



Men & Mice Suite 5.5

for Enterprise

Installation Guide

for Windows, Solaris, Linux, FreeBSD, and Mac OS X

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1 Introduction

Welcome to the Men & Mice Suite, a multi-user cross-platform DNS, DHCP, and IP address management system that allows you to manage servers on multiple platforms simultaneously.

The Men & Mice Suite consists of three types of components: Men & Mice Management Console and other user interfaces, Men & Mice Central, and Men & Mice DNS Server Controller. An overview of the relationships between the components and the services being controlled is shown in Figure 1.

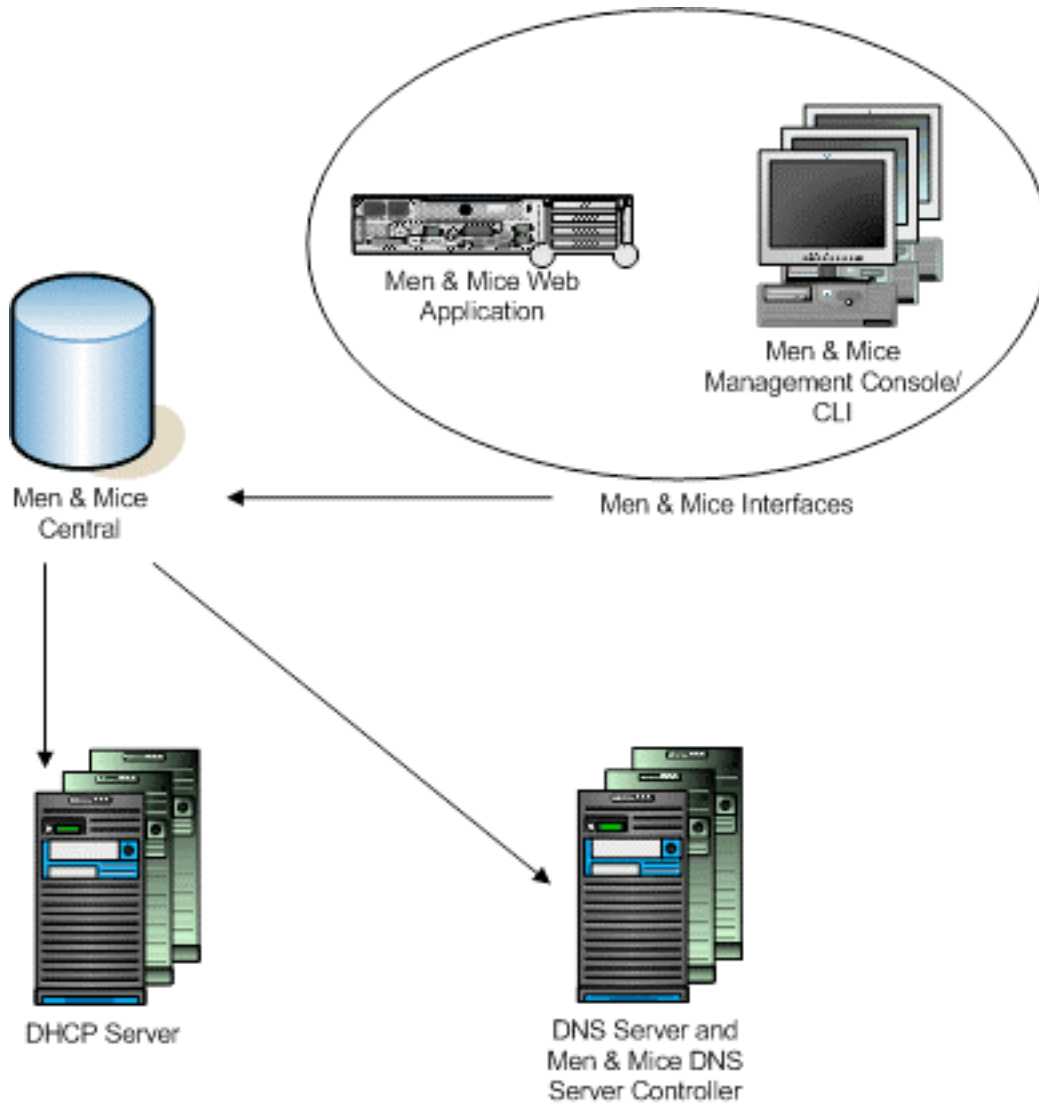


Figure 1

- There are three different user interfaces for the Men & Mice Suite. Multiple copies of each may be installed, and several copies can be logged in at once to manage your servers. Each interface connects to Men & Mice Central on TCP port 1231.
 - Men & Mice Management Console is the main user interface of Men & Mice Suite, and initial setup of the Suite (after software installation) must be performed with this interface. The Management Console can be installed on any machine on your network that meets the minimum system requirements.
 - Men & Mice Command Line Interface (CLI) has most of the editing features of the Management Console. It is ideal for scripting and batch jobs, as well as situations where a command line interface is required.
 - Men & Mice Web Interface provides a basic editing interface for DNS and DHCP data. It is written in AJAX and runs primarily in the browser, so the resource requirements for the web server are relatively modest. It is available for Microsoft IIS and Apache 2.
- Men & Mice Central provides central user authentication and data storage for Men & Mice Suite. It also acts as a gateway between the user interfaces and DNS and DHCP servers. For DHCP server management, it connects directly to the DHCP server using a Microsoft-supplied API. Central can be installed on any available server on your network - it does not need to be installed on a DNS or DHCP server. Only one instance of Central should be installed. Central connects to the DNS Server Controller on TCP port 1337, and listens for connections from user interfaces on TCP port 1231. Central can also use external data sources for some of its data, such as user authentication data.
- Men & Mice DNS Server Controller is the agent software that manages a DNS server on your behalf. A copy should be installed on each DNS server machine. The DNS Server Controller listens for connections from Men & Mice Central on port 1337/TCP.
- There is no agent software for DHCP servers. Instead, Men & Mice Central connects to each DHCP server over the network. In order to do so, Central must be installed on a Windows server and must run under an account that has privileges to manage the DHCP service over the network.

This guide contains instructions to install each of these components. Once installation is complete, you should read the Men & Mice Suite User's Guide, which is installed in PDF format with the Management Console. The first time Men & Mice Management Console connects to Men & Mice Central, a setup wizard will take you through the steps of entering licenses and configuring connections to DNS and DHCP servers.

2 Minimum System Requirements

2.1 Component/Operating System Matrix

	Windows	Solaris	Linux	FreeBSD	Mac OS X
Men & Mice Management Console	+	-	-	-	+
Men & Mice Command Line Interface	+	+	+	+	+
Men & Mice Web Interface	+	+	+	*	*
Men & Mice Central	+	+	+	+	+
Men & Mice DNS Server Controller	+	+	+	+	+
DHCP server management **	+	-	-	-	-

* Contact Men & Mice for a Web Interface for FreeBSD or Mac OS X.

** Requires Men & Mice Central for Windows.

2.2 System Requirements

Operating System	Windows 2000 or later ***
	Solaris 8 or later for UltraSparc
	Red Hat Linux 9.0 or later for x86
	Red Hat Enterprise Linux 3 or later for x86
	Fedora Core 3 or later for x86
	SuSE Linux 10.0 or later for x86
	FreeBSD 5.5 or 6.1 for x86
	Mac OS X 10.3 or later ****
DNS Server	Microsoft DNS
	BIND 8.3 or later *****
	BIND 9.2 or later *****
DHCP Server	Microsoft DHCP
Men & Mice Web Interface	Microsoft IIS
	Apache 2 web server *****

*** Men & Mice DNS Server Controller for Windows requires a Server edition of Windows with Microsoft DNS installed.

**** For all components other than the Management Console, the BSD Subsystem is required.

***** The BIND name server and Apache web server are supported on all platforms except Windows.

3 Installing the Men & Mice Management Console

Men & Mice Management Console is the primary user interface to manage your DNS and DHCP servers and IP address management data. It is available as an application for Windows and Mac OS X.

3.1 Windows Installation

3.1.1 Upgrading from a previous version

To upgrade from a previous version of Men & Mice Management Console you must first uninstall the old version. Use the Add/Remove Programs item in the Windows Control Panel. Note that you will need new license keys to use version 5.5 of the Men & Mice Suite.

3.1.2 Installing the Men & Mice Management Console

Download `Men_and_Mice_Management_Console_5.5.msi`, the Men & Mice Management Console installer, from the Men & Mice website. Double-click on it and follow the on-screen instructions to complete the installation.

3.2 Mac OS X Installation

3.2.1 Upgrading from a previous version

Multiple versions of Men & Mice Management Console can be installed simultaneously; if you no longer need an older version, simply drag it to the trash. Note that you will need new license keys to use version 5.5 of the Men & Mice Suite.

3.2.2 Installing the Men & Mice Management Console

Download `Men_and_Mice_Management_Console_5.5.dmg`, the Men & Mice Management Console disk image, from the Men & Mice website. Mount the disk image, and then drag-install the contents to your Applications folder. Note that you can option-drag the virtual disk itself (not the disk image file) to copy it and its contents as a folder.

4 Installing Men & Mice Central, Men & Mice DNS Server Controller, and Men & Mice CLI

4.1 Windows Installation

Full descriptions and system requirements for these components can be found in sections 1 and 2 above. Briefly:

- Install one copy of Men & Mice Central on some server. If you plan to use Men & Mice Suite to manage any Microsoft DHCP servers, install Central on a Windows machine that is a member of the same domain or workgroup as the DHCP servers.
- Install the Men & Mice DNS Server Controller on each DNS server.
- The Men & Mice CLI is a user interface for Men & Mice Suite; install it wherever it will be convenient.

Men & Mice Central and Men & Mice DNS Server Controller for Windows are distributed as separate installers. Men & Mice CLI is distributed as a binary executable, with documentation.

4.1.1 Upgrading from a previous version

To upgrade from a previous version, you must first uninstall the old versions of Men & Mice Central and Men & Mice DNS Server Controller. Uninstalling these components will not remove their data, nor will it interrupt the operation of the DNS service. These components can be uninstalled using the Add/Remove Programs item in the Windows Control Panel. Note that you will need new license keys to use version 5.5 of the Men & Mice Suite.

To upgrade Men & Mice CLI, simply copy the new version to wherever it will be convenient. Note that the filename of the binary has changed from previous versions.

4.1.1.1 New Data Storage Format

Men & Mice Central 5.5 uses a new data storage format. When upgrading Men & Mice Central from an older version, your data will be converted to the new format if it is in the standard location.

Some data cannot be converted. Specifically, the new access model means that the data tables for access rights in the new version are not analogous to the access rights tables in the old version. Documentation of how to set access rights roughly analogous to your old access rights is provided in a separate document.

4.1.2 Installing Men & Mice Central

Download the installer, `Men_and_Mice_Central_5.5.msi`, from the Men & Mice website. Launch the installer. Follow the on-screen instructions to complete installation.

4.1.3 Installing Men & Mice DNS Server Controller

Download the installer, `Men_and_Mice_DNS_Server_Controller_5.5.msi`, from the Men & Mice website. Launch the installer. Follow the on-screen instructions to complete installation.

4.1.3.1 Active Directory Integrated Zones and Other Dynamic Zones

In order to open a dynamic zone, Men & Mice Suite must read it from the DNS service rather than from a file. The way this is done is via zone transfer. On Windows Server 2003, the zone transfer restriction setting in the zone's options window must be set to allow transfers to an explicit list of IP addresses that includes the server's own address. The default setting of allowing zone transfers to any server listed in the zone's NS records will not suffice (though it does work on Windows 2000 Server).

In some cases, Men & Mice DNS Server Controller will also need to be told specifically which interface to use when requesting zone transfers. If you have trouble opening a dynamic zone after setting the zone's transfer restrictions appropriately, check the Event Log / Application Log for messages from Men & Mice DNS Server Controller. If there is a message indicating that it was unable to get a zone transfer because it was using the wrong interface, you can either add that IP address to the transfer restrictions list, or else edit a configuration file for Men & Mice DNS Server Controller.

To configure the DNS Server Controller to use a different address, edit the following file, where {Windows} is probably C:\Windows:

```
{Windows}\System32\dns\mmsuite\preferences.cfg
```

If the file does not exist, create it. The file is a text file in a simple XML-based format. Add the following element, replacing the dummy address here with the server's correct network address:

```
<DNSServerAddress value="192.0.2.1"/>
```

Save the file, and then restart Men & Mice DNS Server Controller using Administrative Tools > Services. Then also restart Men & Mice Central, so that it can cache the zone's contents.

Note that for Active Directory-integrated zones, other DC's running Microsoft DNS do not need to get zone transfers. This is because the zone data is replicated through LDAP, rather than through zone transfers. Thus, the zone transfer restriction list might need only the server's own address.

4.1.4 Installing Men & Mice CLI

Download the distribution archive, `mmsuite-cmd-5.5.windows.zip`, from the Men & Mice website. Extract the contents of the archive. The archive contains two versions of the documentation for Men & Mice CLI, in both PDF and TXT formats, as well as the program itself. Copy the file `mmcmd.exe` to somewhere convenient.

If upgrading from a previous version, note that the new version has a new filename. Update any scripts using the CLI to use the filename `mmcmd.exe` instead of the old `qdnscmd.exe`.

4.2 Unix Installation (Solaris, Linux, and FreeBSD)

Full descriptions and system requirements for these components can be found in sections 1 and 2 above. Briefly:

- Install one copy of Men & Mice Central on some server. If you plan to use Men & Mice Suite to manage any Microsoft DHCP servers, install Central on a Windows machine that is a member of the same domain or workgroup as the DHCP servers.
- Install the Men & Mice DNS Server Controller on each DNS server.

- The Men & Mice CLI is a user interface for Men & Mice Suite; install it wherever it will be convenient.

Men & Mice Central, Men & Mice DNS Server Controller, and Men & Mice CLI are distributed in one combined installer for each operating system. Men & Mice CLI is also distributed as a binary executable, with documentation.

4.2.1 Upgrading from a previous version

To upgrade from a previous version, simply run the installer as normal. Your data will usually be retained, but see the next paragraph. Note that you will need new license keys to use version 5.5 of the Men & Mice Suite.

4.2.1.1 New Data Storage Format

Men & Mice Central 5.5 uses a new data storage format. When upgrading Men & Mice Central from an older version, your data will be converted to the new format if the installer can find it. If you haven't moved the init script for the old version, it will read that to find your old data. Otherwise, if you tell the installer to put the new data close to the old data (in a directory next to the old data directory), it should be able to find your old data.

Some data cannot be converted. Specifically, the new access model means that the data tables for access rights in the new version are not analogous to the access rights tables in the old version. Documentation of how to set access rights roughly analogous to your old access rights is provided in a separate document.

4.2.2 Starting the Installation

Be sure to read the sections below for each desired component before starting the installation.

Download the installer archive, `mmsuite-5.5.*.tgz` (where * is the type of operating system), to the server. Become root - you must be the superuser to install the software. Unpack the archive using one of the two following commands (operating system-dependent):

```
tar xzf mmsuite-5.5.*.tgz
gzcat mmsuite-5.5.*.tgz | tar xf -
```

Then execute the following commands:

```
cd mmsuite-5.5
./install
```

Follow the on-screen instructions to complete installation.

4.2.3 Installing Men & Mice Central

The following questions affect installation of Men & Mice Central:

- Do you want to run Men & Mice Central within a `chroot()` environment?
 - What is the `chroot()` directory?
- Where do you want Men & Mice Central to keep its configuration files?
- Enter the user and group names under which you want to run the Men & Mice Suite daemons. This must be the user which is running `named`.

- Where do you want to install the Men & Mice Suite binaries?

4.2.3.1 Logging From Inside a chroot Jail

It is not necessary to install Men & Mice Central into the same chroot jail as the named process itself uses. However, if it is desired to do so, please read the section under Men & Mice DNS Server Controller of the same name for information about logging.

4.2.4 Installing Men & Mice DNS Server Controller

The installer needs to know several things about your system, and it will ask questions before doing anything. It is a good idea to gather the answers to these questions beforehand. Most of the answers can be found by examining the way named is launched – check the init script for named (e.g. `/etc/init.d/named`), any settings file (possibly `/etc/sysconfig/named`), or any other files involved in starting the service, or else look at the output of a command like one of these (operating system-dependent):

```
ps axww | grep named
ps -ef | grep named
```

Look for the following options:

```
-c      the location of named.conf (relative to any chroot jail)
-t      the location of the chroot jail
-u      the user account that runs named
```

Note that if the `-c` option is not present, the default is often, but not always, `/etc/named.conf` – on FreeBSD, the default is usually `/etc/namedb/named.conf`; the default can be set during compilation of BIND. If the `-t` option is present, give the installer the complete path to `named.conf`, including the chroot jail. If the value of the `-u` option is not defined in the settings file, it may have a default setting in the init script, such as `-u named`.

If your server does not have an init script or something analogous (e.g. an XML configuration file used by a service manager) for `named`, you will need to launch `named` manually after installation and at every system boot.

4.2.4.1 Required named.conf Statements

Men & Mice DNS Server Controller requires that `named.conf` (including any files listed in `include` statements in `named.conf`) have certain settings. The following are required:

`directory` The `directory` substatement of the `options` statement must be present and must point to a directory that the installer can replace. Specifically, it may not refer to `/`, `/etc`, the root of a chroot jail, or any partition mount point. If you need to change or add the `directory` statement, you may then have to move files around or change the paths used elsewhere in your `named.conf` (or its included files).

`key` For BIND 9, there must be a key defined, so that Men & Mice DNS Server Controller can control `named` using `rndc` commands. It is common for there to be a key in a default file such as `rndc.key`, which is almost always found in the same location as `named.conf`; however, Men & Mice DNS Server Controller requires that this key be defined explicitly in `named.conf`. If there is a file named `rndc.key`, its contents can simply be copied directly into `named.conf`.

To generate a key, the following command usually works, though you may have to specify a path to the command:

```
rndc-confgen > /etc/rndc.conf
```

This creates the file `rndc.conf` in `/etc` directory (which may or may not be where you want it). This file contains a complete `rndc` configuration for local use, as well as `key` and `controls` statements, in comments, that can be copied into `named.conf` (after removing the comment marks).

For BIND 8, a key is not required.

`controls` Men & Mice DNS Server Controller uses a `controls` statement for both BIND 8 and BIND 9. For BIND 9, there must be a `controls` statement with an `inet` substatement that references an explicitly defined key (see above); the `inet` statement must allow connections from the loopback address, `127.0.0.1`. If there is no `controls` statement defined for a BIND 9 installation, the installer will remind you to create one manually.

For BIND 8, if there is no `controls` statement already present, the installer will create one; if one is present, the installer will alter it by adding an additional `unix` control socket for use by Men & Mice Suite.

4.2.4.2 SELinux

Many newer Linux distributions come with SELinux (Security Enhanced Linux) enabled by default. Due to the lack of standards in SELinux configuration files, and the great variety of strategies for configuring SELinux between different distributions or even versions of the same distribution, we are unable to support SELinux configuration at this time. SELinux settings commonly interfere with the normal operation of `named` after its configuration has been rewritten by the installer for Men & Mice DNS Server Controller, so our recommendation is to disable SELinux. It is possible to make `named`, Men & Mice Suite, and SELinux all work together, but we cannot currently offer support for this.

4.2.4.3 The \$INCLUDE Directive

If any of your zone files include other files with the `$INCLUDE` directive, the DNS Server Controller installer will not notice. If the included files are located inside the data directory, as specified in the `directory` statement, you must manually copy them from the old data directory to the new one after installation. The old data directory is in the same place as before, but its name has had `".bak"` appended. For example, if your `directory` statement specifies `/var/named`, your old data directory will be `/var/named.bak`.

If any included file is specified with just its name, rather than some kind of path to a subdirectory, be sure to put it directly into your data directory. Do not put the included file into the same location as the zone files; included files are looked for (if no path is specified) in the root of the data directory, but the installer places master zone files into the `hosts/masters` subdirectory (or in other places if views are defined; see Chapter 6 for details).

Please also visit the Men & Mice Knowledge Base for more information about how `$INCLUDE` directives are handled in Men & Mice Suite. The Knowledge Base can be accessed from the Men & Mice website:

<http://www.menandmice.com/>

4.2.4.4 Installation with Dynamic Zones

Men & Mice Suite expects dynamic zones to be made dynamic by allowing signed updates. Any dynamic zone must have an `allow-update` statement whose ACL contains a key. If you do not otherwise have a need for signed updates, add the `rndc` key (or any other key) to the list.

Furthermore, after installation, be sure that your server allows zone transfers of dynamic zones to the loopback address, `127.0.0.1`, or users will be unable to open dynamic zones from this server. Zone transfer restrictions can be set or changed in the server's Options window and in each zone's Options window in Men & Mice Management Console.

4.2.4.5 Logging From Inside a chroot Jail

If installing into a chroot jail, if there is no `log` socket inside the jail's `dev` subdirectory, Men & Mice DNS Server Controller will be unable to send log messages to `syslogd`. There may not be a `log` socket set up by default since the BIND `g` name server actually connects to the external `log` socket (`/dev/log`) before locking itself into the chroot jail.

There are several different sets of software that offer a `syslogd` service. On many Linux distributions, the version that is installed supports the `-a` option to add more `log` sockets. In which case, it is recommended to add the following to the `syslogd` command line when using a chroot jail, replacing `/jail` with the actual path to the chroot jail used for the DNS service:

```
-a /jail/dev/log
```

On systems that use store settings for init scripts in `/etc/sysconfig`, the file `/etc/sysconfig/syslog` can be edited to add this option to the `syslogd` command line. It can even be made to depend on the location of the `named` chroot jail; for example, on recent versions of Red Hat Enterprise Linux, Fedora Core, or related distributions, the following can be added to the end of `/etc/sysconfig/syslog` (watch out for line wrapping – use at your own risk):

```
# add a log socket to the named jail, if needed
NAMED_ROOT=$(grep "^ROOTDIR=" /etc/sysconfig/named | sed 's/ROOTDIR=//')
if [ "x${NAMED_ROOT}" != "x" -a "x${NAMED_ROOT}" != "x/" ]; then
    SYSLOGD_OPTIONS="${SYSLOGD_OPTIONS} -a ${NAMED_ROOT}/dev/log"
fi
```

If your `syslogd` does not support additional sockets, or if you do not configure it to create a socket inside the chroot jail, Men & Mice DNS Server Controller will not be able to log anything. This can make troubleshooting more difficult.

4.2.4.6 Installation on Red Hat, Fedora, and related Linux Distributions

On several newer versions of these distributions, the init script may make the `named` data directory (e.g. `/var/named/chroot/var/named`, or similar location) owned by the root user instead of the user account that owns the `named` process (e.g. `named`); note, this does not affect the contents of the directory, just the directory itself. Without Men & Mice DNS Server Controller installed, this is intended to determine whether the `named` process is

allowed to write to its zone files – necessary if any dynamic zones are stored in the default location, or if any slave zones are not stored in a dedicated subdirectory. However, with Men & Mice DNS Server Controller installed, this causes `named` to not be able to write the log file that is displayed as the server's Log window in Men & Mice Management Console.

As with many problems in Linux and Unix operating systems, there are many ways to solve this. An easy solution is to disable this behavior by setting the following value in `/etc/sysconfig/named`:

```
ENABLE_ZONE_WRITE=1
```

4.2.4.7 Installation on SUSE Linux

The default file layout in recent versions of SUSE Linux (from approximately version 9.2 onward) uses a chroot jail that contains a number of symlinks. Furthermore, the `named` init script copies `/etc/named.conf` and several other files into the chroot jail, overwriting whatever is there. Unfortunately, this means that if Men & Mice DNS Server Controller is installed into this jail, when `named` is restarted (during the installation process), the version of `named.conf` inside the jail is overwritten and lost. But if Men & Mice DNS Server Controller is installed outside the jail, which is made possible by the symlinks inside the jail, then some of the jail's supporting subdirectories are lost (e.g. `dev` and `var/run`).

For this reason, installing Men & Mice DNS Server Controller on SUSE Linux is not entirely straightforward. The solutions available are:

- Disable the chroot jail by editing `/etc/sysconfig/named`. Then install Men & Mice DNS Server Controller outside the jail as normal. This leaves services running outside of a chroot jail, which is not as secure.
- Leave the jail enabled. Install Men & Mice DNS Server Controller outside the jail, and then fix the jail. Edit the `mmremote` init script (which starts and stops Men & Mice DNS Server Controller) to enable use of the jail. To fix the jail, use `ls -lR /var/lib/named` before installation to see what directories and such need to be present. This original jail directory is preserved as `/var/lib/named.bak`, so directories can be copied/moved from there into the new data directory. The init script to be modified is located at `/etc/init.d/mmremote`. This solution requires some expertise with chroot jails to execute, and details are left to the reader.
- Replace or alter the `named` init script (`/etc/init.d/named`), or edit `/etc/sysconfig/named` in some way to disable the init script's destructive behavior. Then install Men & Mice DNS Server Controller as normal. This solution is left as an exercise for the reader.

4.2.4.8 Installer Questions

The following questions affect installation of Men & Mice DNS Server Controller:

- Are you running `named` in a `chroot()` environment?
 - Do you want to run the Men & Mice DNS Server Controller within that `chroot()` environment?
 - What is the `chroot()` directory?
- Where is the BIND configuration file?

- The installer needs to rearrange the files in {data directory} and restart the name server. A backup will be created. Is this OK?
- Enter the user and group names under which you want to run the Men & Mice DNS Server Controller. This must be the user which is running named.
- Where do you want to install the Men & Mice Suite binaries?
- Where do you want to install the Men & Mice external static zone handling utilities?
- BIND needs to be restarted. Would you like to restart it now?

4.2.5 Installing Men & Mice CLI

If you use the combination installer to install the CLI, it will be placed into the location specified in answer to this question:

- Where do you want to install the Men & Mice Command Line Interface?

If you download the separate distribution archive, `mmsuite-cmd-5.5.*.tgz`, unpack it as with the combination installer. The archive contains two versions of the documentation for Men & Mice CLI, in both PDF and TXT formats, as well as the program itself. Copy the file `mmcmd` to somewhere convenient, such as `/usr/bin`.

If upgrading from a previous version, note that the new version has a new filename. Update any scripts using the CLI to use the filename `mmcmd` instead of the old `qdnscmd`.

4.3 Mac OS X Installation

Full descriptions and system requirements for these components can be found above. Briefly:

- Install one copy of Men & Mice Central on some server. If you plan to use Men & Mice Suite to manage any Microsoft DHCP servers, install Central on a Windows machine that is a member of the same domain or workgroup as the DHCP servers.
- Install the Men & Mice DNS Server Controller on each DNS server.
- The Men & Mice CLI is a user interface for Men & Mice Suite; install it wherever it will be convenient.

Men & Mice Central and Men & Mice DNS Server Controller for Mac OS X are distributed as separate installers, but on the same disk image. Men & Mice CLI is distributed in a separate disk image.

4.3.1 Upgrading from a previous version

To upgrade from a previous Mac OS X version, simply install the new version over the old. Your data will be retained. There is no need to uninstall the old version or perform any kind of clean installation. Note that you will need new license keys to use version 5.5 of the Men & Mice Suite.

To upgrade from a version of QuickDNS for classic Mac OS, please see the Men & Mice Knowledge Base, which can be accessed from the Men & Mice website. Your data will need to be converted from the old format and imported into the new version.

<http://www.menandmice.com/>

4.3.1.1 New Data Storage Format

Men & Mice Central 5.5 uses a new data storage format. When upgrading Men & Mice Central from an older version, your data will be converted to the new format.

Some data cannot be converted. Specifically, the new access model means that the data tables for access rights in the new version are not analogous to the access rights tables in the old version. Documentation of how to set access rights roughly analogous to your old access rights is provided in a separate document.

4.3.2 Installing Men & Mice Central

To install this component:

- Download the installer disk image, `Men_and_Mice_Suite_5.5_Installers.dmg`, from the Men & Mice website.
- Mount the disk image.
- Launch the Men & Mice Central installer.
- Follow the on-screen instructions to complete installation.

4.3.3 Installing Men & Mice DNS Server Controller

Before installing, make sure your configuration is valid. After installing Men & Mice DNS Server Controller, subsequent updates from Apple will sometimes corrupt the configuration. This has happened with the 10.2, 10.3, and 10.4 paid upgrades. It has not (so far) happened with any free updates. If you are unsure, execute this command in a Terminal window (`/Applications/Utilities/Terminal.app`):

```
named-checkconf
```

If there is no output from this command, then there are no errors. Note that on a fresh install of Mac OS X 10.4.x, where DNS has never been configured, this utility may give an error about a missing file named `rndc.key`. The Men & Mice DNS Server Controller installer handles this case.

If other problems are found, they must be fixed before installing Men & Mice DNS Server Controller. Instructions can be found in the Men & Mice Knowledge Base, which can be accessed from the Men & Mice website:

```
http://www.menandmice.com/
```

To install this component:

- Download the installer disk image, `Men_and_Mice_Suite_5.5_Installers.dmg`, from the Men & Mice website.
- Mount the disk image.
- Launch the Men & Mice DNS Server Controller installer.
- Follow the on-screen instructions to complete installation.

4.3.4 Installing Men & Mice CLI

To install this component:

- Download the disk image, `Men_and_Mice_Command_Line_5.5.dmg`, from the Men & Mice website.
- Mount the disk image.
- Launch the Men & Mice Command Line installer.
- Follow the on-screen instructions to complete installation.

5 Installing Men & Mice Web Interface

The Men & Mice Web Interface is a web-based user interface for Men & Mice Suite. It is written in AJAX, which loads and runs in the browser, so there is very little load on the web server. However, the web server does need to be given the ability to pass communication between the Web Interface and Men & Mice Central.

Once installed, the Men & Mice Web Interface is accessible with most web browsers. Simply point your browser to the following URL, replacing your-server with the actual name or IP address of the web server where the Web Interface is installed.

```
http://your-server/MenAndMice
```

If you wish to use SSL to encrypt the traffic between web browser and the Men & Mice Web Interface, you can install an SSL certificate in your web server, and then configure the web server to require its use to access the MenAndMice web application. Details are left as an exercise for the reader.

5.1 Windows Installation

The Men & Mice Web Interface for Windows Server requires Microsoft's IIS web server software. No optional components of IIS are required.

5.1.1 Upgrading from a previous version

To upgrade from a previous version, you must first uninstall the old version of the Men & Mice Web Interface using the Add/Remove Programs item in the Windows Control Panel.

5.1.2 Installing the Web Interface

Download the Men & Mice Web Interface installer, `Men_and_Mice_Web_Interface_5.5.msi`, from the Men & Mice website. Launch the installer and follow the on-screen instructions to complete installation.

The installer will install and configure a small web server module to communicate with Men & Mice Central, as well as the files needed by web browsers to run the Web Interface.

5.2 Unix Installation

The Men & Mice Web Interface for Linux and Solaris requires the Apache 2 web server software.

5.2.1 Upgrading from a previous version

It is recommended that any previous installation of the Web Interface be removed prior to installation of the new version.

- If the previous version is a stand-alone installation (i.e. Tomcat and Java are bundled with it), simply remove the entire directory, plus the init script and any symlinks pointing to it.
- If the previous version depends on an external Tomcat installation, remove the Web Interface directory (usually `qdns`) from Tomcat's `webapps` directory. You may also need to adjust Tomcat's configuration files, if these were edited during installation of

the Web Interface. If you have no other use for Tomcat, it can be removed, since the new Web Interface is not a JSP application.

5.2.2 Installing the Web Interface

The Men & Mice Web Interface for Apache consists of an Apache module, a separate daemon, and some static files to serve up to web browsers.

The installer needs to know several things about your system, and it will ask questions before doing anything. It is a good idea to gather the answers to these questions beforehand. Most of the answers can be found by examining your Apache configuration file (usually `httpd.conf`). The installer will examine `httpd.conf` itself to try to suggest the right answers.

- Locate `httpd.conf`. For example, it might be `/usr/local/apache2/conf/httpd.conf`, or it might be `/etc/httpd/conf/httpd.conf`. The installer will look in `httpd.conf` to find the definitions of the `ServerRoot` and `DocumentRoot` values, to try to guess proper paths for subsequent questions. However, you should not rely on these guesses. Instead, look through `httpd.conf` to try to find the following:
- Look for an `Include` statement with a wildcard. It might refer to a subdirectory of the `ServerRoot` directory. You want to find a directory of files whose names end in `.conf` that will be included into `httpd.conf`. If you don't find one, be aware that you will need to add an `Include` statement to `httpd.conf` that will load in the Men & Mice Web Interface configuration file.
- Look for any `LoadModule` statements. Each such statement ends with a path, which might be relative to the `ServerRoot` directory. When asked where to put the Men & Mice Web Interface module for Apache, you'll probably want to supply the path to the same directory that contains your other modules. The installer will suggest a directory named `modules` under the `ServerRoot` directory.

5.2.2.1 Installer Questions

- Where is the Apache 2 server configuration file?
- Where would you like to install the configuration file for the Men & Mice Web Interface?
- Where would you like to install the Apache module?
- Where would you like to install the Men & Mice Web Interface?
- Men & Mice Web Interface uses a daemon to communicate with Men & Mice Central. Where would you like to install the daemon binary?
- Would you like to run the daemon as some user other than "root:root"?

5.2.2.2 Installation

Once httpd is installed, download the installer archive, `mmsuite-web-5.5.*.tgz` (where * is the type - you must be the superuser to install the software of operating system), to the server. Become root. Unpack the archive using one of the two following commands (operating system-dependent):

```
tar xzf mmsuite-web-5.5.*.tgz
gzcat mmsuite-web-5.5.*.tgz | tar xf -
```

Then execute the following commands:

```
cd mmsuite-web-5.5
./install
```

Follow the on-screen instructions to complete installation.

6 Unix Installation, More Information

This section contains some background information regarding what the Unix installers (Solaris, Linux, and FreeBSD) for Men & Mice Central and Men & Mice DNS Server Controller and for Men & Mice Web Interface do to the system, and how to remove the software and revert to your original configuration.

6.1 Men & Mice DNS Server Controller Installation

Installing Men & Mice DNS Server Controller rearranges your `named` configuration data, including rewriting `named.conf` and rearranging the data directory. The new configuration is functionally equivalent to the old, except the `logging` statement is either added or changed to add some new channels, and for BIND 8, a new `unix` control socket is defined.

6.1.1 Common Files

The file layout is a little different with or without BIND views. Here are the parts in common:

Description	File(s) or directory
Men & Mice DNS Server Controller daemon	<code>mmremoted</code> , usually in <code>/usr/sbin</code> or <code>/usr/local/sbin</code>
Men & Mice external static zone handling utilities	<code>mmedit</code> and <code>mmlock</code> , usually in <code>/usr/bin</code> or <code>/usr/local/bin</code>
Data directory for Men & Mice DNS Server Controller	Usually <code>/var/named</code> , <code>/etc/namedb</code> , <code>/var/lib/named</code> , or something within a chroot jail; the same location as before the DNS Server Controller was installed
Backup of original data directory	Same as above, with <code>".bak"</code> appended to the path
New starting configuration file	Usually either <code>/etc/named.conf</code> or <code>/etc/namedb/named.conf</code> ; possibly located within a chroot jail
Backup of original starting configuration file	Same as above, with <code>".bak"</code> appended to the path
logging statement from <code>named.conf</code>	<code>conf/logging</code> , relative to the data directory
key and acl statements from <code>named.conf</code>	<code>conf/user_before</code> , relative to the data directory
options statement from <code>named.conf</code>	<code>conf/options</code> , relative to the data directory
controls, server, and trusted-keys statements from <code>named.conf</code> ; also, if present and if not using views, the root hints zone statement	<code>conf/user_after</code> , relative to the data directory
Preferences file	<code>mmsuite/preferences.cfg</code> , located in the data directory
init script, the shell script that can be used to control the service; used by init during system startup	Solaris: <code>/etc/init.d/mmremote</code> Linux: <code>/etc/init.d/mmremote</code> FreeBSD: <code>/usr/local/etc/rc.d/mmremote</code>

6.1.2 Without Views (including BIND 8)

If views are not defined, the following files are created inside the data directory:

Description	File(s) or directory
List of include statements, one for each zone statement file	conf/zones
Directory of zone statement files	conf/zoneopt
A sample zone statement file, for the zone "localhost."	conf/zoneopt/localhost.opt
Directory of primary master zone files	hosts/masters
Directory of slave zone files	hosts/slaves
A sample zone file, for the primary master zone "localhost."	hosts/masters/localhost-hosts

6.1.3 With Views (BIND 9 only)

If views are defined, the following files are created inside the data directory:

Description	File(s) or directory
View statements, not including zone statements within each view	conf/zones
List of include statements for a particular view, one for each zone statement file	conf/zones_viewname
Directory of zone statement files for a particular view	conf/zo_viewname
A sample zone statement file, for the zone "localhost." in the view "internal"	conf/zo_internal/localhost.opt
Directory of primary master zone files for a particular view	hosts/view_viewname/masters
Directory of slave zone files for a particular view	hosts/view_viewname/slaves
A sample zone file, for the primary master zone "localhost." in the view "internal"	hosts/view_internal/masters/localhost-hosts

6.1.4 Removing the DNS Server Controller and Reverting to Original Data

To remove the DNS Server Controller, first use the init script to stop the service (give it the "stop" argument). Then simply delete the daemon and the init script, and remove any references to the init script in the rest of the boot system if necessary. To revert to your original data, stop named with its init script. Then delete the initial configuration file and the data directory and rename the originals, removing the ".bak" from their names.

6.2 Men & Mice Central

Installing Men & Mice Central puts the following files on your system:

Description	File(s) or directory
Men & Mice Central daemon	mmcentrald, usually in <code>/usr/sbin</code> or <code>/usr/local/sbin</code>
Data directory for Men & Mice Central	Usually <code>/var/mmsuite/mmcentral</code> , possibly within a chroot jail
Preferences file	preferences.cfg, located in the data directory
init script, the shell script that can be used to control the service; used by init during system startup	Solaris: <code>/etc/init.d/mmcentral</code>
	Linux: <code>/etc/init.d/mmcentral</code>
	FreeBSD: <code>/usr/local/etc/rc.d/mmcentral</code>

To remove Men & Mice Central, first use the init script to stop the service (give it the "stop" argument). Then simply delete the daemon and the init script, and remove any references to the init script in the rest of the boot system if necessary. Also delete the data directory if desired.

6.3 Men & Mice Web Interface

Installing Men & Mice Web Interface puts the following files on your system:

Description	File(s) or directory
Apache 2 configuration file	mmwebext.conf, usually in a directory of similar .conf files to be included by httpd.conf
Apache 2 module	mod_mmwebext.so, usually in a directory containing other Apache modules
directory of HTML, javascript, and other related files	MenAndMice/, a directory usually under the Apache document root
Men & Mice XML Interface daemon	mmxmlintd, usually in <code>/usr/sbin</code> or <code>/usr/local/sbin</code>
init script, the shell script that can be used to control the service; used by init during system startup	Solaris: <code>/etc/init.d/mmxmlint</code>
	Linux: <code>/etc/init.d/mmxmlint</code>

To remove Men & Mice Web Interface, first use the init script to stop the Men & Mice XML Interface daemon (give it the "stop" argument). Remove any symlinks pointing to the init script from the runlevel directories. Then simply delete all files referenced above, and remove any references to the init script in the rest of the boot system if necessary. If an include statement had to be created in `httpd.conf` expressly for Men & Mice Web Interface, remove it; check your Apache configuration with `apachectl configtest` to be sure it is valid after removing the Web Interface.