is the Internet domain name server. See RFC's 1033, 1034, and 1035 for more information on the Internet name-domain system. Without any arguments, will read the default configuration file read any initial data, and listen for queries. A argument given at the end of the command line will override any specified by using the or flags. Several of options, and much more of its behaviour, can be controlled in the configuration file. Please refer to the configuration file guide included with this distribution for further information. Options are: Print debugging information. The is a number determines the level of messages printed. If negative, is set to The new debugging framework is considerably more sophisticated than it was in older versions of The configuration file's statement allows for multiple, distinct levels of debugging for each of a large set of categories of events (such as queries, transfers in or out, etc.). Please refer to the configuration file guide included with this distribution for further information about these extensive new capabilities. Use the specified remote port number; this is the port number to which will send queries. The default value is the standard port number, i.e., the port number returned by for service Previously, the syntax was supported; the first port was that used when contacting servers, and the second one was the service port bound by the instance of The current usage is equivalent to the old usage without the specified; this functionality can be specified with the clause of the configuration file's statement. Use an alternate this argument is overridden by any which is specified at the end of the command line. The default value is Run this process in the foreground; don't and daemonize. (The default is to daemonize.) Trace all incoming queries if has been compiled with defined. This option is deprecated in favor of the of the configuration file's statement; for more information, please refer to the configuration file guide included with this distribution of Turns recursion off in the server. Answers can come only from local (primary or secondary) zones. This can be used on root servers. The default is to use recursion. This option can be overridden by and is deprecated in favor of the clause of the configuration file's statement. Report the version and exit. Specifies the user the server should run as after it initializes. The value specified may be either a username or a numeric user id. If the flag is not specified, then the group id used will be the primary group of the user specified (initgroups() is called, so all of the user's groups will be available to the server). Specifies the group the server should run as after it initializes. The value specified may be either a groupname or a numeric group id. Specifies the directory the server should chroot() into as soon as it is finshed processing command line arguments. Sets the working directory of the server. The clause of the configuration file's statement overrides any value specified on the command line. The default working directory is the current directory Any additional argument is taken as the name of the configuration file, for compatibility with older implementations; as noted above, this argument overrides any specified by the use of the or flags. If no further argument is given, then the default configuration file is used The master file consists of control information and a list of resource records for objects in the zone of the forms: $INCLUDE <filename> <opt_domain> $ORIGIN <domain> $TTL <ttl> <domain> <opt_ttl> <opt_class> <type> <resource_record_data> where: is for root, for the current origin, or a standard domain name. If is a standard domain name that does end with the current origin is appended to the domain. Domain names ending with are unmodified. This field is used to define an origin for the data in an included file. It is equivalent to placing an statement before the first line of the included file. The field is optional. Neither the field nor statements in the included file modify the current origin for this file. A integer number that sets the default time-to-live for future records without an explicit ttl. An optional integer number for the time-to-live field. If not set the ttl is taken from the last $TTL statement. If no $TTL statement has occured then the SOA minimum value is used and a warning is generated. The object address type; currently only one type is supported, for objects connected to the DARPA Internet. This field contains one of the following tokens; the data expected in the field is in parentheses: a host address (dotted-quad IP address) an authoritative name server (domain) a mail exchanger (domain), preceded by a preference value (0..32767), with lower numeric values representing higher logical preferences. the canonical name for an alias (domain) marks the start of a zone of authority (domain of originating host, domain address of maintainer, a serial number and the following parameters in seconds: refresh, retry, expire and minimum TTL (see RFC 883 and RFC 2308)). a null resource record (no format or data) a Responsible Person for some domain name (mailbox, TXT-referral) a domain name pointer (domain) host information (cpu_type OS_type) Resource records normally end at the end of a line, but may be continued across lines between opening and closing parentheses. Comments are introduced by semicolons and continue to the end of the line. There are other resource record types not shown here. You should consult the Operations Guide for the complete list. Some resource record types may have been standardized in newer RFC's but not yet implemented in this version of Each master zone file should begin with an SOA record for the zone. An example SOA record is as follows:

```
@ IN SOA ucbvax.Berkeley.EDU. rwh.ucbvax.Berkeley.EDU. (
        1989020501 ; serial        10800 ; refresh
        3600 ; retry               3600000; expire
        86400 ) ; minimum
```

The SOA specifies a serial number, which should be changed each time the master file is changed. Note that the serial number can be given as a dotted number, but this is a unwise thing to do since the translation to normal integers is via concatenation rather than multiplication and addition. You can spell out the year, month, day of month, and 0..99 version number and still fit inside the unsigned 32-bit size of this field. (It's true that we will have to rethink this strategy in the year 4294, but we're not worried about it.) Secondary servers check the serial number at intervals specified by the refresh time in seconds; if the serial number changes, a zone transfer will be done to load the new data. If a master server cannot be contacted when a refresh is due, the retry time specifies the interval at which refreshes should be attempted. If a master server cannot be contacted within the interval given by the expire time, all data from the zone is discarded by secondary servers. The minimum value is the cache time-to-live for negative answers (RFC 2308). The boot file directives and have been obsoleted by a more useful, resolver-based implementation of suffixing for partially-qualified domain names. The prior mechanisms could fail under a number of situations, especially when then local nameserver did not have complete information. The following signals have the specified effect when sent to the server process using the command: Causes server to read and reload the database. If the server is built with the compile-time option, then will also cause the server to check the serial number on all secondary zones; normally, the serial numbers are only checked at the SOA-specified intervals. Dumps the current data base and cache to or the value of Dumps statistics data into if the server is compiled with Statistics data is appended to the file. Dumps the profiling data in if the server is compiled with profiling (server forks, chdirs and exits). Saves any modified dynamic zones to the file system, and shuts down the server. Turns on debugging; each increments debug level. on older systems without Turns off debugging completely. on older systems without Toggles logging of all incoming queries via (requires server to have been built with the option). default name server configuration file the process id dump of the name server database debug output nameserver statistics data RFC 882, RFC 883, RFC 973, RFC 974, RFC 1033, RFC 1034, RFC 1035, RFC 1123, RFC 2308