object name="nashtml">
Service fn="gxhtmlrequest"
AddLog fn="flex-log" name="access"
</Object>
```

9. Make a copy of the current version of the file `obj.conf` and copy it to the back up version (so that the backup is consistent with the current version) in the following directory:

```
netscape home dir/https-machinename/conf_bk
```

10. Modify the web server's start and stop scripts as follows:

In the start script:

- Set GX_ROOTDIR to the directory in which Netscape Application Server is installed. For example:

```
GX_ROOTDIR=nas install directory; export GX_ROOTDIR
```

- Set LD_LIBRARY_PATH to gllib under the Netscape Application Server installation directory. For example:

```
LD_LIBRARY_PATH=nas install directory/gllib:$LD_LIBRARY_PATH;  
export LD_LIBRARY_PATH
```

11. Restart the web server.

Installing Netscape Application Server Administrator

You may choose to install the Netscape Application Server Administrator as a standalone installation on another machine. You can then administer all or some of your Netscape Application Servers from this other machine, using the Administrator tool.

This section explains how to install Netscape Application Server Administrator.

To install Netscape Application Server Administrator

1. After you finish installing Netscape Application Server, insert the installation CD-ROM into the CD-ROM drive of the machine where you want to install Netscape Application Server Administrator.
2. Mount the CD-ROM on, for example, /cdrom/cdrom0.
3. At the shell prompt, run the following command:

```
/cdrom/cdrom0/solaris/setup
```
4. Follow the instructions of the installation program.
5. When prompted, enter 1 to specify "Netscape Servers."
6. Specify 2 to select an installation type of Typical.

7. Enter a target installation directory. Do not include spaces in the path name.
8. When prompted for the components you want to install, specify 4 to select a NAS-only installation.
9. When prompted to install the Netscape Application Server components, specify 3 to select the NAS Administrator Component.
10. Enter the domain name of your machine. Press Enter to accept the default value provided here by the installation program.
11. Enter the Unix user and group name under which your Netscape Application Server and Directory Server installations will run.

You should have already set up this user and group prior to running the installation program. Specify a user that has no privileges elsewhere on the system, so as to avoid access to restricted servers, such as the configuration Directory Server, from NAS.

12. Enter the host name of the current machine on which you are installing the Netscape Application Server Administrator.
13. When prompted for the Server Administrator user name and password, enter the user name and password to log on to the NAS Administrator tool.

You must specify one of the following:

- A user name and password combination that already exists on Directory Server
- A new user name and password combination, making sure that the user name is unique and does not already exist as part of a user name and password account on Directory Server.

Uninstalling Netscape Application Server

Note the following before uninstalling Netscape Application Server (NAS) or its related components:

- When uninstalling NAS, use the procedure described in this section. *Do not* uninstall NAS by deleting directories or modifying parameters in the registry.

- This procedure is for uninstalling NAS and its subcomponents only. If you installed Directory Server along with NAS, other servers may also have since been configured with that Directory Server. Uninstalling the Directory Server could cause problems for these other servers. Therefore, you should not uninstall Directory Server with NAS, unless you are absolutely certain that the only system configured with this installation of Directory Server is the NAS you are uninstalling.
- The following directories remain after you uninstall Netscape Application Server:
 - Netscape Application Server root directory
 - The `nas install directory/APPS` directory, which is moved by the uninstallation program to `NAS server root/nas_APPS/`.

After uninstalling NAS, decide if you want to remove these directories, particularly the APPS directory which may contain applications you've developed and files you wish to keep.

- Before running the Netscape Application Server uninstallation program, make sure that Directory Server is running. Do not uninstall Directory Server *before* you uninstall NAS.
- During the uninstallation process, you are prompted to provide a username and password with administrator access to the configuration Directory Server. If you do not want to use the user name and password you entered at the beginning of the installation process, enter another user name and password, *as long as it has administrator privileges on the configuration Directory Server*.
- The uninstall program overwrites the web server configuration file (`obj.conf`) with a version of the same file that existed *before* you installed Netscape Application Server and the Web Connector plug-in. Therefore, all changes you made to the web server's `obj.conf` file after installing Netscape Application Server and the Web Connector plug-in are lost.
- Some Netscape Application Server files may remain after running the uninstall program due to locks that the operating system or NFS might have. Remove such files manually.

To uninstall Netscape Application Server

1. From the Netscape installation directory (the default is `/usr/netscape/server4`), type `uninstall` and press Enter.
2. Follow the uninstall instructions.
3. Specify the components you want to uninstall.
4. Enter a user ID and password that has administrator privileges on the configuration Directory Server. If you do not want to use the user name and password you entered at the beginning of the installation process (Step 20, page 92) enter another user name and password, as long as it has administrator privileges on the configuration Directory Server.

Installation Planning Worksheets

The following worksheets will help you plan your Netscape Application Server installation. For each instance of Netscape Application Server that you intend to install, make a copy of the set of worksheets and fill them out with the pertinent data. The worksheets are divided into the following categories of information that the installation program requires:

- Table 2.1 Basic installation information
- Table 2.2 Directory Server installation information
- Table 2.3 Netscape Application Server installation information

Refer to these worksheets during installation.

Table 2.1 Basic installation information

No.	Data	Enter your value	Description
1	Machine IP address		The IP address of the machine on which you are installing Netscape Application Server (NAS)
2	Target installation / server root directory		<p>The name of the directory where you want this installation to store files.</p> <p>The default is: <code>/Netscape/Server4</code></p> <p>See “Basic Installation Issues” on page 75 for details.</p>
3	Netscape Server components	<input type="checkbox"/> Netscape Server Family Core Components <input type="checkbox"/> Netscape Directory Suite <input type="checkbox"/> Administration Services <input type="checkbox"/> Netscape Application Server	<p>The Netscape server software you are installing.</p> <p>The first three items—Netscape Server Family Core Components, Netscape Directory Suite, and Administration Services—install Directory Server. The last item installs Netscape Application Server.</p> <p>See Step 8 on page 89 for details.</p>

Table 2.1 Basic installation information

No.	Data	Enter your value	Description
4	Netscape Application Server components	<input type="checkbox"/> Web Connector plug-in component <input type="checkbox"/> Netscape Application Server, without the Web Connector plug-in and without Netscape Application Server Administrator <input type="checkbox"/> Netscape Application Server Administrator component <input type="checkbox"/> Deployment Manager component	<p>The Netscape Application Server component(s) you are installing.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 79 for details.</p>
5	Domain name for this machine		The domain name of the machine on which you are installing NAS
6	User and group name under which your NAS and Directory Server installations will run	User name: _____ Group name: _____	<p>The user and group name under which your NAS and Directory Server installations will run. These should already be set up prior to running the NAS installation.</p> <p>See Step 14 on page 91 for details.</p>

Table 2.2 Directory Server installation information

No.	Data	Enter your value	Description
1	Is Directory Server already installed at your site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Even if you decide to install Directory Server with this installation of NAS, another Directory Server may already be installed at your site.</p> <p>See "Directory Server Issues" on page 76 for details.</p>
2	Do you want to install Directory Server as part of this installation?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>You can elect to install or not install Directory Server with this installation.</p> <p>See "Directory Server Issues" on page 76 for details.</p>
3	Configuration Directory Server information	<p>Host Name: _____</p> <p>Non-SSL Port: _____</p> <p>Login ID (Bind As): _____</p> <p>Password: _____</p>	<p>The host name, non-SSL port number, login ID, password, and URL of the configuration Directory Server.</p> <p>If you are installing Directory Server as part of this NAS installation, you must designate this Directory Server as the configuration Directory Server.</p> <p>See "Directory Server Issues" on page 76 for details.</p>

Table 2.2 Directory Server installation information

No.	Data	Enter your value	Description
4	Configuration Directory Server Administrator ID and Password	Administrator ID: _____ Password: _____ 	This is the Administrator ID and password to uninstall NAS and Directory Server. See “Directory Server Issues” on page 76 and Step 20 on page 92 for details.
5	Storage Directory Server information	Host Name: _____ Login ID (Bind As): _____ Password: _____ Top-level domain name (Suffix): _____ 	See “Directory Server Issues” on page 76 for details.
6	Settings for the Directory Server you are installing with this installation of NAS.	Host Name (Server Identifier): _____ Port number: _____ Top-level domain name (Suffix): _____ 	See “Directory Server Issues” on page 76 for details.

Table 2.2 Directory Server installation information

No.	Data	Enter your value	Description
7	Administration Domain		<p>The name of the Administration Domain where Netscape software information is stored on Directory Server.</p> <p>See “Directory Server Issues” on page 76 for details.</p>
8	Directory Manager Distinguished Name and Password	Distinguished Name (DN): _____ Password: _____	<p>Default value for the distinguished name is <code>cn=Directory Manager</code>.</p> <p>See “Directory Server Issues” on page 76 for details.</p>
9	Directory Server Administration Server Port Number		<p>Required for using the Console to administer Directory Server.</p> <p>See “Basic Installation Issues” on page 75 and “Directory Server Issues” on page 76 for details.</p>
10	Administration Server User		<p>The user which the Administration Server will run as.</p> <p>See Step 25 on page 92 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
1	Machine host name		<p>The host name of the current machine on which you are installing NAS.</p> <p>See Step 26 on page 92.</p>
2	Global Configuration Name		<p>The unique global configuration name of the configuration settings for this installation of NAS.</p> <p>See “Directory Server Issues” on page 76 for details.</p>
3	Product key		<p>The product key for this installation of NAS.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 79 for details.</p>
4	Webless installation	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Decide if you are installing NAS on a machine where the web server is also installed or if NAS is on a separate machine (webless).</p>
5	Web server	<input type="checkbox"/> NES 3.6 <input type="checkbox"/> None (webless) <input type="checkbox"/> Other	<p>The kind of web server this installation of NAS will use.</p> <p>See “Web Server Configuration Issues” on page 80 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
6	Web server path and instance name		<p>The path for the web server and the web server instance name. If you are using CGI, enter "cgi."</p> <p>See "Web Server Configuration Issues" on page 80 for details.</p>
7	Number of Java Servers (KJS)		<p>The number of Java Servers to be used to process applications.</p> <p>See "Basic Netscape Application Server Configuration Issues" on page 79 for details.</p>
8	Number of C++ Servers (KCS)		<p>The number of C++ Servers to be used to process applications.</p> <p>See "Basic Netscape Application Server Configuration Issues" on page 79 for details.</p>
9	Administrative Server (KAS) port number		<p>The port number on this machine for your Administrative Server.</p> <p>See "Basic Netscape Application Server Configuration Issues" on page 79 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
10	Executive Server (KXS) port number		<p>The port number on this machine for your Executive Server.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 79 for details.</p>
11	Web server port number		<p>Specifies the CGI to KXS connection. Only required if using CGI.</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 79 for details.</p>
12	Java Server (KJS) port number(s)		<p>The port number(s) on this machine for your Java Server(s).</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 79 for details.</p>
13	C++ Server (KCS) port number(s)		<p>The port number(s) on this machine for your C++ Server(s)</p> <p>See “Basic Netscape Application Server Configuration Issues” on page 79 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
14	Administration Server user ID and password	User ID: _____ Password: _____	User ID and password to log on to the Administration Server via the Netscape Application Server Administrator tool. Account must already exist on Directory Server. See Step 33 on page 93 for details.
15	Database client directory, library, and priority	Oracle: Yes / No Home directory: Library: Priority: Informix: Yes / No Home directory: Library: Priority: Sybase: Yes / No Home directory: Library: Priority: IBM DB2: Yes / No Home directory: Library: Priority:	The databases this server will connect to, the home directory of each database, the library name, and the priority rating for attempting the connection. See "Database Configuration Issues" on page 82 and Step 34 on page 94 for details.

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
16	Mirror directory path		<p>The location of the transaction manager <code>restart.bak</code> file for each Java Server (KJS).</p> <p>See “Transaction Manager Issues” on page 83 for details.</p>
17	Log volume disk name	KJS1: _____ KJS2: _____ KJS3: _____ KJS4: _____	<p>The name of the disk where the transaction manager log file is stored for each Java Server (KJS).</p> <p>See “Transaction Manager Issues” on page 83 for details.</p>
18	Is the log volume disk a raw partition?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>It is strongly recommended that you create a raw partition <i>prior</i> to running the installation program, for dedicated storage of the transaction manager log file of each Java Server (KJS).</p> <p>See “Transaction Manager Issues” on page 83 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
19	If the log volume disk is a raw partition, number of pages and starting page number	Size (No. of pages): _____ Offset value (Starting page number): _____	During installation, you must specify the number of pages (total must be greater than 4 MB) and a starting page number for the log volume disk. See "Transaction Manager Issues" on page 83 for details.
20	Do you want to configure this installation of NAS with resource manager?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Resource manager lets you connect to a database back end for global transactions. See "Resource Manager Issues" on page 85 for details.
21	Number of resource managers		You can configure multiple resource managers, one for each database back end you want to connect to with a global transaction. See "Resource Manager Issues" on page 85 for details.

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
22	<p>For the first resource manager, provide the following details:</p> <ul style="list-style-type: none"> Resource Manager user-defined name Database type Open string Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type: <input type="checkbox"/> Oracle <input type="checkbox"/> Sybase <input type="checkbox"/> DB2</p> <p>Open string: _____ _____ _____ _____</p> <p>Enabled: <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 85 for details.</p>
23	<p>If you want to use a second resource manager, provide the following details:</p> <ul style="list-style-type: none"> Resource manager user-defined name Database type Open string format Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type: <input type="checkbox"/> Oracle <input type="checkbox"/> Sybase <input type="checkbox"/> DB2</p> <p>Open string: _____ _____ _____ _____</p> <p>Enabled: <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 85 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
24	<p>If you want to use a third resource manager, provide the following details:</p> <ul style="list-style-type: none"> Resource manager user-defined name Database type Open string format Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type:</p> <p><input type="checkbox"/> Oracle</p> <p><input type="checkbox"/> Sybase</p> <p><input type="checkbox"/> DB2</p> <p>Open string: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Enabled:</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 85 for details.</p>
25	<p>If you want to use a fourth resource manager, provide the following details:</p> <ul style="list-style-type: none"> Resource manager user-defined name Database type Open string format Is the resource manager enabled? 	<p>User-defined name: _____</p> <p>Database type:</p> <p><input type="checkbox"/> Oracle</p> <p><input type="checkbox"/> Sybase</p> <p><input type="checkbox"/> DB2</p> <p>Open string: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Enabled:</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>For each resource manager you configure, provide this set of information. Configure one resource manager per database back end that you want to connect to. This worksheet lets you write down information for up to four resource managers, but you are not limited to this number.</p> <p>See "Resource Manager Issues" on page 85 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
26	Will this installation of NAS participate in data synchronization?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Distributed data synchronization also referred to as clustering, maintains the integrity of multiple Netscape Application Servers.</p> <p>See "Clustering and Data Synchronization Issues" on page 86 for details.</p>
27	Cluster name (Applies only to data synchronization)		<p>The name of the cluster that this server will belong to.</p> <p>See "Clustering and Data Synchronization Issues" on page 86 for details.</p>
28	Sync Server Status (Applies only to data synchronization)	<input type="checkbox"/> Sync Server <input type="checkbox"/> Sync Local	<p>Is this installation a Sync Server (eligible to become a Sync Primary) or a Sync Local (not eligible to become a Sync Primary, Sync Backup, or Sync Alternate)?</p> <p>See "Clustering and Data Synchronization Issues" on page 86 for details.</p>

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
29	Number of Sync Servers (Applies only to data synchronization)		How many additional Sync Servers will exist in the cluster that this installation belongs to? See “Clustering and Data Synchronization Issues” on page 86 for details.
30	Sync Server machine addresses, port numbers, and priority (Applies only to data synchronization)	Address: Port number: Priority: Address: Port number: Priority: Address: Port number: Priority: Address: Port number: Priority:	What are the IP addresses of each Sync Server in the cluster, their corresponding port numbers, and their priority rating? See “Clustering and Data Synchronization Issues” on page 86 for details.
31	Number of Sync Backups		The number of Sync Backups in the cluster. See “Clustering and Data Synchronization Issues” on page 86 for details.

Table 2.3 Netscape Application Server installation information

No.	Data	Enter your value	Description
32	Run NAS automatically when you reboot machine	<input type="checkbox"/> Yes <input type="checkbox"/> No	Indicate if you want NAS to start up automatically whenever this machine reboots. See Step 47 on page page 96.

