

# Chapter 2



## Installation and Upgrade Guide



### 2.1 Overview

Fidelia NetVigil is a distributed application that has three basic software components:

- BVE ObjectStore (configuration database)
- BVE WebApp (User Interface)
- DGE (Data Gathering Engines)

Depending on the size of your network, you can install all of these components on a single server, or you can install components on independent servers. On Unix systems, each component can be installed separately. On Windows systems, the BVE WebApp and the BVE ObjectStore are always on the same server, but the DGE can be on a separate server.

New DGEs can be added easily at a later date as your IT infrastructure expands. The plugin actions and the plugin monitors allow extending the functionality of the DGEs very easily.

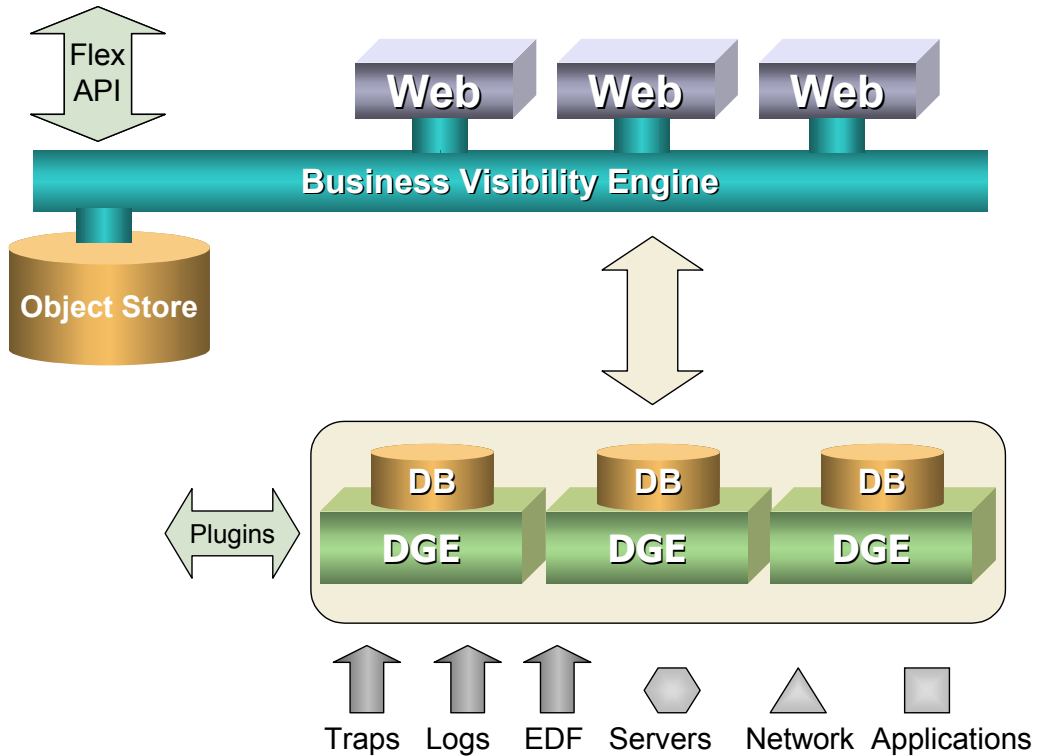


Figure 2.1 *NetVigil System Components*

## 2.2 Supported Platforms

NetVigil is currently supported on the following platforms:

- RedHat Enterprise 3 and other Linux distributions with equivalent kernel level (2.4.21) on Intel x86 platforms (includes SUSE 9, Fedora 3).
- Solaris 7 and above on UltraSparc platforms.
- Windows 2003, Windows 2000 and XP Professional

You can use `uname -s -r` to determine the kernel version on Unix & Linux platforms.

## 2.3 Recommended Hardware

For a small setup (about 100 devices), the entire application can be installed and run from a single server.

Pentium 4, 512M memory, 9G disk

OR

Sun UltraSparc III, 512M memory, 9G disk

The system should have at least 3G of free disk space in one partition.

For better performance, adding memory is the most critical factor. SCSI drives are strongly recommended in large environments.

**NOTE** *Some desktop class processors like the Celeron or SPARC-IIe, which have minimal onboard cache, are not suitable for a NetVigil installation. On Solaris Sparc platforms, use the `prtconf` command to see your processor type.*

### 2.3.1 Disk Space Requirements

The software installation (all platforms) requires 500M of disk space. If you distribute NetVigil components (provisioning database, Web server, and DGEs) across several hosts, each host must have 500M of available disk space.

The following directories, which are created when NetVigil is installed, have variable size requirements:

- `NETVIGIL_HOME/database`, provisioning data

Allow 1 MB for every 1,000 tests.

- `NETVIGIL_HOME/database`, DGE historical data

For instructions on calculating disk space requirements for a DGE database, see Section 10.1.4, “Disk Space Requirements for DGE Aggregation” on page 147.

- `NETVIGIL_HOME/logs`

Allow 1GB of disk space for log files.

## 2.3.2 Sizing Considerations for Large Sites

**NOTE** *The information that follows applies to sites with at least 30,000 - 50,000 tests (1000+ devices)*

For large installations with several thousand devices, it is recommended that an additional DGE (for monitoring) is added for every 800-1200 devices (approximately every 20k tests). The actual capacity depends on the number of tests on each device, since a server might only have 4-5 tests but a large switch with 500 ports can have 5000 tests (bytes, packets, errors). If a DGE cannot handle a large number of tests, the internal queues start backing up and a message is automatically logged to the error log.

Deploying a very large numbers of DGEs should be avoided since it increases the probability of failure and increases the administration tasks. Also see Section 10.1.4, "Disk Space Requirements for DGE Aggregation" on page 147 for information on DGE database sizing and Section 3.7, "NetVigil Operation in NAT Networks" on page 44.

A sample DGE server configuration for a large installation would be:

Pentium 4 Xeon or Sparc Ultra III (1GHz) processors with 1GB memory, 2x18G SCSI/IDE drives (or RAID-5/RAID-10)

The provisioning and webapp servers are not disk intensive, but do use the CPU intensively for processing and generating reports.

## 2.4 Additional Software Requirements

The following packages must be installed for proper operation of NetVigil:

- Perl version 5.005 and above programming language/interpreter (available from [www.perl.com](http://www.perl.com)) should be installed on Linux/Solaris platforms. A Perl interpreter is bundled with the Windows version and need not be pre-installed.

## 2.5 System Performance Tuning

1. You can increase performance by running a caching nameserver on the servers that run the DGE component.

2. On Linux systems, the file descriptors should be increased to 8192 by editing the following files:

a) Edit `/etc/security/limits.conf`, and add the lines:

```
*      soft   nofile  8192
*      hard   nofile  8192
```

b) Edit `/etc/pam.d/login`, and add:

```
session required /lib/security/pam_limits.so
```

3. Increase the system-wide file descriptor limit by adding the following three lines to the `/etc/rc.d/rc.local` startup script:

```
# Increase system-wide file descriptor limit.
echo 4096 > /proc/sys/fs/file-max
echo 16384 > /proc/sys/fs/inode-max
```

4. On Linux systems, if you are using IDE drives, you can increase I/O performance by turning on 32bit io, direct memory access and multi block reads using:

```
hdparm -c1 -d1 -m16 /dev/hda
```

Make sure to replace `/dev/hda` with the proper device name appropriate for your system. This command should be added to `/etc/rc.local`.

5. On Solaris systems, the following patch should be installed:

**Table 2.1** Solaris patches for NetVigil installation

Solaris Version	Patch Id	Note	Description
Solaris 7 (5.7)	106327-06	required	Shared library patch for C++
Solaris 2.6 (5.6)	105591-07	required	Shared library patch for C++

In addition, make sure the patches appropriate for your Solaris version listed at <http://java.sun.com/j2se/1.3/install-solaris-patches.html> have been installed.

## 2.5.1 Increasing Java Memory (JVM) Size

If you add additional physical memory on your DGE or other servers, you should increase the memory size of the Java Virtual Memory used by NetVigil. The DGE, BVE ObjectStore and the WebApp all run as separate processes and have their own JVM size setting. In most

situations, you will probably increase the DGE and the WebApp memory sizes. The following steps are for increasing the JVM size for the DGE- the steps for the web application are similar.

1. Shut down the DGE (or web application) using the Control Panel on Windows or using the corresponding init script on Unix.

```
Start > Control Panel > Admin Tools > Services  
$NETVIGIL_HOME/etc/monitor.init stop # on Unix
```

2. On Windows, edit the following file using Notepad (turn off the word wrap feature)

```
\Program Files\Fidelia NetVigil\bin\monitor.lax
```

and add/edit the following line at the end of the file to add an additional 512M of memory to the DGE process:

```
lax.nl.java.option.additional=-Xmx512
```

Save the file.

3. On Unix, edit `$NETVIGIL_HOME/etc/monitor.init` and search for `Xmx256`. Replace this with `Xmx768` to add an additional 512M of JVM.

Remember that you should always dedicate physical memory to the java process, not swap. i.e. if you have 2GB of swap space, but only 512M of physical memory, you should set the JVM size to less than 512M and NOT 2GB.

## 2.5.2 System Security Issues

It is strongly recommended that all daemons or server processes not required on the servers running NetVigil be shutdown and disabled on startup (this includes telnet, ftp, etc.). All logins and file transfers should be done using 'ssh' or 'scp' into your servers. For advanced firewall rules, please see the Section 3.6, "Operating NetVigil Behind Firewalls" on page 41.

## 2.6 First-time Installation

For instructions on upgrading an existing installation, see Section 2.7, "Upgrading From Previous Versions" on page 22.

**NOTE** *Make sure that there is no web server or database running on the NetVigil Server. If there is, you will get a port conflict and NetVigil will not start.*

The NetVigil distribution for Linux/Solaris consists of two compressed archives (tar.gz) provided either on a CDROM or downloadable via HTTP/FTP:

- netvigil-base-OS.tar.gz
- netvigil-x.y.z-OS.tar.gz

Where *x* represents major, *y* is the minor version of the software, *z* is the maintenance release number and *os* is the operating system. Example, netvigil-3.6.1-linux.tar.gz.

For Windows platforms, NetVigil is distributed as a single executable file.

In addition to the installation files, you need a license key. This can be either a limited-time trial key, or a permanent key based on the terms of your purchase.

## 2.6.1 Planning Checklist

Prior to your install, you should ensure that you have complete information about your IT environment where NetVigil is being installed.

**Table 2.2** NetVigil Installation Checklist

Item	Notes
Number of geographical locations with significant concentration of devices:	Instead of geographical locations, can consider network topology instead. Put a DGE in each location with a concentration of devices, and for small remote locations, use a single centralized DGE
Number of devices to be monitored in each location:	This is for sizing the DGE at each location. Each DGE can handle 500-1500 devices on an average.
Any large switches, routers or servers in each location?	A large switch with 500 ports will have close to 3000 tests (6 tests per port) which is the same as the number of tests on 100 devices.
Number of departments accessing system:	You need to decide on the permissions each department will have- view only or full control. Will they own their device configuration and management in NetVigil or will a central department do it for them?

**Table 2.2** NetVigil Installation Checklist

Item	Notes
Any existing custom monitors that need to be migrated to NetVigil?	Use the various APIs to interface any custom monitoring scripts to NetVigil (see Advanced Development Guide).
Do you need to interface with any existing provisioning system?	When you add new devices on the network, do you have an existing inventory system which can be tied into NetVigil directly.
Any other web server or MySQL running on the Netvigil Server?	Netvigil comes with its own web server.You should disable IIS or any other web server or else setup Netvigil to run on an alternate port as discussed in Section 3.4.11, "Web server TCP/IP port" on page 37.Also ensure that no firewall is running on the host.See "Problem: Cannot access Web Application" on page 362

## 2.6.2 Linux & Solaris Installations

The table that follows lists the tasks that you must perform in order to install NetVigil on a Unix system, and the shell command corresponding to each task.

**Table 2.3** NetVigil Unix Installation Tasks

Installation Task	Shell Command
Change to a temporary location with at least 100 MB disk space	<code>cd /var/tmp</code>
Copy the downloaded archives to the temporary directory	<code>cp /download/dir/netvigil-x.y.z-OS.tar.gz .</code> <code>cp /download/dir/netvigil-base-OS.tar.gz .</code>
Extract the OS software package. <b>Do not</b> uncompress/extract the files within the base package netvigil-base-OS.tar.gz	<code>gunzip -c netvigil-x.y.z-OS.tar.gz   tar xvf -</code>

**Table 2.3** NetVigil Unix Installation Tasks

Installation Task	Shell Command
Change into the directory with newly extracted files. The package will be extracted into a directory named <code>netvigil-x.y.z</code>	<code>cd netvigil-x.y.z</code>
<p>If you need to make any changes to the software license key, you should make them before running the installation script. If the terms of your license have changed (e.g. change in expiration date, number of devices, etc.), a new license file would be provided to you by Fidelia customer support. The new key should be saved into <code>netvigil-x.y.z/etc/licenseKey.xml</code> file, replacing any existing file.</p>	
Run the installation script (as root)	<pre>su root sh ./install.sh</pre>

The installation script will ask a series of questions to determine your requirements. When asked for the location of the base package, specify `/var/tmp/netvigil-base.tar.gz`. Once all necessary information has been collected, the software package will be installed under the specified directory and you are ready to start using NetVigil. This directory will have the following general layout:

**NETVIGIL\_HOME**

- ▶ `apps/` : supporting applications required for NetVigil
- ▶ `bin/` :Utility software for NetVigil components
- ▶ `database/` : NetVigil runtime database for tests & provisioning
- ▶ `etc/` : NetVigil configuration files and startup scripts
- ▶ `lib/` : NetVigil component libraries
- ▶ `logs/` : NetVigil error and debug log files
- ▶ `plugin/` : User custom actions and monitors
- ▶ `transforms/` : XSL files for report transformation
- ▶ `utils/` : Useful utility tools
- ▶ `webapp/` : The web application

### 2.6.3 Windows Installation

The Windows distribution consists of a single self-extracting archive:

- `netvigil-x.y.z-windows.exe`

**□ To begin installation:**

1. Double-click on `netvigil-x.y.z-windows.exe`.
2. Provide answers to the requested information.
3. After the files have been copied and the installer has quit, reboot the machine (Start | Shutdown | Reboot).

**NOTE** You *MUST* reboot the machine before starting *NetVigil*.

## 2.7 Upgrading From Previous Versions

Before beginning the upgrade process from a previous version of NetVigil, you must ensure that you have a current and verified backup of your existing NetVigil installation available, so that you can recover from a failed upgrade. To accomplish this, you can simply make a copy of the

```
<netvigil_directory>/database &  
<netvigil_directory>/mysql/data
```

directories to a safe location. Once it has been verified that a backup exists, follow the method outlined in Section 2.6, “First-time Installation” on page 18 to install the new package. Make sure to specify the same locations as your existing NetVigil installation as the destination path, and answer `y` (or `yes`) when asked if you wish to preserve the existing database.

It is highly recommended that you contact Fidelia Support before upgrading your NetVigil installation in case there are any updated procedures that you need to be aware of.

## 2.8 Adding an Additional DGE

You can add additional DGEs in order to increase the scalability of your NetVigil installation (you might need to purchase a license in order to have more than one). The steps to do this are described in Section 10.1, “Configuring Data Gathering Engines (DGEs)” on page 143.

## 2.9 Quick Start (Running NetVigil)

The following quick start steps will enable you to start using the NetVigil system immediately if all components are installed on a single server, and you don't have any other conflicting applications running on the host (such as another web server or SQL database). For a distributed installation (e.g. the DGE on a different physical server), please see Chapter 3, “Configuration and Operations” for proper configuration since this requires editing several configuration files.

The installation process creates default configuration files suitable to run all the NetVigil components on the same server. The default database configuration will contain one DGE location named `Default Location`, one DGE component named `localhost` and a User-Class named `Default User Group`. It creates a default end-user called `netvigil` with the password `netvigil` and a superuser login with password `netvigil`.

1. Make sure that your NetVigil license key is not expired (`NETVIGIL_HOME/etc/licenseKey.xml`), and you are not running any other web server on the NetVigil host which might prevent NetVigil's web service from starting up (on TCP port 80).

2. Start NetVigil components. On Linux/Solaris platform execute the commands

```
cd NETVIGIL_HOME;  
etc/netvigil.init start
```

On Windows platforms select

```
Start | Programs | Fidelia NetVigil | Start Fidelia  
NetVigil.
```

3. Check for proper operation of different components using the `netvigil.init status` command on Unix or looking at the output of `net start | more` on Windows platforms. (For additional information, see Section 3.3.3, “Verifying proper operation” on page 30.) The most common reasons for not starting up are:
  - a) either the license is expired (you can get new evaluation license by sending email to [support@fidelia.com](mailto:support@fidelia.com))
  - b) or else some other web server is running and using the httpd port.
  - c) or you did not reboot your machine after installing on a Windows platform.

4. If the components did not start, you will have to fix the cause and then restart NetVigil using `netvigil.init restart`
5. Use your web browser to connect to `http://your_host/` where `your_host` is the fully qualified name or ip address of the server that the NetVigil web application component is running on.
6. Log into the website using end-user name `localuser` and the password `localpassword`
7. Add a few sample devices to verify that the system is functioning properly. Go to `Manage > Devices > CreateNew` and try adding 'localhost' or any other test device.
8. Log out, and log back in as `superuser` with password `netvigil`. If you want to create additional departments and admin-groups, you should do so now as described in Chapter 8, "Users and Departments"
9. Populate the system with devices- go to `SuperUser -> Discover` and run a new discovery on your network. For more information, see Chapter 5, "Network & Topology Discovery".

## 2.10 What Next

After running a discovery on your network, you should:

1. Setup actions and notifications (email, pager)
2. Configure the Message Handler for monitoring traps and logs.
3. Change the password for the default user and superuser (after logging into the Web application, go to `Manage->Prefs`)
4. Set your timezone (also under `Manage->Prefs`)
5. Change the DGE controller password (see Section 3.4.8, "DGE controller port/password" on page 35)
6. Update device dependencies if needed (setup parent/child relationships) to prevent alarm floods.
7. After running the system for a few days, either update the thresholds manually if you are getting too many alerts, else use the "baseline" feature to automatically reset the thresholds.
8. Setup Service Containers as required to model your services.

## Scheduled tasks (cron jobs)

**NOTE:** *This section is applicable to Linux and Solaris platforms only*

There is a sample crontab file `NETVIGIL_HOME/etc/crontab.netvigil` that should be installed into all your servers. The file contains periodic maintenance tasks and ensure a smooth and trouble free operation of the NetVigil system. Depending on which components you are running on a particular host, you will need to uncomment (remove '#') appropriate sections of the file after you import it into `root`'s crontab.

