Nuance License Manager
11.1

Licensing Guide

Notice

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Licensing Guide

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Contents

About this guide

This guide describes how to use the Nuance® License Manager to implement licensing for Nuance speech products. Nuance products requiring the Nuance License Manager are:

- Nuance Management Station
- Nuance RealSpeak
- Nuance Recognizer
- Nuance Speech Server (the resource management service component)

Audience

This guide is written for:

- Integrators who develop a platform using a Nuance licensed product
- System operators who set up and administer those systems

Typographical conventions

Nuance manuals use the following text conventions:

italic text	Indicates file and path names, web and email addresses, and terms introduced for the first time. For example: Edit the *ag.cfg* configuration file.
`Courier New`	Indicates a value that you replace. For example: The format for Start Time is `YYYY-MM-DD HH:MM:[SS]` The text you actually type could be, for example: 2005-09-10 16:33:16

Note: Many Nuance products run on both Windows and Unix platforms. Windows syntax is typically used throughout the documentation. If you are running on a Unix platform, substitute Unix syntax. For example, use *$NUANCE* wherever *%NUANCE%* appears, and use "/" in place of "\" in path

names. Differences in usage or functionality on Windows and Unix platforms are noted where relevant. Unless explicitly noted, Unix refers to both Solaris and Linux.

Where to get help

For details on licensing servers and operational tools for licensing, see the *FLEXnet Licensing End User Guide* (*LicensingEndUserGuide.pdf*).

If you have questions or problems, go to the technical support portal at *network.nuance.com*. This web-based resource center includes technical support guides on specific topics, access to software updates, and technical support news. Access is available to direct Nuance customers and to partners with active technical support contracts. Go to *network.nuance.com* to create your account or to log on.

For those who want to find out more about speech-related topics, Nuance Speech University offers training courses at several locations worldwide. Nuance Speech University also offers web training and will customize course materials for client sites. For more information about training courses and schedules, please visit *www.nuance.com/speech/training*, send email to *training@nuance.com*, or call +1 (781) 565-5000 and say "training."

To submit comments on the documentation, please send email directly to *techdoc@nuance.com*. Technical support is not available via this email address. Technical support is only provided through *network.nuance.com*.

Chapter 1

Getting started

1

Nuance licensed products require licenses and licensing servers.

The software for licensing servers is installed separately from the Nuance products that require licensing:

- Nuance® Management Station
- Nuance® Recognizer
- Nuance® Speech Server
- Nuance® RealSpeak

These products share the same licensing server software.

Requirements

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 on page 3.

2. Obtain and install license files from the Nuance license fulfillment website. For information, see Getting license files on page 11.

3. Install and configure the licensing servers. See Configuring licensing on Windows on page 17 or Configuring licensing on Linux on page 19.

Terminology

hostid: is the unique, physical MAC address of the machine. Get the address with the "ipconfig /all" command, or use the FLEXnet tool: "lmutil lmhostid".

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.

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.

licensing server list: A list used by each licensed product to point to its license servers.

Chapter 2

License architectures

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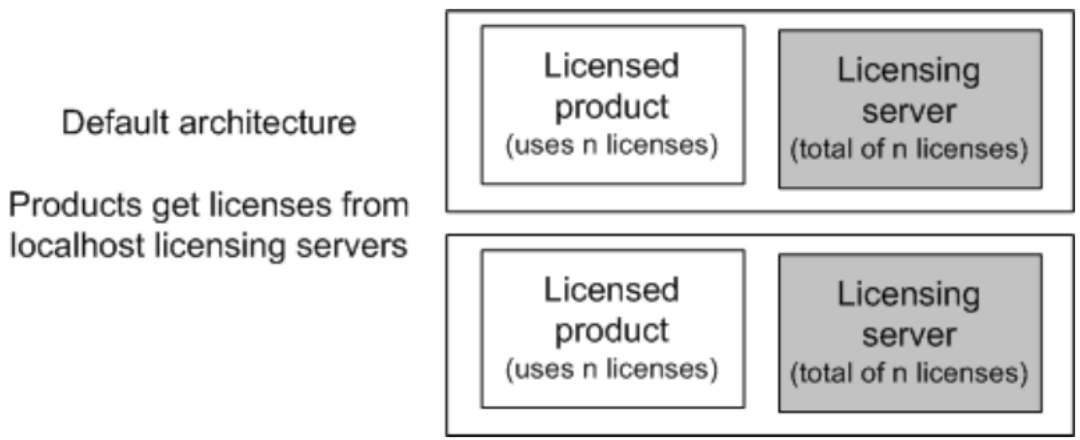
This chapter discusses the possible architectures for setting up your licensing servers.

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:



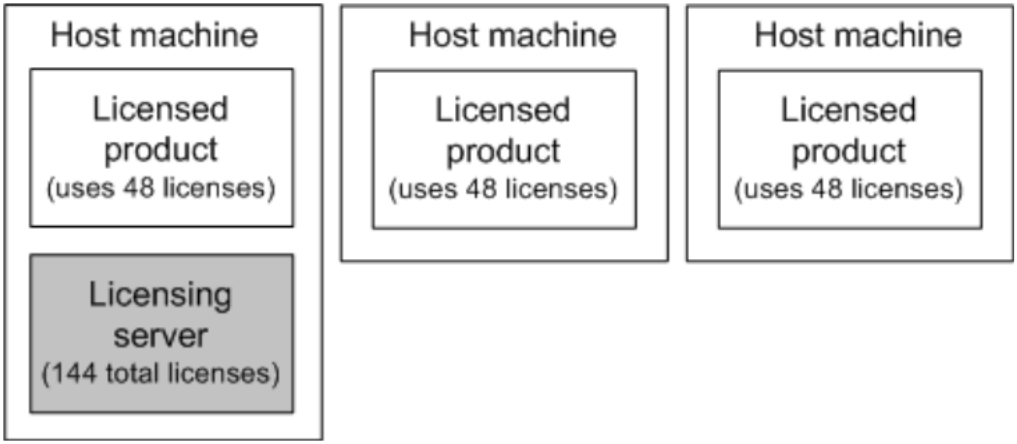
In the example, each licensing server provides licenses from a license file stored on the local host machine.

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 shows a system running three copies of the same licensed product (one installation per host where each host allows a maximum of 48 ports). 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-serve basis.

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

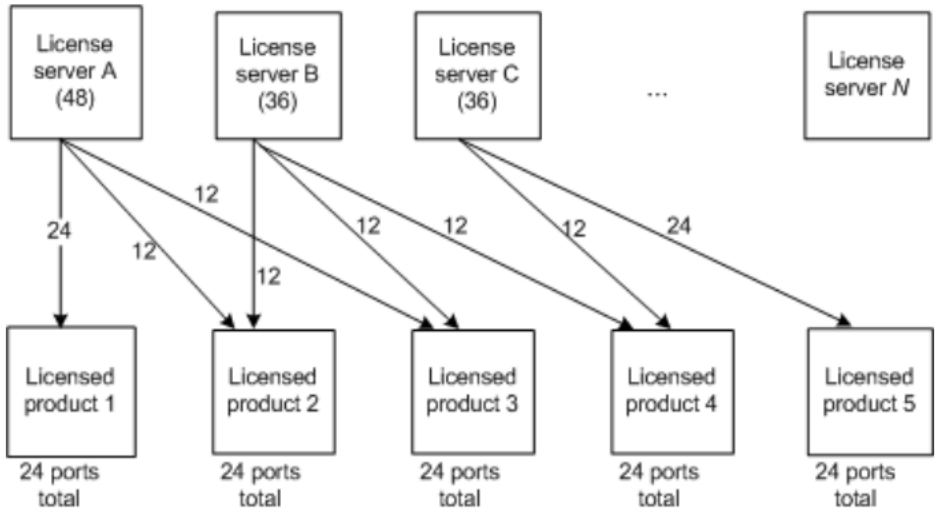
The licensing server can run on any of the hosts or on another host in the network.

The administrator must install and configure the servers, and then define the licensing server list on each licensed product host (see Configuring server lists on page 23).

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-serve 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.



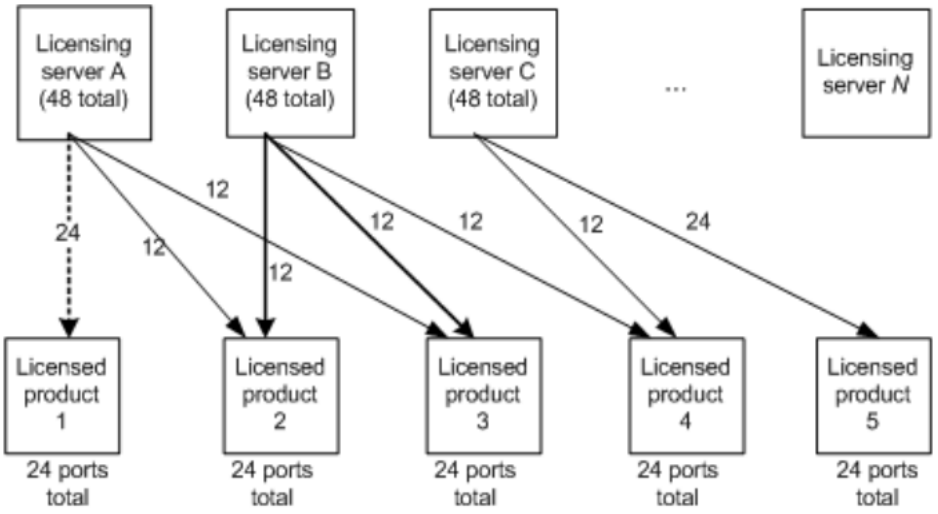
Client-configured redundancy

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 on page 23). 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.

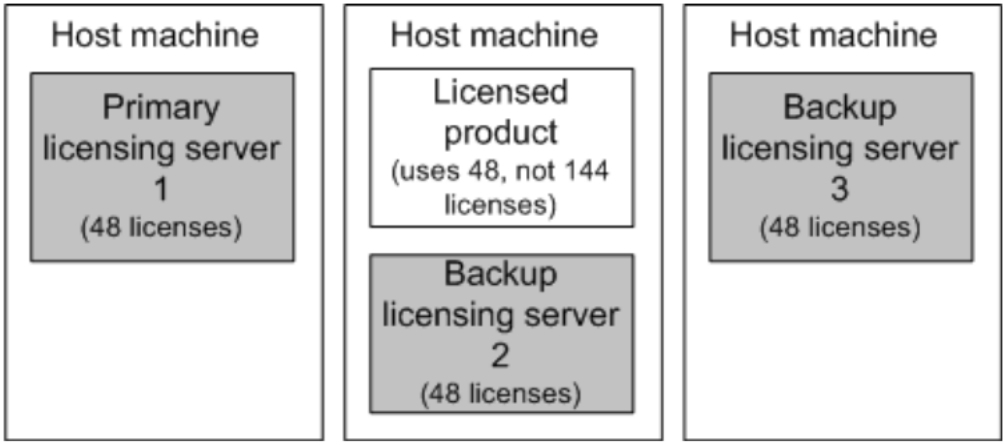
Server-configured redundancy

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
```

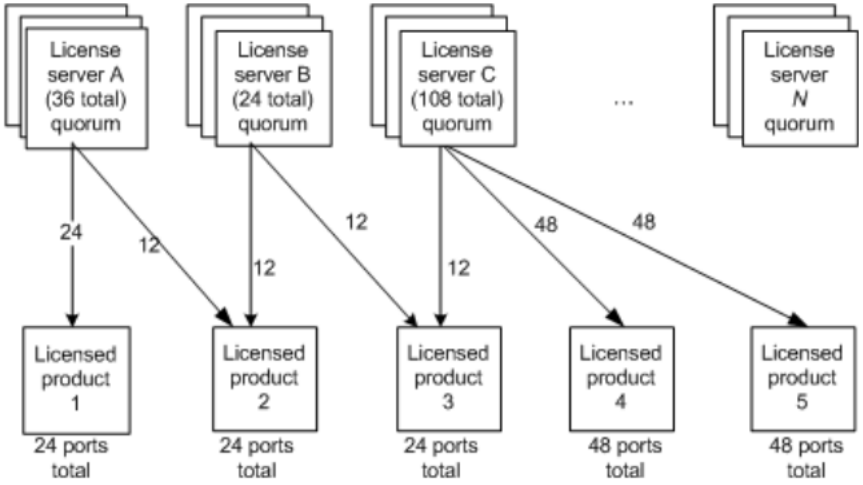
Above, the 28000 is the port used to communicate with the licensing server on the licensing server host. Typically, a default value of 27000 or 28000 is used; the value can be changed (see Changing licensing server ports on page 14).

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.

Chapter 3

Getting license files

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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.

The license fulfillment website

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.

License authorization codes

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).

Viewing licenses

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*.

Generate and save license files

Use the License Fulfillment website to generate the desired licenses. This step requires knowing the hostid's 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 a separate license file for each product, then merge the licenses into a single file used by the licensing server. For details, see Merging license files on page 15.

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 license file names on page 14 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.

Downloading and storing license files

Move license files from 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 the license file in the appropriate location on the host (for Windows, see License file location on page 17; for Linux, see License file location on page 20).

License expiration

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."

Getting reports on license usage

For the Nuance Recognizer licensed product, you can generate reports about license usage. For details, see License usage reports on page 29.

Changing generated license files

See the FLEXnet documentation for details about license files and their syntax.

As an end-user, you are allowed to 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 on page 14.
- 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 on page 14.
- Add an INCREMENT line if directed by Nuance technical support or when merging license files. (See Merging license files on page 15.)

The contents of a license file depends upon the speech product. If you edit a license file, *be very careful*.

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 License file location on page 17.

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 if one is set for a single server (one SERVER line) and the other 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"
```

Configuring licensing on Windows

4

This chapter describes how to configure and start licensing servers on Windows.

Installation procedure

To install the licensing server, download *NLICMGR-11.1.0-i386-win32.zip*.

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

1 Double-click on the zip file and extract the *Nuance License Manager.msi* file.

2 Double-click on the msi file. The installer runs, confirms the installation path, and completes.

Installation path

During installation, the %NUANCE_LICMGR% environment variable is set to the location of licensing software. By default, the software is installed to:

c:\Program Files\Nuance\license_manager

License file location

When the licensing server starts automatically, it is pre-configured to use a dummy license file:

%NUANCE_LICMGR%\license\temp.lic

Replace the dummy file with a license file generated at the fulfillment website. Use a different filename, and then change the name expected by the licensing server using *lmtools* or *installs.exe*. These tools are available at Programs→Nuance License Service→Licensing Tools.

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*.

Starting the license server

The licensing server runs as a Windows service named "Nuance Licensing Service." The service starts automatically when the host is restarted. To disable the automatic start, see Starting licensing servers manually on page 18.

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

Starting licensing servers manually

You can disable the default auto-start configuration when you prefer to start and stop the licensing server manually.

To change the configuration, use the Windows Control Panel. Do the following:

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

Configuring licensing on Linux

5

This chapter describes how to configure licensing servers on Linux.

Installation procedure

To install the licensing server, download *NLICMGR-11.1.0-i386-linux.tar.gz*. The package contains scripts to install and uninstall the included RPM.

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

1 Logon as root user.

2 Untar the package to any location on the host machine. For example:

```
tar -zxvf NLICMGR-11.1.0-i386-linux.tar.gz
```

3 Change directory to NLICMGR-11.1.0

4 Run the installation script:

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

Nuance RealSpeak allows installation on Red Hat 7.2. The above tar file cannot be used. Instead, the installer is shipped as: *rs-lic-4.5.00-00.i386.rpm*, and the installation procedure is much the same as for previous RealSpeak releases. For details, see the release notes.

Installation path

The default installation path for licensing software is */nuance/license_manager.*

You can change the default path during installation. The remainder of this chapter refers to the path generically as “install_path”.

License file location

When the licensing server first starts, it is pre-configured to use a dummy license file:

install_path/license/temp.lic

Replace the dummy file with a license file generated at the fulfillment website. Use a different filename, and then change the name expected by the licensing server using either FLEXnet tools or the script described below.

The FLEXnet tools are *lmtools* or *installs.exe*. They are installed in *install_path/components*. The *FLEXnet Licensing End User Guide* describes the tools (see *install_path/doc/LicensingEndUserGuide.pdf*)

Nuance provides a script to change the filename expected by the licensing server. The script also restarts licensing server to use the new filename. Do the following:

1 Logon as root user.

2 Copy the new license file to *install_path/license/new_filename.lic*

3 Change directory to *install_path/components*

4 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
```

Log file location

The licensing server writes operational logs to:

install_path/license/nuance-lic.log

Starting 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

To uninstall the Nuance License Server service, run this script:

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

Chapter 6

Configuring server lists

6

This chapter describes how to configure the licensing server list. The list must be configured every licensed product that uses a licensing server located on a different host machine.

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), you must ensure that the licensing server list is set correctly on every licensed product host that uses that licensing server. Once this is done, your speech application can retrieve valid licenses and run properly.

Note: 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).

This chapter describes the configuration of each licensed product:

Configuring Nuance Recognizer

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
SWILicenseServerList	Port number and hostname of the licensing server host where the license file is installed.	27000@localhost

If your licensing server is on a remote host, you can change SWILicenseServerList 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:

```
27000@harpo
```

For redundant architectures, each Nuance Recognizer host looks for licenses from several licensing servers. Set SWILicenseServerList to specify a list (separated by semi-colons) of port@server combinations. For example, if you run licensing servers on both harpo and zeppo, set SWILicenseServerList on your Nuance Recognizer host to:

```
27000@harpo;27000@zeppo
```

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 the *Nuance Recognizer Installation Guide*.

Configuring RealSpeak

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

- For RealSpeak client/server, the parameter is in the following configuration file on the server:

  On Windows: *%SSFTTTSSDK%\config\ttsserver.xml*
  On Linux: *$SSFTTTSSDK/config/ttsserver.xml*

- For RealSpeak all-in-one, the configuration file is:

  On Windows: *%SSFTTTSSDK%\config\ttsrshclient.xml*
  On Linux: *$SSFTTTSSDK/config/ttsrshclient.xml*

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

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

If your licensing server is on a remote host, you can change <license_servers> to the FLEXnet port and hostname of that host. For example, if you install the RealSpeak server 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 RealSpeak 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>
```

RealSpeak 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

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%\mserver\webapps\mserver\config*
On Linux: *$MSTATION_HOME/mserver/webapps/mserver/config*

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

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

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 the product on host groucho and run your licensing server on host harpo, change LicenseServerList on groucho to:

```
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:

```
27000@harpo;27000@zeppo
```

Configuring Nuance Speech Server

For users of the Nuance Speech Server and the resource management service, the resource management service is a licensed product and needs a licensing server list when started. Provide the list using one of the following:

- When controlling the resource management service with Nuance Management Station, set the licensing server list using the Management Station interface.
- When start and stopping the resource management service from the command line (or with scripts), set the licensing server list using the lm.Addresses parameter.

For example, when the licensing server uses the default port on the same host as the resource management service, specify *27000@localhost* to the Management Station, or start the service with the following command:

```
resource-manager other-arguments lm.Addresses=27000@localhost
```

If your licensing server is on a remote host, you must change the licensing server list to the FLEXnet port and hostname of that host. For example, if you install the resource management service on host groucho and run your licensing server on host harpo, specify *27000@harpo* to the Management Station, or start the resource management service as follows:

```
resource-manager other-args lm.Addresses=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, specify *27000@harpo;27000@zeppo* to the Management Station, or start the resource management service as follows:

```
resource-manager other-args lm.Addresses=27000@harpo;27000@zeppo
```

License usage reports

A

This appendix is for the Nuance Recognizer licensed product.

You can use the license reporting tool, licenseReport, to count license usage by parsing the data in the recognizer call 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*. The syntax of the command line is:

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

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 SWIclst events in the period.
Overdrafts	##	The total number of SWIclst events in the period where LPORT > LMAX.
Minutes	##	The LTIME field in the SWIclst event, expressed in minutes and rounded up. Then sum over all events in the period.
Ave 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.
Ave ports	##	Average ports used over all periods.

Licensing modes

B

This appendix is for Nuance RealSpeak licensing only. Other licensed products do not allow configuration of licensing modes.

RealSpeak runs in one of the following license allocation modes; in essence, the modes determine how long a client retains an issued license:

- *Default* licensing—RealSpeak licenses are allocated and freed automatically as each RealSpeak engine resource is created and destroyed by calling TtsInitializeEx and TtsUninitialize respectively. (The "default" mode is the default.)
- *Explicit* licensing—Licenses are allocated and freed by the platform developer using API functions. To use explicit licensing for RealSpeak, the platform must call the following functions:
  - TtsResourceAllocate
  - TtsResourceFree

The platform integrator must decide which (or both) of the modes to support. If both modes are supported, the integration can allow application developers to decide which mode to use based on the needs of individual applications.

The mode is controlled by the <license_mode> parameter in the Nuance RealSpeak configuration file (see Configuring RealSpeak on page 25). Possible values are `default` or `explicit`.

```
<license_mode>
  <server> default </server>
</license_mode>
```

Default RealSpeak licensing

In this mode, RealSpeak automatically allocates one license when TtsInitializeEx is called. RealSpeak frees the license when TtsUninitialize is called.

If RealSpeak cannot check out a valid license from the licensing server under this mode, TtsInitializeEx returns a failure (TTS_E_LIC_NO_LICENSE).

Considerations for using default licensing mode

You may want to use the default licensing scheme in these cases:

- You plan to use all created engine instances for actual speak operations. If you create extra engine objects that you are not using, you should select a different licensing mode. Otherwise, you can purchase more licenses than your application actually needs.
- You have already completed an integration with Speechify 2.x or RealSpeak 3.x and do not want to perform additional integration work. This method is fully backwards compatible with Speechify 2.x or RealSpeak 3.x and allows your integration code to execute as before.
- You are deploying your licensing server on a separate host in a wide area network (WAN). Across such a network, latency is a factor and frequent roundtrip communication to and from the licensing server is not advisable. Assuming that you do not create and destroy engines frequently, access to the licensing server is minimized.

Explicit RealSpeak licensing

With this mode, the platform integrator decides when to allocate and free licenses. Two API functions are available. For function details and examples, see the *RealSpeak Programmer's Guide*:

- TtsResourceAllocate
- TtsResourceFree

Before calling TtsProcess, call TtsResourceAllocate on a RealSpeak port resource to allocate one license. Call TtsResourceFree on that port to free the license. If you are using the explicit licensing mode and do not call TtsResourceAllocate before TtsProcess, the speak request fails (with TTS_E_LIC_NO_LICENSE). If you call TtsResourceFree while there is an active speak request (i.e., before TtsProcess or TtsProcessEx returns), the release fails (with TTS_E_WRONG_STATE).

Normally, your explicit allocation should span multiple TtsProcess operations. For example, you might allocate a license when a call comes in, use that port for the entire call, then free the license when the call ends.

Allocation can fail for these reasons:

- Your entire license pool has been exhausted.
- The licensing server for your license client is unavailable. As shown previously, license clients can point to multiple licensing servers, each of which may issue their own pre-allocated pool of licenses, so all licensing servers must in fact be unavailable or out of licenses for allocation to fail.

You do not need to allocate licenses for any Tts API function except TtsProcess, not even for loading and activating dictionaries.

Considerations for using explicit licensing mode

You may want to employ the explicit method when:

- You want to have complete control over when a license is bound to your resources. This method can be used to guarantee that a license is always available. For example, you may want to guarantee that for the duration of any call, a license is always available and cannot be freed and re-used by another call. To do this, at the beginning of your call (such as when the platform detects an incoming call), call TtsResourceAllocate, and after hang-up has been detected, call TtsResourceFree. This is only one example of how these functions can be used.
- You have a pool of RealSpeak licenses to use for multiple servers or clients, but want to explicitly decide which licenses go to which hosts (and only to those hosts).
- You are running load tests that simulate speak densities that are atypical for normally deployed speech systems. In this case, processor and memory usage is extremely high, even if not indicative of a real-world deployment. Frequent round trips to the licensing server, although negligible in overall performance impact, may affect your performance numbers.