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# NSD Integration with cPanel

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## Introduction

NSD ( <http://www.nlnetlabs.nl/projects/nsd/> ) is an authoritative-only Name service that can potentially use less memory than BIND. It uses the same zone files as BIND, simplifying conversion between BIND and NSD.

As an authoritative name server, NSD does not provide recursive look-ups, nor function as a caching-only name server.

## Installation

For existing installations, NSD is installed by use of `/scripts/setupnameserver`. This script handles the necessary conversion between BIND and NSD, allowing for conversion between either service. An interface for this is provided in WHM via Service Configuration >> Nameserver Setup. It is also possible to Disable support for a name service via either interface.

### Note

Since NSD is an authoritative-only Name server, the WHM Nameserver Selection interface will not let you select NSD if a local IP address, such as the IP of the server, is listed as a nameserver in `/etc/resolv.conf`.

The application itself is installed from RPM for RPM-based systems and via the Ports system on FreeBSD.

To install NSD during installation of cPanel, one of the following methods will suffice:

- After cPanel install completes, execute `/scripts/setupnameserver nsd`
- Before executing the cPanel install, do the following:

### Example 1.

```
mkdir /var/cpanel
echo "local_nameserver_type=nsd" >> /var/cpanel/cpanel.config
```

# Configuration

The configuration file on Linux is `/etc/nsd/nsd.conf`. On FreeBSD it is `/usr/local/etc/nsd/nsd.conf`.

Each time NSD is restarted using `/scripts/restartsrv_nsd`, the configuration file is regenerated based upon the contents of `named.conf`. Some configuration directives will be preserved to the newly built configuration file. An exception to this is if `/scripts/buildnsdconf` is used with the `--force` flag. This causes the configuration file to be rebuilt without preserving your modifications.

NSD is limited to binding to 512 IP addresses, including localhost ( `127.0.0.1` ). For systems with fewer than 512 IP addresses the behavior is similar to BIND in that both will respond to DNS queries on all IP addresses. If attempting to use NSD on a system with more than 512 IP addresses, NSD will listen on the IP addresses configured as Name Servers. If no IP addresses are configured for Name Server use then NSD will listen on the global address ( `0.0.0.0:53` ).

Configuring an IP address for use as a Name Server interface is done within WHM. Use the Nameserver IPs interface in the Networking Setup section.

# Management

Similar to other services managed via cPanel, NSD can be managed via the RestarSrv system, using `/scripts/restartsrv_nsd`. As mentioned in the configuration section, when using the RestartSrv method, the `nsd.conf` file is regenerated.

A regular init script is installed in `/etc/init.d` for Linux systems, and in `/usr/local/etc` for FreeBSD systems. The init script also provides start, stop, restart, status and check services. On Linux systems, NSD is started on system boot via the init script.

# Reverting to BIND

Returning to BIND is done the same way the conversion to NSD occurred. Via the command line, execute `/scripts/setupnameserver bind`. In WHM, use the **Nameserver Selection** interface in the Service Configuration section to change to BIND.

# Improvements in 11.24.1

NSD is not as forgiving of errors in Zone files as BIND is. Hence Zone files that fail syntax checks will often prevent NSD from starting. Beginning with 11.24.1, Zones with syntax errors are added to a blacklist and prevented from entering the `nsd.conf` file. This check occurs during cPanel Update ( e.g. `/scripts/upcp` ) as well as when using `/scripts/buildnsdconf`. You can remove a Zone from the blacklist by modifying the Zone to resolve the syntax error. After Zone modification, re-run `/scripts/buildnsdconf`. If the syntax error is resolved, the Zone will be added. Severe Syntax errors may require manually editing the Zone file as the WHM Edit DNS Zone interface will not load the Zone.

Performance for service restarts is improved for 11.24.1 and newer. The Zone database is rebuilt before performing the restart. This reduces the total downtime for service restart from several seconds to several milliseconds. Also the functionality for handling single Zone modifications, such as adding a new Zone, was redone. This resolves an issue detected in 11.24.0 where NSD would answer queries only for the changed Zone after the changes were done.

## Caveats

Any changes to the Zones, including adding and removing Zones, requires a rebuild of NSD's Zone database. This requires a reload of the NSD Zone database. Anything that modifies `nsd.conf`, such as adding or removing a zone, not only requires a reload, but also a restart of the NSD service.

When switching to NSD, BIND is not removed from the system. All Zone modifications are still made to `named.conf` which continues to act as the definitive source of Zone information. Removing BIND after converting to NSD is not recommended.

Systems that have a large number of IP Addresses may not see any difference between BIND and NSD regarding resource usage. This is due to how NSD binds to IP Addresses and manages them internally. In testing, once the number of IP Addresses reached 50, NSD and BIND were comparable in resource usage.