

Nuance License Manager

Licensing

Notice

Nuance License Manager
Licensing

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Getting started with licensing

This guide describes how to use the Nuance® License Manager to implement licensing for Nuance speech products. It is written for integrators who develop a platform using a Nuance licensed product, and system operators who set up and administer those systems.

The software for licensing servers is installed separately from these Nuance products, which require licensing:

- Nuance® Management Station
- Nuance® Recognizer
- Nuance® Vocalizer for Network
- Nuance® Vocalizer Studio

These products share the same licensing server software.

Workflow to set up licensing:

- 1 Decide where to run licensing servers on your network. You must determine which hosts will serve licenses and how many licenses each will serve before you request your licenses files, as each file is generated for a specific host.

By default, speech products assume their licensing servers are installed on the local host. You can change to a distributed architecture that supports load-balancing and licensing server redundancy. See [License architectures](#).
- 2 Obtain and install license files from the Nuance license fulfillment website. For information, see [Getting license files](#).
- 3 Install and configure the licensing servers. See [Installing and uninstalling on Windows](#) or [Installing on Linux](#).
- 4 Install and configure individual licensed products:
 - If a product and its licensing server are on different hosts, configure the product to find the server. See [Configuring server lists](#).
 - See each product's installation guide to configure the number of licenses used by that product.

Terminology

Hostid	The unique, physical MAC address of the machine. Get the address with the "ipconfig /all" command, or use the FLEXnet tool: "lmutil lmhostid".
License file	A key to enable ports for licensed products. It is generated at the Nuance license fulfillment website, and stored on a licensing server host.
Licensed product	Software that requires runtime access to a licensing server.

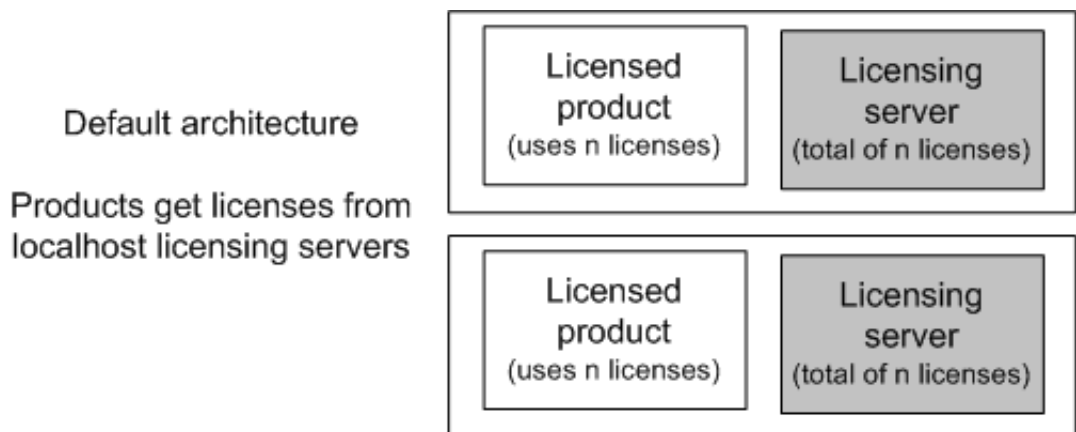
Licensing server	Software that serves licenses to licensed products. It is a FLEXnet licensing server running as a Windows service or a Linux daemon.
Licensing server host	The host machine of a licensing server.
Licensing server list	A list used by each licensed product to point to its license servers.

License architectures

This chapter discusses the possible architectures for setting up your licensing servers.

Non-distributed architecture

The following example shows a non-distributed licensing architecture where the licensing server runs on the same host machine as the speech product. Speech products on Windows expect this architecture by default. There are two machines, each with its own licensed product and licensing server:



In the example, each licensing server provides licenses from a license file stored on the local host machine.

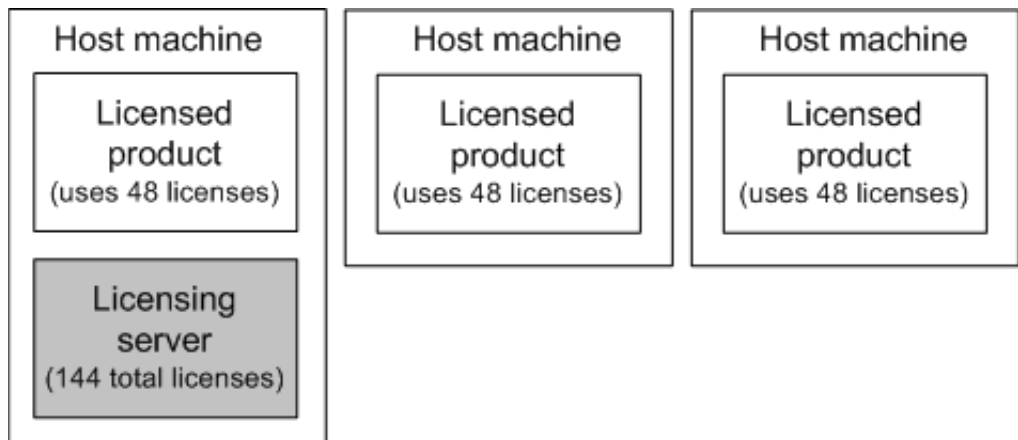
Distributed licensing servers

Optionally, you can set up any combination of distributed licensing architectures where licensing servers and licensed products run on different hosts. Running a centralized license server is useful for building redundancy, balancing loads, and centralizing the management of license files.

This distributed model also allows a single licensing server to manage licenses across a network of licensed products without knowing the hostid for each licensed product host.

The following example is typical of a production environment for recognition licenses. It shows a system running three copies of the same licensed product (one installation per host where each host allows a maximum of 48 ports). Hosts for a product such as the

Nuance Management Station might use only 1 license. This system runs a single licensing server on one of the hosts:



When the licensing server starts, it creates a pool of licenses (in this example, 144 licenses). The server allocates individual licenses to ports controlled by licensed products on a first-come, first-served basis.

The licensing server maintains a count of allocated licenses across the network. It does not monitor port usage on a per-host basis.

The licensing server can run on any of the hosts or on another host in the network.

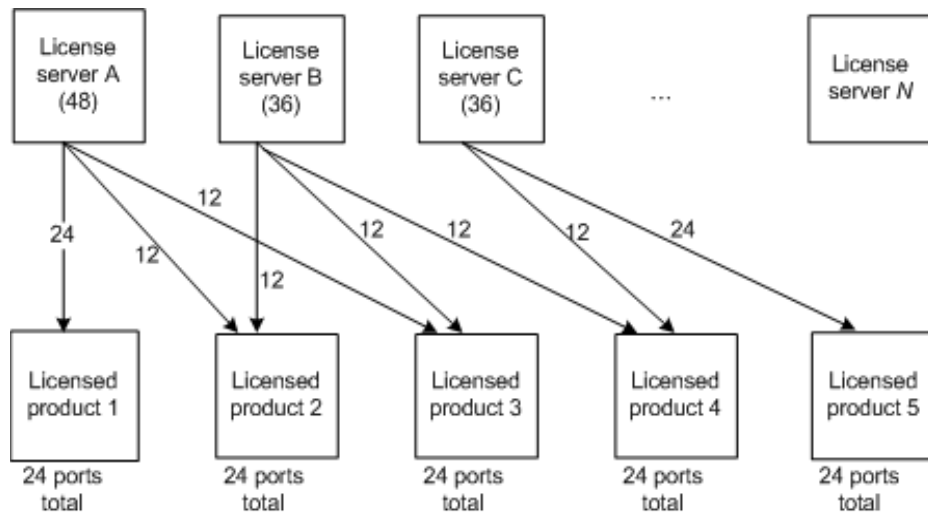
The administrator must install and configure the servers, and then define the licensing server list on each licensed product host (see [Configuring server lists](#)).

Balancing licensing server load

Large systems with many licensing servers can implement load-balancing and redundancy into their licensing architecture. This ensures that a primary licensing server does not become overloaded and that servers remain available when individual hosts become unavailable.

Load-balancing is accomplished by limiting the number of licenses each licensing server on the network can issue. (This is not a dynamic load-balancing scheme: license check-out is always on a first-come, first-served basis, and a given licensed product will request

licenses from the next server only if the previous server has none available.) You must decide these limits before generating license files on the license fulfillment website.

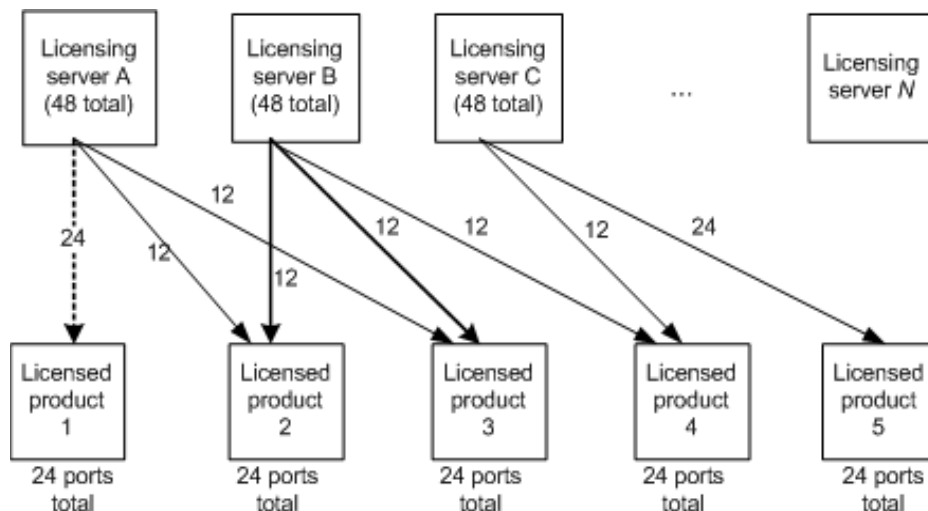


Client-configured redundancy

Client-configured redundancy is preferred over server-configured, especially for redundancy across a Wide Area Network (WAN). In the FLEXnet documentation, this architecture is called “server redundancy via file list.”

You can add redundancy to load-balanced systems by allowing all licensing servers on the network to allocate licenses to all licensed products. For client-configured redundancy, licenses are divided into multiple license pools, each administered by a single licensing server. You must decide these pools before generating license files on the license fulfillment website.

There is no theoretical limit to the number of licensing servers that you can designate for each licensed product host. However, there is a practical limit of 3 to 5 servers per client. Beyond this limit, it becomes difficult to troubleshoot problems.



For example, if licensing server A fails, licensed product 1 no longer runs, but 2 and 3 continue with limited ports (12 and 12), since 2 and 3 are partially served by licensing

server B. When claiming licenses, licensed products exhaust licenses on all configured licensing servers before returning an error.

Each licensed product defines its licensing server list (the list of servers that can provide licenses; see [Configuring server lists](#)). You can make this configuration more redundant by specifying *all* licensing servers for each licensed product. If any licensing server fails, the others will have licenses available.

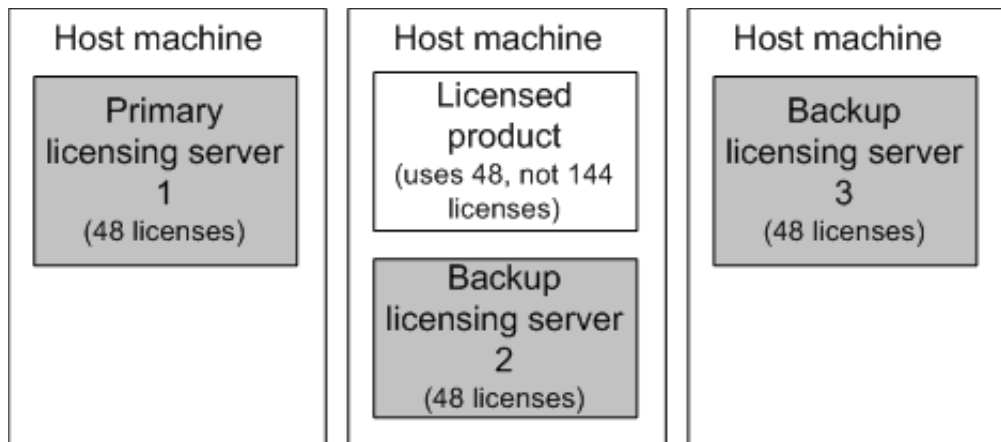
Server-configured redundancy

Server-configured redundancy is called “Three-server redundancy” in the FLEXnet documentation. This configuration may be less suitable for servers distributed across a WAN if temporary network interruptions or delays of heartbeat messages can cause servers to interrupt licensing service.

Server-configured redundancy uses three licensing servers to administer a single license pool known as a quorum. While sharing a single license pool, each server in the quorum must be on a separate host, and must run the same operating system. (This means that two additional computers are required when providing redundancy for a licensing server.) The entire license pool remains available as long as a quorum of two of the original three licensing servers are available.

Note: To avoid constraints, avoid defining the primary licensing server on a host that is running a licensed product. The primary server does not need to be a dedicated host; however, any other processes running on the host will reduce the memory and CPU cycles available to the server. Also, failure of other processes could affect the functioning of the primary server.

The following illustration shows a simple configuration for server-configured redundancy.



Any three hosts can be formed into a quorum:

- When obtaining the license file from the fulfillment website, enter the hostid for all three hosts. In the illustration, the quorum is formed by servers 1, 2, and 3 for a total of 48 ports.
- The size of the license pool is determined by the number of licenses available and not the sum of licenses for all three servers.
- When configuring the licensing server list, enter the three hosts in the same order as in the license file.

For example, if your quorum hostnames are nicosia, arctic, and nepal (and this is the order they appear in the license file), then they appear as follows in the licensing server list:

```
28000@nicosia;28000@arctic;28000@nepal
```

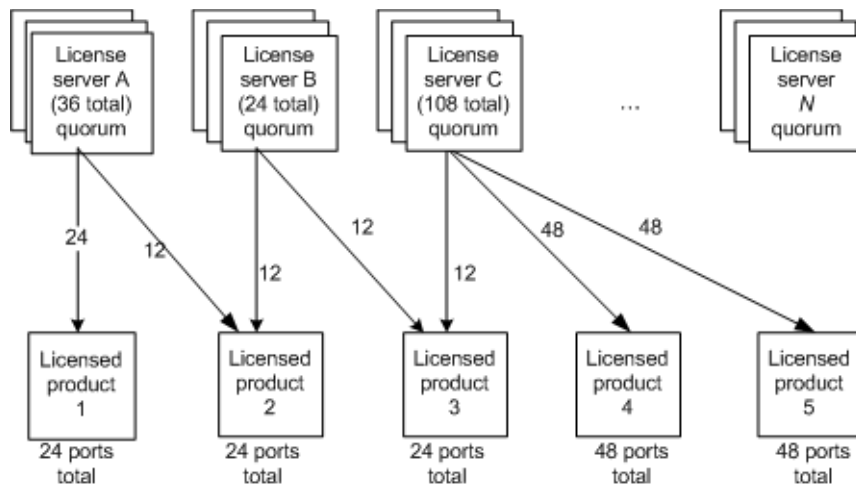
Above, the 28000 is the port used to communicate with the licensing server on the licensing server host. Typically, a default value of 27000 or 28000 is used; the value can be changed (see [Changing licensing server ports](#)).

Combining redundancy methods

You can combine both client-configured and server-configured methods together for maximum redundancy. However, while it is possible to combine redundancy methods, a simple architecture is often more powerful and easier to troubleshoot:

- Designate multiple primary licensing servers for each licensed product host as you would do in [Client-configured redundancy](#) above.
- Create a quorum of three servers for each primary server. This helps ensure that if a primary server crashes, you do not lose its available license pool.

For example:



When defining the licensing server list, you must keep all the quorum servers together in the list. For example, the list appears as follows:

```
27000@tatooine;28000@nicosia;28000@arctic;28000@nepal;27000@  
hoth;28000@dagobah;28000@endor;28000@naboo
```

In the example, bold indicates members of quorums (nicosia, arctic, and nepal followed by dagobah, endor, and naboo). Given this list, the Nuance product would request licenses in the following order: tatooine, nicosia, hoth, and dagobah. If nicosia becomes unavailable, the Nuance product would search arctic for licenses after tatooine. (Finally, if both nicosia and arctic are unavailable, then nepal *would be ignored* because the quorum is compromised.)

How licensing servers recover from failures

Your licensed products and licensing servers periodically communicate via a “heartbeat” mechanism: every 30 seconds, each licensed product sends a heartbeat message to the licensing servers.

If a licensed product suddenly loses communication with its licensing server, it continues processing normally for a period of 61–89 seconds and attempts to reconnect. If the server returns during that period, operation continues normally.

For Nuance Recognizer, the client tries repeatedly to connect and remains operational for approximately 1 hour at which point it releases all licenses and becomes non-operational until licensing is restored.

Other licensed products stop processing sessions after 60 to 90 seconds (depending whether the network licensing server failure occurs immediately before or after a heartbeat) until the licensing server again becomes available.

Getting license files

Nuance provides SDK licenses for development purposes and runtime licenses for production systems (applications deployed for their intended purposes). Each licensed product claims and releases licenses in a manner suited to that product.

To view, generate, or modify licenses, go to the License Fulfillment website (<http://licensing.nuance.com>), and follow the instructions there. Before generating your licenses, you must have designed your licensing architecture, including which hosts will serve licenses, how many licenses they will serve, and whether you will include redundant servers in your network.

For the Nuance Recognizer and Nuance Vocalizer for Network licensed products, you can generate reports about license usage. For details, see [License usage reports](#).

Licenses can be permanent or they can expire after some time period elapses. Each license file indicates this information in its INCREMENT line:

- Permanent: The license does not expire.
- Leased: The license becomes invalid after some period of time.

Note: When a license expires, the licensing server reports a general error: “licensing server does not support this feature.”

Viewing licenses

Each Nuance customer agreement includes provisions for specific accounts and numbers of licenses. Nuance sends License Authorization Codes (LACs) to each customer via email, and each LAC enables requests for license files for an account. Your company might have one LAC or it might have several LACs for different accounts (for example, different accounts for different speech products).

Once you provide the appropriate LAC at the License Fulfillment website, you can see your license status:

- Pending: Means that licenses exist but no license file has been generated.
- Partial: Means a license file has been generated for some ports. For example, if the original order is for 72 ports, you might generate licenses for 24 ports, and return later to generate licenses for additional hosts. (If you generate more ports for the same host, you need to merge the new license file with the previous.)
- Completed: Means that license files have been created for all of the ports associated with this order. For example, if your license agreement specifies 72 ports, you can generate license files for any number of ports up to that maximum.

Note: If you have more licenses than needed for a licensing server, you can return those licenses (and free them for use on another server). This process is known as “rehosting.” Contact technical support at network.nuance.com.

Generating and saving license files

Use the License Fulfillment website to generate the desired licenses. This step requires knowing the hostids of the licensing servers that will serve the licenses to the licensed products.

A licensing server accesses a single license file. If you purchase licenses for more than one licensed product, and you want to share a single licensing server for those products, you must do one of the following:

- Generate a combined license file using the License Fulfillment website.
- Generate separate license files for each product, then merge the licenses into a single file used by the licensing server. For details, see [Merging license files](#).

Here is a summary of the procedure for generating licenses at the License Fulfillment website:

- 1 Get your LAC.
- 2 Get the hostid for the licensing server.
- 3 Go to the License Fulfillment website, enter the LAC, and click Submit.
- 4 Select the product (or products, if generating a combined license file) and enter the number of ports. Click Generate. The Confirm Selection page summarizes your choices.
- 5 Click Generate, and your generated license appears.
- 6 Save the license as a text file in a temporary location on your local machine. (You can use copy/paste to save the file.) By convention, use *nuance.lic* as the filename; see [Changing generated license files](#) for an explanation. If you generate licenses for more than one licensed product, save the license files with different names to avoid overwriting the files.
- 7 Move the generated license files to their permanent locations. Each file must be stored on the licensing server host for which it was generated. If you set up redundant licensing servers, each host needs an identical copy of the license file.

Store each license file in an appropriate location on the host (for Windows, see [Configure a license file](#).; for Linux, see [Configure a license file](#).).

Changing generated license files

As an end-user, you can make the following changes to the files (any other changes invalidate the license):

- Change the filename of the license file. See [Changing license file names](#).
- Change the machine name (*not* the hostid) on the SERVER line of the license file. This is useful if you rename the machine or if you run lmgrd on a different machine from the Nuance components. This step is required for quorum licensing.
- Add a path to the vendor daemon on the VENDOR line of the license file. This is useful when swilmgrd is not stored in the default location and lmgrd cannot find that different directory.
- Change the port being used in the license file. This is useful when you are already using the default port for something else (for example, for another lmgrd process for a different product). See [Changing licensing server ports](#).
- Add an INCREMENT line if directed by Nuance technical support or when merging license files. (See [Merging license files](#).)

The contents of a license file depends upon the speech product. If you edit a license file, *be very careful*. See the FLEXnet documentation for details about license files and their syntax.

Note: Licenses are associated with specific licensing servers. You cannot run a licensing server with a license file that was created for another server.

Changing license file names

You can use any filename for license files. By convention, *nuance.lic* is recommended.

The licensing server is pre-configured to look for a dummy license file named *temp.lic*. You should change the name on each licensing server using FLEXnet tools. See [Configure a license file](#).

Changing licensing server ports

Every licensing server uses a single port on its host system to communicate with all its licensed products. The default port usually 27000 or 28000 (it can vary by product).

In some situations, you must change the default. Here are the main reasons:

- On Linux systems, when you run more than one licensing server on the same host, you must assign different ports to each of those servers.
- When the default port is unavailable on the host, you need to assign a different port. For example, if the default port is used by other software.
- When you create a merged license file for two or more products, you must choose a single communication port for the licensing servers that load that license file and for all their licensed products.

To change the port, do the following:

- 1 Choose any available communications port number.
- 2 On the licensing server host, edit the license file and change the existing port number to the new number. The port is specified on the SERVER line near the top of the file.

If using server-configured redundancy, remember to copy the new license file to each host in the quorum.

- 3 On every licensed product that will be served by the licensing server, edit the licensing server list and specify the new port number.

If running more than one licensed product on a host, each product has its own licensing server list.

Merging license files

Administrators need to merge license files in the following situations:

- When you acquire more than one licensed product, and want to serve licenses from a single, shared licensing server (or a quorum of redundant licensing servers), you can generate the license files separately for each product and merge them into a single license file.
- When you add licensed ports to an existing licensing server, you generate a new license file for the additional ports and merge the new licensing file into the existing one.

There is an alternative to merging license files in the situations described above. Instead, you can return existing licenses and regenerate new license files with the needed configuration. See the fulfillment website for instructions.

Note: Some license files are incompatible, and cannot be merged. Files are not compatible when one is for a single server (one SERVER line) and the other is for redundancy (three SERVER lines). Also, files are not compatible if one uses "ANY" network addressing (in the SERVER line) and the other is locked to a MAC address (such as 000BDB79366D).

To merge two or more license files:

- 1 Select one of the files as the master, comprehensive license file, and give it an appropriate name.
- 2 Open the files in a text editor.
- 3 Copy and paste the text of the INCREMENT lines from the subordinate files to the bottom of the master. Then save the master file.
- 4 Configure the licensing server to point to the new, merged license file.

Below is a sample INCREMENT line from a license file. There can be many of these lines in a single file. When merging files, copy all INCREMENT lines to the master license file.:

```
INCREMENT osr_swiep swilmgrd 4.0 10-mar-2007 3 ISSUED=11-Sep-2006\  
SN=OR6081:7501 SIGN="0DA0 F257 FE4C B2FB 2857 84EA 9D74 81C9 \  
8EFB 8A2F 5C2B B4F7 DD7A C696 E517 0FC2 AB2E 2172 68A8 348A \  
0416 0E1A 0EC7 6C8A DEBC 7E81 635E E923 5A69 CB2F" SIGN2="057D \  
2A04 B7BC 0451 60BF 8347 1B00 3658 2A84 8E27 3FD9 FD62 CE8C \  
B24E 42D4 0F62 6BA3 0B4B 31BD 6B57 3608 4AA6 00C3 909D 92B8 \  
481C 069F C508 51C9 0EE2"
```

Installing and uninstalling on Windows

Here is the procedure to install, configure, and start licensing servers on Windows:

- 1 Remove incompatible software. The licensing server is not compatible on the same host with Nuance Core Services 4.0. If Nuance Core Services 4.0.x is installed, remove it as follows:
 - a Log into a Windows account with Administrator privileges.
 - b Select Add/Remove Programs from the Control Panel.
 - c Click on the Nuance Core Services program, and click Remove.
- 2 Download and install the licensing server.

To install the licensing server, download either the 32-bit or 64-bit installation package that matches the host operating system:

NLICMGR-11.7.0-x86-windows.zip

NLICMGR-11.7.0-x86_64-windows.zip

Installation is supported for Windows 2000, 2000 Server, and 2003 Server.

- a Double-click on the zip file and extract the *Nuance License Manager.msi* file.
- b Double-click on the msi file. The installer runs, confirms the installation path, and completes.

The installer sets the %NUANCE_LICMGR% environment variable to the location of licensing software. The default location:

c:\Program Files\Nuance\license_manager

- 3 Configure a license file.

When the licensing server starts automatically, it uses a dummy license file by default:

%NUANCE_LICMGR%\license\temp.lic

Replace the dummy when you acquire a new license file from the fulfillment website. In the future, it's necessary to replace license files whenever you re-generating new licenses for the system.

To replace the current license file with a new one:

- a Put the new license file in a secure disk location. Nuance recommends using a different name for each license file.
- b Use *lmtools* or *installs.exe* to point to the licensing server to the new file. These tools are available at Programs→Nuance License Service→Licensing Tools.
- c Restart the licensing server.

4 Start the license server.

The licensing server runs as a Windows service named “Nuance Licensing Service.” The service starts automatically when the host is restarted.

If you install multiple products on one host, they share the service (and you must merge the license files of those products).

Optionally, you can disable the default auto-start configuration, and start and stop the licensing server manually. To change the configuration, use the Windows Control Panel. Do the following:

- a Click Start→Settings→Control Panel to display the control panel.
- b Double-click Administrative Tools, then Services. Windows displays a list of services on the current host.
- c Select the service name, Nuance Licensing Service.
- d Click Action→Properties. The Properties window appears.
- e Change the Startup Type to manual, automatic, or disabled.
- f To start the service immediately, click Start.

5 When installing Nuance licensed products, administrators must configure the number of licenses checked out by that product at runtime. See [Configuring license checkouts](#).

Removing the
Windows software

You can remove the Nuance License Manager installation with the Windows control panel. The menu items are different for different versions of Windows. Here are the basic steps:

- 1 From the Windows Start menu, open the Add or Remove Programs control panel:
Start→Control Panel→Add or Remove Programs.
- 2 Select Nuance License Manager and click Remove.

Licensing log file
location

The licensing server writes log files to this default location:

`%NUANCE_LICMGR%\license\`

To change the location, use *lmtools* or *installs.exe*.

Troubleshooting high
CPU usage

The licensing server can cause high CPU usage on the host if you disconnect and reconnect the network cable for the primary network card. If the CPU usage on the server increases and remains high (specifically for the *lmgrd.exe* or *swilmgrd.exe* process), you can correct the problem by restarting the Nuance Licensing Service.

Installing on Linux

This section describes how to install and uninstall the licensing server on Linux.

Basic installation procedure:

- 1 Remove previous release of Nuance Core Services. The licensing server is not compatible on the same host with Nuance Core Services 4.0. If Nuance Core Services 4.0.x is installed, remove it as follows:

- a Log into a Linux account with root privileges.
- b Uninstall core services as follows:

```
rpm -e NCoreServices-FTA-RES NCoreServices-WATCHER
```

- 2 Download and install the licensing server. To install the licensing server, download either the 32-bit or 64-bit installation package that matches the host operating system:

NLICMGR-11.7.0-i686-linux.tar.gz

NLICMGR-11.7.0-x86_64-linux.tar.gz

The package contains scripts to install and uninstall the included RPM.

Installation is supported for Redhat 3.n, 4.n, and 5.n.

- a Log on as root user.
- b Copy the package to a temporary directory on the host machine.
- c Change to the temporary directory and untar the package. For example:

```
> tar -zxvf NLICMGR-11.7.0-i686-linux.tar.gz
```

- d Run the installation script:

```
> ./install.sh.
```

The default installation path for licensing software is *usr/local/Nuance/license_manager*. You can change the default path during installation. The remainder of this chapter refers to the path generically as “install_path”.

- 3 Configure a license file.

When the licensing server starts automatically, it uses a dummy license file by default:

install_path/license/temp.lic

Replace the dummy when you acquire a new license file from the fulfillment website. In the future, it's necessary to replace license files whenever you re-generating new

licenses for the system. To replace a license file, use FLEXnet tools or the script provided by Nuance.

The Nuance script changes the filename expected by the licensing server, and restarts licensing server to use the new filename. Do the following:

- a Log on as root user.
- b Copy the new license file to *install_path/license/new_filename.lic*
- c Change directory to *install_path/components*
- d Run the script *set-new-lic-file.sh*. The usage format is:

```
set-new-lic-file.sh full_path_to_new_license_file
```

For example:

```
> ./set-new-lic-file.sh /nuance/license_manager/license/my.lic
```

To replace the current license file using FLEXnet tools, put the new license file in a secure disk location (Nuance recommends using a different name for each license file), use *lmtools* or *installs.exe* to point the licensing server to the new file, and restart the licensing server. The tools are in *install_path/components*, and are described in the FLEXnet documentation (see *install_path/doc/LicensingEndUserGuide.pdf*).

- 4 Start the licensing server. The licensing server starts automatically when you restart the host machine. The service name is “Nuance License Server.” The service runs the script */etc/rc.d/init.d/nuance-licmgr*, which calls the License Server Daemon with the appropriate command options. This service is created and configured during installation using the template *install_path/components/nuance-licmgr*.

The root user can manually stop and start the licensing server, and can perform a restart:

```
> /etc/rc.d/init.d/nuance-licmgr start
> /etc/rc.d/init.d/nuance-licmgr stop
> /etc/rc.d/init.d/nuance-licmgr restart
```

- 5 When installing Nuance licensed products, administrators must configure the number of licenses checked out by that product at runtime. See [Configuring license checkouts](#).

Removing the Linux software

To uninstall the license manager on Linux, do the following:

```
> rpm -e nuance-licmgr
```

Add these commands if removing all Nuance speech products.

```
> rpm -e Nuance-Doc
> rpm -e Nuance-Common
```

To uninstall the licensing server only, run this script:

```
> install_path/components/nuance-licmgr-rm.sh
```

nuance-licmgr-rm.sh removes the service daemon. If you have removed the license manager (with *rpm -e nuance-licmgr*), you do not need to remove the service daemon explicitly.

Log file location

The licensing server writes operational logs to:

```
install_path/license/nuance-lic.log
```

Troubleshooting high CPU usage

There is a problem with the licensing server that can cause high CPU usage if you disconnect and reconnect the network cable for the primary network card. If the CPU

usage on the server increases and remains high (specifically for the lmgrd.exe or swilmgrd.exe process), you can correct the problem by restarting the Nuance Licensing Server.

Configuring server lists

Every licensed product configures a list of available licensing servers to retrieve its licenses.

By default, the products expect a single licensing server on the local host. You do not need to change the default licensing server list if you run the licensing server on the local host where the product is installed. You must change the list when the licensing server (or servers) are on a different host (recommended).

After a licensing server is running on a host with a valid license file (possibly a merged file that combines the license files of more than one speech product), ensure the licensing server list is set correctly on every licensed product host that uses that licensing server. Once this is done, your voice application can retrieve valid licenses and run properly.

This chapter describes the configuration of each licensed product:

- [Configuring Nuance Recognizer server lists](#)
- [Configuring Vocalizer server lists](#)
- [Configuring Nuance Management Station server lists](#)
- [Configuring Vocalizer Studio server lists](#)

Configuring Nuance Recognizer server lists

For the Nuance Recognizer product, set the licensing server list using the `SWILicenseServerList` variable in the *SpeechWorks.cfg* configuration file:

On Windows: `%SWISRSdk%\config\SpeechWorks.cfg`

On Linux: `install_path/config/SpeechWorks.cfg`

During installation, `SWILicenseServerList` specifies the default FLEXnet port of 27000 and the same host where Nuance Recognizer is installed:

Parameter	Description	Default
<code>SWILicenseServerList</code>	Port number and hostname of the licensing server host where the license file is installed.	<code>27000@localhost</code>

You do not need to change the default if you run the license server on the same machine where you install the product. If your licensing server is on a remote host, you must change `LicenseServerList` to the FLEXnet port and hostname of that host.

For example, if you install Nuance Recognizer on host `groucho` and run your licensing server on host `harpo`, change `SWILicenseServerList` on `groucho` to:

```
SWILicenseServerList=27000@harpo
```

For redundant architectures, each Nuance Recognizer host looks for licenses from several licensing servers. Set `SWILicenseServerList` to specify a list of port@server combinations.

The delimiter for the list is a semi-colon on Windows or a colon on Linux. For example, if you run licensing servers on both harpo and zeppo, set SWILicenseServerList on your Nuance Recognizer host to:

```
SWILicenseServerList=27000@harpo;27000@zeppo [uses Windows delimiter]
SWILicenseServerList=27000@harpo:27000@zeppo [uses Linux delimiter]
```

Opening firewall access on Windows XP

When your Nuance Recognizer software is running on Windows XP Professional, you must ensure that the licensing server can communicate through the firewall on the Nuance Recognizer host. The firewall must not prevent access to the port specified by SWILicenseServerList.

For details on opening ports through the firewall, see *Installing Nuance Recognizer*.

Configuring Vocalizer server lists

For the Nuance Vocalizer for Network product, set the licensing server list using the <license_servers> parameter in the appropriate configuration file:

- For Vocalizer accessed via Nuance Speech Server or the native API, the configuration file is:

On Windows: %VNETWORKV5_SDK%\config\baseline.xml

On Linux: \$VNETWORKV5_SDK/config/baseline.xml

- For Vocalizer accessed via the Microsoft SAPI 5 API, the configuration file is:

\$VNETWORKV5_SDK\config\baseline.xml

During installation, <license_servers> specifies the default FLEXnet port of 27000 and the local host:

```
<license_servers>
  <server> 27000@localhost </server>
</license_servers>
```

You do not need to change the default if you run the license server on the same machine where you install the product. Otherwise your licensing server is on a remote host, and you must change LicenseServerList to the FLEXnet port and hostname of that host.

For example, if you install Vocalizer on host groucho, but want to run your licensing server on host harpo, you need to change the value of <license_servers> on groucho to:

```
<license_servers>
  <server> 27000@harpo </server>
</license_servers>
```

For redundant architectures, each Vocalizer host looks for licenses from several different licensing servers. Set <license_servers> to specify a list of port@server combinations. For example, if you have started licensing servers on both harpo and groucho, change the value of <license_servers> to:

```
<license_servers>
  <server> 27000@harpo </server>
  <server> 27000@groucho </server>
</license_servers>
```

Vocalizer looks for valid licenses on each of the servers in the order they are listed, going to the next server in the list only when it cannot get a license from the current server.

When you distribute licensing servers across a WAN, configure the closer servers sooner in the list before the more distant backup servers.

Configuring Nuance Management Station server lists

For the Management Station product, set the licensing server list by updating the `LicenseServerList` property in the *mstation-license.properties* configuration file. The file is at this location:

On Windows: `%MSTATION_HOME%\userdata\config`

On Linux: `$MSTATION_HOME/userdata/config`

During installation, `LicenseServerList` specifies the default FLEXnet port of 27000 and the same host where Management Station is installed:

Parameter	Description	Default
<code>LicenseServerList</code>	Port number and hostname of the licensing server host where the license file is installed.	<code>27000@localhost</code>

You do not need to change the default if you run the license server on the same machine where you install the product. Otherwise your licensing server is on a remote host, and you must change `LicenseServerList` to the FLEXnet port and hostname of that host.

For example, if you install the product on host groucho and run your licensing server on host harpo, change `LicenseServerList` on groucho to:

```
LicenseServerList=27000@harpo
```

For redundant architectures, products look for licenses from several licensing servers on remote machines. For each product installation, set the server list to specify port@server combinations (a list separated by semi-colons). For example, if you run licensing servers on hosts harpo and zeppo, set `LicenseServerList` for your product host to:

```
LicenseServerList=27000@harpo;27000@zeppo [uses Windows delimiter]
```

```
LicenseServerList=27000@harpo:27000@zeppo [uses Linux delimiter]
```

Configuring Vocalizer Studio server lists

For the Nuance Vocalizer Studio product, set the licensing server list by updating the `LicenseServerList` property in the *mstation-license.properties* configuration file. The file is at this location:

`vstudio_install\configuration\vstudio.cfg`

During installation, `LicenseServerList` specifies the default FLEXnet port of 27000 and the same host where Management Station is installed:

Parameter	Description	Default
<code>LicenseServerList</code>	Port number and hostname of the licensing server host where the license file is installed.	<code>27000@localhost</code>

You do not need to change the default if you run the license server on the same machine where you install the product. Otherwise your licensing server is on a remote host, and you must change `LicenseServerList` to the FLEXnet port and hostname of that host.

For example, if you install the product on host groucho and run your licensing server on host harpo, change LicenseServerList on groucho to:

```
LicenseServerList=27000@harpo
```

For redundant architectures, products look for licenses from several licensing servers on remote machines. For each product installation, set the server list to specify port@server combinations (a list separated by semi-colons). For example, if you run licensing servers on hosts harpo and zeppo, set LicenseServerList for your product host to:

```
LicenseServerList=27000@harpo;27000@zeppo [uses Windows delimiter]
```

```
LicenseServerList=27000@harpo:27000@zeppo [uses Linux delimiter]
```


Configuring license checkouts

Every licensed product configures the number of licenses to checkout at runtime. The checkouts occur on a per-server basis. For example, if a license file contains 96 licenses, and the licensed product is installed on two servers of equal capacity, then an administrator might configure each installation to use 48 licenses.

The details for configuration parameters appear in the product's configuration guide.

Below are overviews for each licensed product:

- [Configuring Nuance Recognizer checkouts](#)
- [Configuring Vocalizer checkouts](#)
- [Configuring Nuance Management Station checkouts](#)
- [Configuring Vocalizer Studio checkouts](#)

Configuring Nuance Recognizer checkouts

Configure recognizer licensing parameters in a user-defined configuration file. To create the file, see *Installing Nuance Recognizer*.

- 1 Create a user configuration file for the recognizer (*rec_config.xml*), and specify the number of licenses to check out. The values are decided when purchasing Nuance products, or when calculating the size of system being deployed. To check the number of licenses purchased, read your downloaded license file. For details, see [Generating and saving license files](#).

You can specify fewer licenses than the count available in the license file, but not more. If you run multiple recognition servers, they share the count available (see [Guidelines for needed recognizer license checkouts](#)).

Typically, no configuration is needed for a development system because the default values are used:

```
<param name="swirec_license_ports">
  <value>4</value>
</param>

<param name="swiep_license_ports">
  <value>4</value>
</param>
```

- 2 Specify the license features to check out. By default, all features are checked out. The features are decided when purchasing licenses: the generated license file contains the

purchased features and this parameter specifies those features. For example, this value checks out the DTMF feature only:

```
<param name="swirec_licensing_features">
  <value>dtmf</value>
</param>
```

For a list of available features, see `swirec_licensing_features` in *Configuring Nuance Recognizer*.

Guidelines for needed recognizer license checkouts

Guidelines for deciding the number of licenses to check out for `swirec_license_ports` (recognizer) and `swiep_license_ports` (endpointer):

- Each instance of the recognizer requires a recognizer and endpointer license.
- Each instance of the MRCP recorder (created by the browser) requires an endpointer license.

If every call performs recognition, check out one recognizer and one endpointer license per session. For example:

For 100 concurrent sessions, configure 100 endpointer and 100 recognizer licenses.

If the browser activates the MRCP recorder feature, add one endpointer license for each recorder. For example, if every call performs recognition and uses the recorder:

For 100 concurrent sessions, configure 200 endpointer and 100 recognizer licenses.

Alternatively, if only half the calls enable the recorder:

For 100 concurrent sessions, configure 150 endpointer and 100 recognizer licenses.

If running more than one Nuance Speech Server, divide the endpointer licenses evenly by the number of servers. Each server checks out the same number of licenses for a total that must not exceed the number of available licenses in the license file. For example, if running two instances of Nuance Speech Server (and a single Nuance recognition server):

For 100 concurrent sessions, configure 50 endpointer and 100 recognizer licenses.

If each call activates the MRCP recorder:

For 100 concurrent sessions, configure 100 endpointer and 100 recognizer licenses.

If half the calls enable the recorder:

For 100 concurrent sessions, configure 75 endpointer and 100 recognizer licenses.

If running more than one Nuance recognition server, divide the recognizer licenses evenly by the number of servers. For example, if running two instances of Nuance recognition server (and a single instance of Nuance Speech Server):

For 100 concurrent sessions, configure 50 endpointer and 50 recognizer licenses.

Changes needed with DTMF-ONLY licenses

By default Nuance Recognizer and Nuance Speech Server are configured to use the end-pointer. Within DTMF-ONLY licenses this feature is not available, and you must make the following changes:

Nuance Recognizer (rec_config.xml)

```
<param name="swiep_license_ports">
<value>0</value>
</param>

<param name="swiep_license_ports_overdraft_thresh">
<value>0</value>
</param>
```

Speech Server (NSSserver.cfg)

```
server.mrcp1.osrspeechrecog.endpointer VXIInteger 0
server.mrcp2.osrspeechrecog.endpointer VXIInteger 0
```

Configuring Vocalizer checkouts

At startup, Vocalizer checks out the number of licenses defined by `tts_license_ports` in its configuration file. The licenses are not returned to the license server until the application terminates.

Vocalizer can also check out licenses, use them, and then keep them checked out for a given lapse of time in anticipation of further license requests. These cached licenses are known as dynamic licenses. When a license is inactive for the defined lapse of time, Vocalizer relinquishes the license back to the license server. These cached licenses reduce the license requests while making efficient use of the available licenses.

You can implement Vocalizer using pre-allocated licenses, dynamic licenses (license caching), or a combination with both.

For example, assume you have two Vocalizer servers using the same license server, and that license server is running with a 200-port license. Each Vocalizer server is configured with `<tts_license_ports>100</tts_license_ports>`. Now assume one Vocalizer server goes down. Since they are both configured for 100 ports, the remaining server cannot compensate for the lost load.

That's where `tts_license_dynamic_ports` becomes useful. If the above two Vocalizer servers also set `<tts_license_dynamic_ports>100</tts_license_dynamic_ports>`, then they would be able to acquire that many more licenses than the ones configured in `tts_license_ports` (dynamically, as additional TTS requests come in after the `tts_license_ports` limit is reached). These "dynamic" licenses expire after the `dynamic_license_expiration_time` limit is reached.

Configure Vocalizer licensing parameters in a user-defined configuration file. For more detail, see *Installing Nuance Vocalizer for Network* and *Configuring Nuance Vocalizer for Network*.

- 1 Create a user configuration file for the synthesizer (*ttsrshclient.xml*).
- 2 Specify appropriate values for these parameters:

Parameter	Description
dynamic_license_expiration_time	Sets the expiration timer for relinquishing unused dynamically acquired licenses. The default is 300 (sec).
tts_license_dynamic_ports	Maximum number of full TTS licenses that can be dynamically acquired after exhausting all full TTS licenses acquired by tts_license_ports. The default is 0.
tts_license_ports	Number of full TTS licenses to acquire at startup. Your system needs one license for each concurrent session that uses TTS. The default is 4 (licenses).
tts_license_ports_overdraft_thresh	Threshold at which warnings will be logged to indicate that the system is near the full TTS license limit. The default is 0 (licenses).

- 3 If generating licenses for CPR features, specify appropriate values for these parameters:

Parameter	Description
cpr_license_dynamic_ports	Maximum number of CPR-only licenses that can be dynamically acquired. The default is 0.
cpr_license_ports	Number of CPR-only licenses to acquire at startup. The default is 0.
cpr_license_ports_overdraft_thresh	Threshold to generate warnings when approaching the CPR license limit. The default is 0 (no warnings).

Configuring Nuance Management Station checkouts

Nuance Management Station requires a license file on a licensing server, but does not require configuration for checking out licenses.

Configuring Vocalizer Studio checkouts

Vocalizer Studio requires a license file on a licensing server, but does not require configuration for checking out licenses.

License usage reports

This appendix is for the Nuance Recognizer and Nuance Vocalizer for Network licensed products.

You can use the license reporting tool, `licenseReport`, to count license usage by parsing the data in the Nuance Recognizer call logs and Vocalizer event logs. This tool cannot be used in lieu of license enforcement, but can be useful for tracking usage patterns.

You must have perl installed to run the tool.

The tool reads all specified event log directories to generate a histogram of license usage per day.

The tool is installed in `%SWISRSdk%\samples\license_report` for Nuance Recognizer, and `api\demos\license_report` for Vocalizer. The syntax of the command line is:

```
perl licenseReport.pl eventLog1/dir1 [eventLog2/dir2 ...  
eventLogN/dirN] [-hourly] [-csv]
```

Note: Even though the Nuance Recognizer and Nuance Vocalizer for Network products have a script by the same name, and the perl code is very similar, they are not the same. The Nuance Recognizer version only works on Nuance Recognizer call logs, while the Vocalizer version only works on Vocalizer event logs.

The tool accepts these optional arguments:

Option	Description
-hourly	The histogram reports use per hour.
-csv	The report is produced in a comma-delimited format that can be easily imported into a spreadsheet. Otherwise, the report is produced for convenient display on a screen in text format.

The report of license usage contains the following information:

Column	Format	Description
Date	MM/DD/YYYY	The day of the period.
Hour	##	The hour of the period. 0 to 23 are acceptable values. For report by day, use 0.
Peak	##	The peak license count for the period. This is the total number of licenses in use as logged in the LPORT field.
Ports	##	Total number of ports used during that period. This will equal the number of Nuance Recognizer SWIclst events or Vocalizer NVOCliss events in the period.

Column	Format	Description
Overdrafts	##	The total number of Nuance Recognizer SWIclst events or Vocalizer NVOCliss events in the period where LPORT > LMAX.
Minutes	##	The total number of minutes in the period where licenses were held. For the Nuance Recognizer this is determined from the LTIME field in the SWIclst event; for Vocalizer this is determined based on the timestamps for the NVOCliss and NVOClise events.
Avg ports	##	Ports divided by the time period in hours. Limit to 2 decimal places.

Grand totals appear at the bottom of the report:

Column	Format	Description
Total Days	##	Number of days covered in the report.
Total Hours	##	Number of hours covered in the report.
Peak	##	Maximum use over all days.
Total Ports	##	Total ports summed over all days.
Total Overdrafts	##	Total overdrafts summed over all days.
Total Minutes	##	Total minutes summed over all days.
Avg ports	##	Average ports used over all periods.