Licensing Handbook

SpeechWorks® solutions from ScanSoft®

for OpenSpeech Recognizer 3.0 and RealSpeak 4.0

Document History

Date	Release Name
November 2005	Fourth Edition, Update 1 (for OSR 3.0.9 and RealSpeak 4.0)
October 2004	Fourth Edition (for OSR 3.0 and RealSpeak 4.0)
May 2004	Third Edition (for OSR 3.0)
December 2003	Second Edition, Update 2 (for OSR 2.0.3 and Speechify 3.0)
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Notice

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Preface

This guide describes the details of license enforcement for the OpenSpeech™ Recognizer and RealSpeak™ products from ScanSoft, Inc.

OSR and RealSpeak use third-party license management software to allocate and free licenses. For OSR, you need licenses for each telephony channel (or port) that initializes a recognizer (SWIrec) or speech detector (SWIep); you do not need separate licenses for each component. For RealSpeak, you need licenses for each port that might simultaneously play RealSpeak generated audio. ScanSoft controls the initial generation and distribution of these license files (also known as keys).

Audience

This guide is written for:

- Integrators who develop a platform for use with the OpenSpeech Recognizer, RealSpeak text-to-speech system, or both
- System operators who set up and administer those systems

New and changed information

Fourth Edition, Update 1

OSR supports Windows XP Professional in addition to the previously supported Windows 2000. When your OSR software is running on Windows XP, you must ensure that the license server can communicate through the firewall on the OSR machine. See step 5 on page 32 or see “Opening firewall access on Windows XP” on page 36.

When setting up server-configured redundancy (page 18) the license servers operating in the quorum must run the same operating system.

Fourth Edition

All RealSpeak information is new for this edition. For RealSpeak, licensing was introduced for the RealSpeak 4.0 release.

Roadmap to available documentation

Recommended reading

Both OSR and RealSpeak come with documentation in PDF format. These books cover relevant information for application developers, API programmers, and system integrators. See the installation directories for each product.

How this guide is organized

The chapters of this document cover these topics:

Chapter 1 covers the types of licenses available and the process for obtaining and managing licenses, and describes the license files.

Chapter 2 covers license architectures and enforcement, including allocating and freeing licenses implicitly and explicitly, and load balancing.

Chapter 3 describes how to install and configure a Windows license server.

Chapter 4 describes how to install and configure a Linux license server.

Appendix A describes how to find the hostid for your license server machine.

Appendix B describes a sample license file.

This guide also includes an index.

Support services

To receive technical support from ScanSoft, Inc., visit http://developer.scansoft.com. This site requires a customer username and password.

You can also visit http://www.scansoft.com for general corporate, product, marketing, and sales information.

CHAPTER 1

About ScanSoft Licenses

This chapter discuss the various types of licenses and how to get them.

Legal ramifications

Your use of ScanSoft products is governed by your license agreement with ScanSoft. Neither this document nor the actual mechanisms of license key enforcement are a substitute for that license agreement.

General requirements

The general license requirements are as follows:

1. Obtain a license file from the ScanSoft licensing fulfillment website. For information, see “Obtaining and managing licenses” on page 3.

2. Install the FLEXlm license server software (included with the ScanSoft installation media) on a machine capable of communicating with the OSR or RealSpeak machine via TCP/IP. All references to the “license server” in this handbook refer to the FLEXlm license server. See Chapter 2 for a discussion of where to install the license server.

3. Run the license server and configure the system. See the discussions in Chapter 3 (Windows) and Chapter 4 (Linux).

Overview of license options

Evaluation Software Development Kit (SDK) licenses

An evaluation license permits a single developer to use the SDK for a period of 45 days from the date of issue. For OSR, you are allotted 4 ports of recognition and speech detection (endpointing).

RealSpeak's standard evaluation license is limited to 4 ports for a period of 45 days from the date of issue.

There is also an extended evaluation option for both products, providing *n* ports (where *n* can be any number) for a period of 180 days.

These ports may only be used for *internal* development. To continue development with the OSR or RealSpeak SDK after the evaluation period has expired, you must license a full SDK. To deploy a speech system, you must purchase the desired number of runtime ports.

SDK licenses (perpetual licenses)

A full SDK license permits a single developer to use the SDK for an unlimited period of time. For OSR, you are allotted 4 ports of recognition and speech detection. For RealSpeak, you are allotted 4 ports of speaking. These ports may only be used for *internal* development. To deploy a production system, you must license the desired number of runtime ports.

Runtime licenses

Runtime licenses apply on a per-port basis:

- For OSR, they must be purchased for every channel of speech detection or recognition that will be deployed in a speech system. (Each license covers speech detection and recognition even though these are separate components.)

- For RealSpeak, they must be purchased for every channel of output speech. Runtime licenses do not expire.

OSR speech licenses

OSR speech licenses allow you to invoke the recognizer and speech detector. The licenses grant full access to the recognizer and speech detector, and you can recognize from both voice and DTMF grammars.

RealSpeak licenses

RealSpeak licenses provide the ability to activate RealSpeak ports. RealSpeak licenses permit *n* simultaneous playbacks of RealSpeak generated audio

Obtaining and managing licenses

Each ScanSoft customer agreement includes provisions for specific accounts and numbers of licenses. ScanSoft sends License Authorization Codes (LACs) to each customer, and each LAC enables requests for license files for an account. The codes are sent via e-mail.

Viewing licenses

To view licenses, follow these steps:

1. Go to the License Fulfillment website (http://licensing.speechworks.com) and enter the appropriate LAC. (See step 1 on page 4 for more details.)

   The “License Fulfillment Homepage” displays your license status in a text box:

   - 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 machines.
   - Completed – means that license files have been created for all of the ports associated with this order. For example, if your OSR license agreement specifies 72 ports of speech detection and recognition, you can generate license files for

any number of ports up to that maximum. (See "License server configurations" on page 7 for information about using license servers.)

2. Choose the appropriate product category (OSR or RealSpeak), and click "View or Replace Licenses." In response, the site displays currently generated licenses and hosts, and you can view and download the license files (as described above) by clicking "View the license" for each license.

Generating licenses and downloading license files

To use licenses, you must generate a license file. During generation, you associate licenses with a specific hostid.

To generate licenses, follow these steps:

1. Go to the License Fulfillment website (http://licensing.speechworks.com) and enter the appropriate LAC. (You company might have one LAC or it might have several LACs for different accounts. For example, the RealSpeak product uses a different LAC from OSR.)

2. The Licensing Fulfillment webpage shows you the products for which you can generate licenses. (There may be more than one product in your order.) Choose the appropriate product category (OSR or RealSpeak), and click Generate License.

3. Enter the hostid for your license server (hostid is also discussed in Appendix A), choose the desired quantity of licenses for your license server, and click "Generate License." The next webpage displays the license file and instructions for saving the license to a local file.

4. Install the license file (with the expected name) in the directory specified in "Configuring and starting the license server" on page 33.

Making changes to generated licenses

After you generate a license file, you can make changes in the future:

- If you generated some of the available licenses, you can return to the license fullfillment page and generate additional licenses.

- To generate new licenses for a new license server (that does not have an existing license file), follow the steps in “Generating licenses and downloading license files”.
- To generate new licenses for a license server that already has a license file, you must merge the new and existing license files. This is discussed below in “Adding licenses during operation”.

- If you have more licenses than needed for a license server, you can return those licenses (and free them for use on another server). This is discussed below in “Modifying (replacing) licenses”.

Adding licenses during operation

After you generate, install, and configure licenses for a license server, you can generate additional licenses for that server in the future. The steps are identical to the discussion in “Generating licenses and downloading license files” on page 4 except that you finish by merging the new license file with the existing one. To summarize the steps:

1. Go to the License Fulfillment website and enter the appropriate LAC.
2. Select the desired licenses and click Generate License.
3. Enter the hostid for your license server, choose the desired quantity of licenses, and click “Generate License.” The next webpage displays the license file and instructions for saving the license to a local file.
4. Merge the new license file into the existing file in the target directory. To merge the files, open the files in a text editor and copy the INCREMENT lines from the new file to the existing.

Modifying (replacing) licenses

You can return licenses that have been previously generated, and those licenses again become available for re-generation. For example, this is useful when replacing license server hardware because you can return licenses from the old server and re-generate them for the new.

When you replace licenses with this procedure, the license website creates a new License Authorization Code (LAC) for the replaced licenses, and the number of licenses associated with the original LAC is reduced by the same quantity:

1. From the homepage of the License Fulfillment website, click “View or Replace Licenses.” In response, the site displays currently generated licenses and hosts.

2. Click the appropriate “Replace the license” button. In response, the site requests an License Authorization Code, the license file, and an e-mail address for acknowledgement and further instructions. (The fields for the LAC and filename are automatically filled based on your previous selection.)

3. Fill in the text boxes, click “Submit,” and then confirm the information in the next screen that appears. In response to your submission, the ScanSoft license database will be updated. You will receive the new LAC via e-mail, which can be used to generate the new replacement licenses.

Dealing with license problems

If you have problems obtaining or running with licenses, file an incident report and ScanSoft will respond rapidly. To file a report, visit this website:

http://developer.scansoft.com

CHAPTER 2

License Architectures

This chapter discusses system architecture options available for deployment:

License server configurations

All references to the “license server” in this handbook refer to the FLEXlm license server.

Distributed license servers and floating licenses

ScanSoft uses FLEXlm to implement a floating license model:

- License servers allocate licenses to license clients, which run on OSR or RealSpeak machines. There is no limit to the number of license servers that can be used on a network.
- A fixed number of licenses is available; this is known as the license “pool.” The pool is created when a license server starts and destroyed when the server stops. A single license server or many license servers can manage a given pool.

- License clients request licenses when a recognition or TTS event is needed. Licenses are not required to be dedicated to specific ports; they can be “floating” (any license can be allocated to any port). They can be released when the license is no longer needed.

One advantage of this model is that a single license server can manage licenses across a network of multiple license clients without knowing the hostid for each client. (Instead, the license clients point to the IP addresses of their license servers.) Thus, a pool of recognition servers and TTS servers can share the same license pool.

Failure recovery

If OSR suddenly loses communication with its license server, it continues processing telephone calls normally for a period of 61–89 seconds. If a license server returns during that period, operation continues normally. If a license server does not return, OSR releases all its licenses and can no longer perform speech detection or recognition events for telephone calls until the license server again becomes available.

Likewise, if RealSpeak suddenly loses communication with its license server, it continues processing speak requests normally for 61–89 seconds. If a license server returns during that period, operation continues normally. If a license server does not return, RealSpeak releases all its licenses and can no longer perform speak requests.

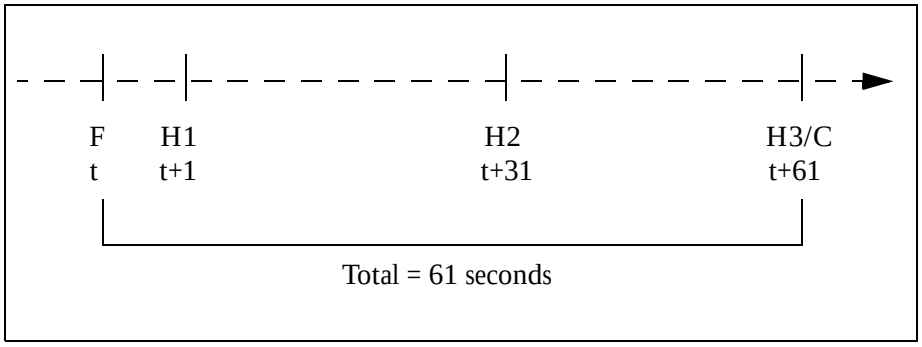
Details on the 61–89 timeout second period:

- License clients and servers periodically communicate via a “heartbeat” mechanism: every 30 seconds, each license client sends a heartbeat message to the license servers.

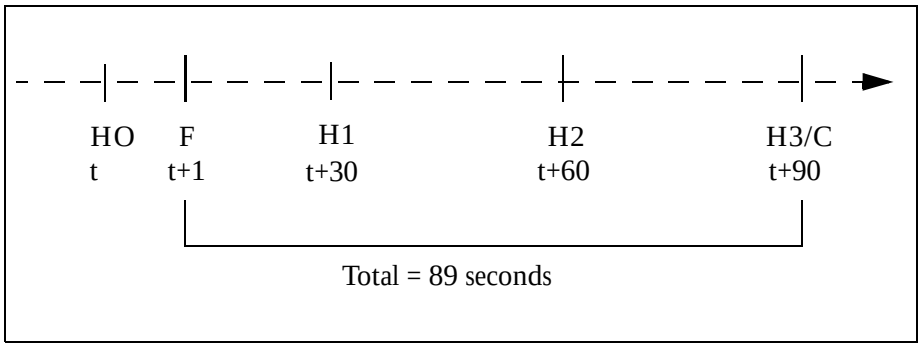
- If a corresponding message is not returned from the server for two consecutive heartbeats, the client attempts to reconnect.

- Upon a second unanswered heartbeat, the client releases all its licenses, and all calls to API functions that require licenses return SWIrec_ERROR_LICENSE_COMPROMISE (for OSR) or TTS_E_LIC_NO_LICENSE (for RealSpeak).

The following diagrams show the shortest and longest possible timeout periods until a reconnect completed (or until the compromise state is reached). The range is 61 to 89 seconds depending whether the network license server failure occurs immediately before or after a heartbeat. Here is the shortest timeout:



Here is the longest possible timeout period:



The abbreviations in the preceding figures indicate the following:

- F = failure
- H0 = heartbeat occurs before a disconnect (no effect)
- H1 = heartbeat 1, attempted reconnect 1
- H2 = heartbeat 2, attempted reconnect 2
- H3/C = heartbeat 3, enter compromise state
- t = time, in seconds

Once compromised, OSR and RealSpeak remain in this state until a license server *with a sufficient number of licenses* becomes available. Once the license server returns to service, OSR (or RealSpeak) resumes normal operation (by automatically re-assigning licenses) after a period of time equal to the timeout period.

License servers and system architectures

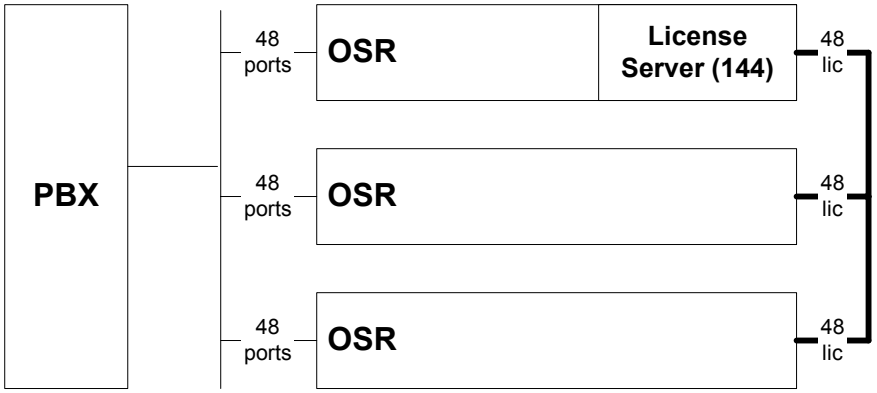
There are minor configuration differences for license servers depending on the product (OSR versus RealSpeak) and the architecture (all-in-one versus client-server).

The sections below describe these differences briefly, and are followed by a discussion of system administrator configuration tasks (page 15).

OSR all-in-one (in-the-skins) architecture

OSR “all-in-one” (or alternatively, “in-the-skins”) is an architecture where all of the components of the speech detector and recognizer are running on the same computer.

The illustration below shows an example system running three copies of OSR (one copy per machine) with a maximum of 48 ports of speech recognition each. One way to deploy this system, is to run a single license server on one of the OSR machines:



When the license server starts, it creates a pool of licenses (in this example, 144 licenses). The server allocates individual licenses to ports controlled by license clients on a first-come, first-serve basis. To perform the allocation, the license server uses “default” or “explicit” mode as described on page 25.

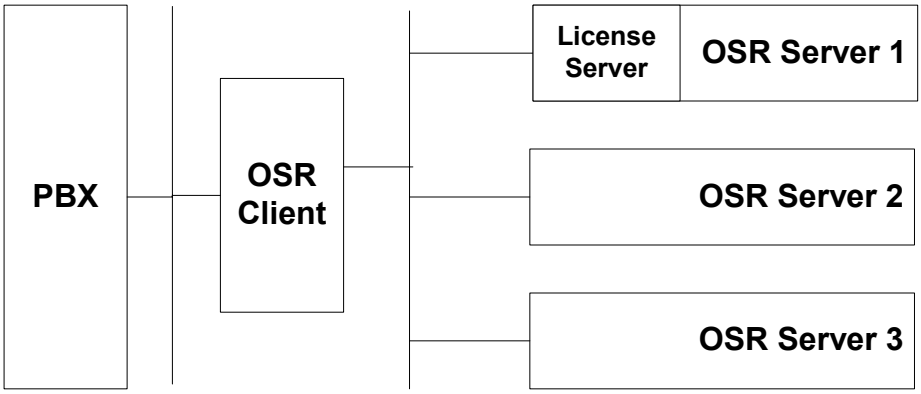
The license server maintains a count of allocated licenses across the network. It does not monitor port usage on a per-machine basis, but rather identifies that there cannot be more than 72 ports active at any one time. In this example, the equal distribution of 48 licenses per machine is arbitrary (having more licenses than available ports is unnecessary; having less results in under-utilization of resources).

The license server can run on any of these OSR machines or on another machine in the network. *The license server must be on the same logical subnet as the OSR machines.*

OSR client-server architecture

OSR “client-server” is an architecture where the speech detector and recognizer are distributed across a network of two or more computers running the TCP/IP protocol.

The licensing model for the OSR client-server environment is essentially the same as the preceding all-in-one approach. The example below shows an OSR client using three OSR servers. One of the OSR servers is also running a License server:



Although the speech detector and the recognizers are on different machines in the OSR client-server environment, this does not create licensing problems because license servers allocate licenses independently for speech detector and recognizer ports. (This does not reduce the number of licenses by half because each license file grants an equal number of licenses for both.)

When the license server starts, it creates a pool of licenses. The server allocates individual licenses to ports controlled by license clients on a first-come, first-serve basis. To perform the allocation, the license server uses “default” or “explicit” mode as described on page 25.

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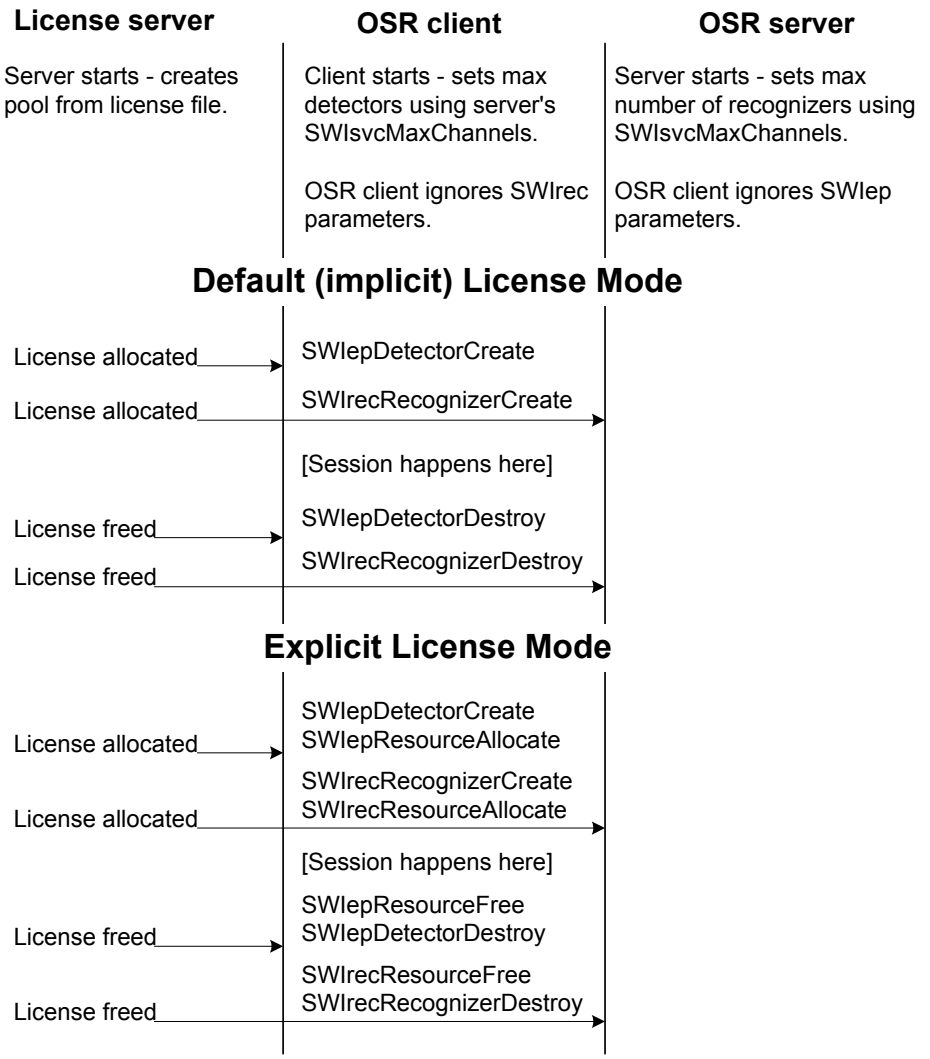
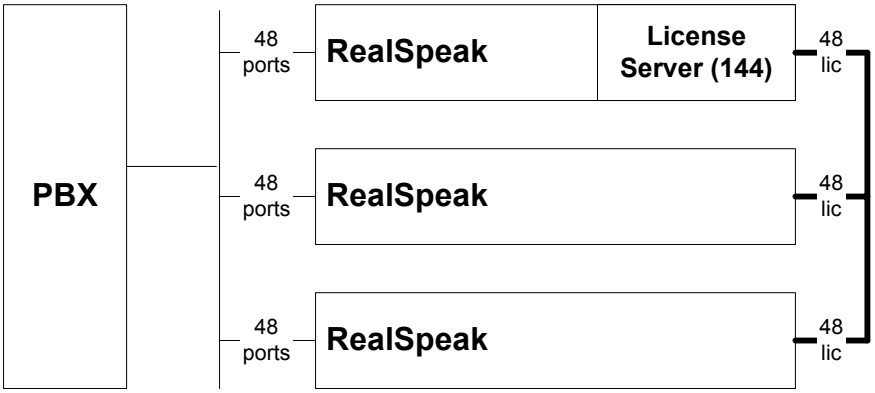


RealSpeak all-in-one (in-the-skins) architecture

RealSpeak “all-in-one” (or alternatively, “in-the-skins”) is an architecture where all of the components of the text-to-speech engine are running on the same computer.

The illustration below shows an example system running three copies of RealSpeak (one copy per machine) with a maximum of 48 ports of text-to-speech each. One way to deploy this system, is to run a single license server on one of the RealSpeak machines:



When the license server starts, it creates a pool of licenses (in this example, 144 licenses). The server allocates individual licenses to ports controlled by license clients on a first-come, first-serve basis. To perform the allocation, the license server uses “default” or “explicit” mode as described on page 25.

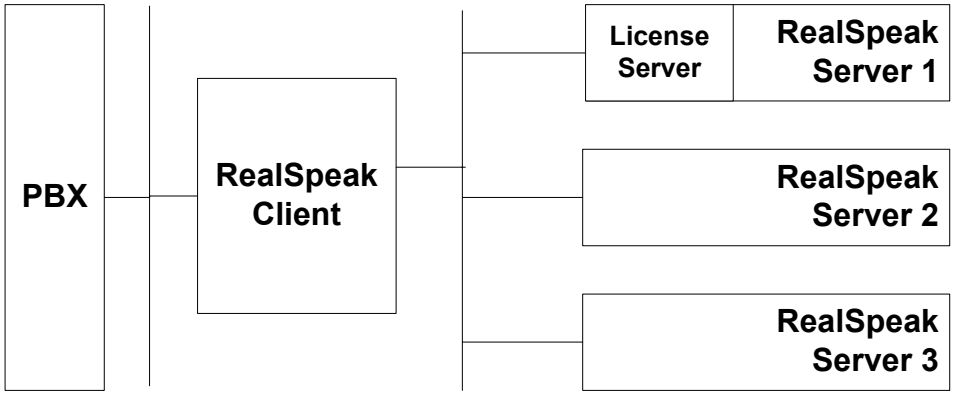
The license server maintains a count of allocated licenses across the network. It does not monitor port usage on a per-machine basis, but rather identifies that there cannot be more than 72 ports active at any one time. In this example, the equal distribution of 48 licenses per machine is arbitrary (having more licenses than available ports is unnecessary; having less results in under-utilization of resources).

The license server can run on any of these RealSpeak machines or on another machine in the network. *The license server must be on the same logical subnet as the RealSpeak machines.*

RealSpeak client-server architecture

RealSpeak “client-server” is an architecture where the text-to-speech engine is distributed across a network of two or more computers running the TCP/IP protocol.

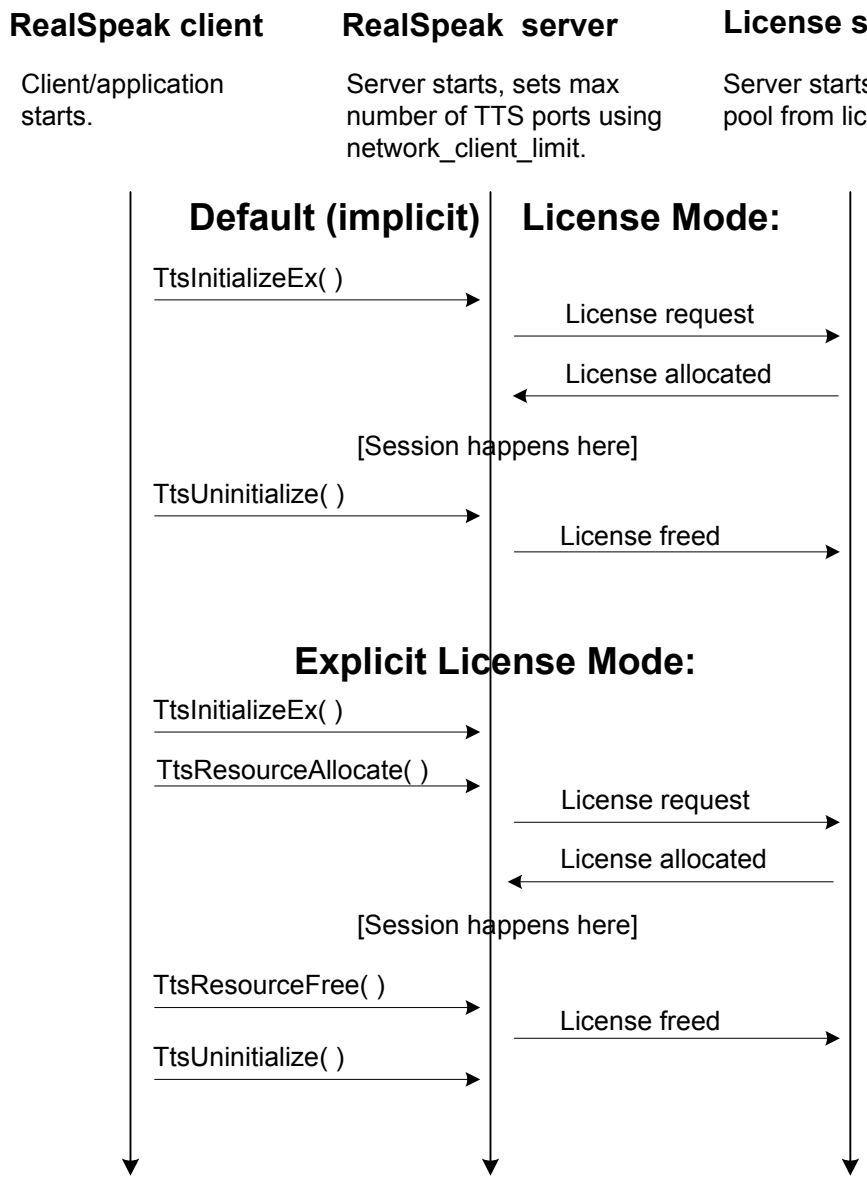
The licensing model for the RealSpeak client-server environment is essentially the same as the preceding all-in-one approach. The example below shows a RealSpeak client using three RealSpeak servers. One of the RealSpeak servers is also running a License server:



The RealSpeak client does not require licenses.

On the RealSpeak server, licenses are allocated differently depending on the licensing mode (see page 25):

- Default (implicit) mode – The license server *allocates licenses as RealSpeak clients connect to the server* (one license per client TtsInitializeEx( ) operation). The licenses are freed when the client disconnects or the RealSpeak server stops.
- Explicit mode – The platform calls TtsResourceAllocate( ) to explicitly *allocate individual licenses* at the start of each session. The platform frees the licenses at the end of each session by calling TtsResourceFree( ).



Configuration tasks for the system administrator

Tasks for OSR all-in-one

For configuration, the administrator must do the following:

- Provide the hostid of each computer running the license server to ScanSoft (sent via the website). See “Generating licenses and downloading license files” on page 4.

- Provide the host name (not the hostid) of the computer running the license server to all the machines running OSR. The name is either entered into the SpeechWorks.cfg or into an environment variable. See “Configuring OSR on Windows” on page 35 or “Configuring OSR on Linux” on page 42 for details.

- Decide and configure the desired license mode for the speech detector and the recognizer. See “Overview of licensing modes” on page 25.

Tasks for OSR client-server

For OSR client-server configuration, the only difference from OSR all-in-one is that the licensing mode is configured on both the OSR client and OSR server machines

- On the OSR client, configure the license mode for the speech detector.
- On the OSR server, configure the license mode for the recognizer.

Tasks for RealSpeak all-in-one

For configuration, the administrator must do the following:

- Provide the hostid of each computer running the license server to ScanSoft (sent via the website). See “Generating licenses and downloading license files” on page 4.

- Provide the host name (not the hostid) of the computer running the license server to all the machines running RealSpeak. The name is entered into an environment variable. See “Configuring RealSpeak on Windows” on page 36 or “Configuring RealSpeak on Linux” on page 43 for details.

- Decide and configure the desired license mode for the text-to-speech engine. See “Overview of licensing modes” on page 25.

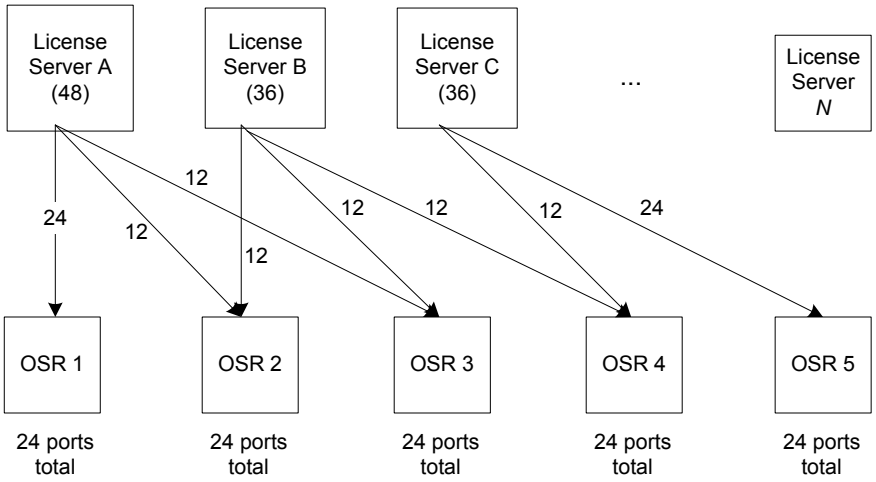
Tasks for RealSpeak client-server

For RealSpeak client-server configuration, the only difference from RealSpeak all-in-one is that the licensing mode is configured on the RealSpeak server machine through the RealSpeak server configuration file.

Balancing license server load

Large systems that require many license servers can implement a load balancing architecture to ensure that a primary license server does not become overloaded and thus cause delays.

Load balancing is accomplished by limiting the number of licenses each license server on the network can issue. The network administrator must input the host names of all license servers into the SpeechWorks.cfg file (OSR only) or environment of each OSR or RealSpeak system. (Note that the picture indicates OSR but applies equally to RealSpeak.)



In addition, the above configuration can be made redundant (see next section below).

Redundant license servers

If you choose a single license server architecture, you risk that a failure of the host machine (or of the license server daemon itself) will introduce a single point of failure in your license network and deny licenses to all machines.

To avoid this risk, FLEXlm offers the ability to support redundancy in two different ways: client-configured redundancy, and server-configured redundancy:

- For client-configured redundancy, the licenses are divided into multiple license pools, each administered by a single license server.

- For server-configured redundancy, three license servers administer a single license pool.

You can employ both methods together for maximum redundancy.

Server-configured redundancy

Server-configured redundancy requires three license servers operating in what is known as a quorum. While sharing a single license pool, each of these license servers must be on a separate box, must be running the same operating system, and must also be on the same logical subnet. (This means that two additional computers are required when providing redundancy for a license server.) The entire license pool remains available as long as a quorum of two of the original three license servers is running normally.

Characteristics for server-configured redundancy:

- The primary server does not need to be a dedicated machine; however, any other processes running on the machine 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 primary, secondary, and tertiary license servers forming the quorum must all run the same operating system. Otherwise, OSR might fail to reconnect to license servers that return after being removed from service.

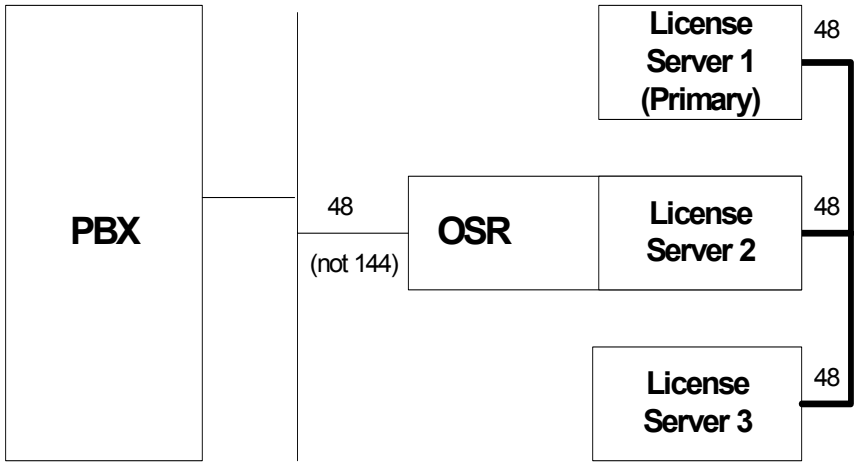
- To avoid any memory constraints with respect to the OSR or RealSpeak product, avoid defining the primary license server on a machine that is running that product.

- The secondary and tertiary license servers can be located on machines where OSR or RealSpeak is installed or on another computer on the subnet. The backup license servers are seldom used, and they do not need to be dedicated machines.

- If a license server fails, the FLEXlm logs indicate that licenses were provided from a backup license server. These logs are distinct from OSR and RealSpeak logs. Because the redundancy is invisible to the OSR and RealSpeak software, no OSR or RealSpeak logs indicate that there was a failure.

Example of simple server-configured redundancy

The following illustration shows a simple configuration for server-configured redundancy. This is an OSR all-in-one system (but the picture applies equally to RealSpeak):



Any 3 machines on the same subnet can be formed into a quorum:

- When creating the license file, enter the hostid for all 3 machines. In the illustration, the quorum is formed by servers 1, 2, and 3 for a total of 48 ports.
- When configuring SWILicenseServerList for OSR or SSFT_TTS_LICENSE_SERVERS (all-in-one) or license_servers (client-server) for RealSpeak, enter the 3 machines in the same order as in the license file.

For example, if your quorum machine names are nicosia, arctic, and nepal (and this is the order they appear in the license file), then they might appear as follows in the SWILicenseServerList for OSR or SSFT_TTS_LICENSE_SERVERS for RealSpeak all-in-one:

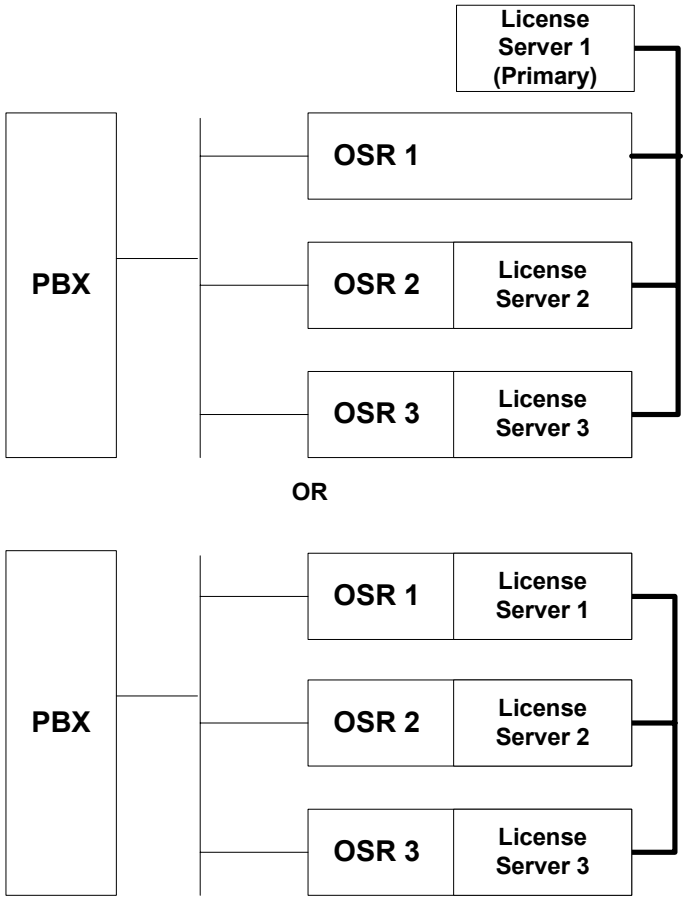
```
28000@nicosia;28000@arctic;28000@nepal
```

In the RealSpeak server configuration file:

```
<license_servers>
  <server> 28000@nicosia </server>
  <server> 28000@arctic </server>
  <server> 28000@nepal </server>
</license_servers>
```

Example configuration with multiple RealSpeak or OSR all-in-one servers

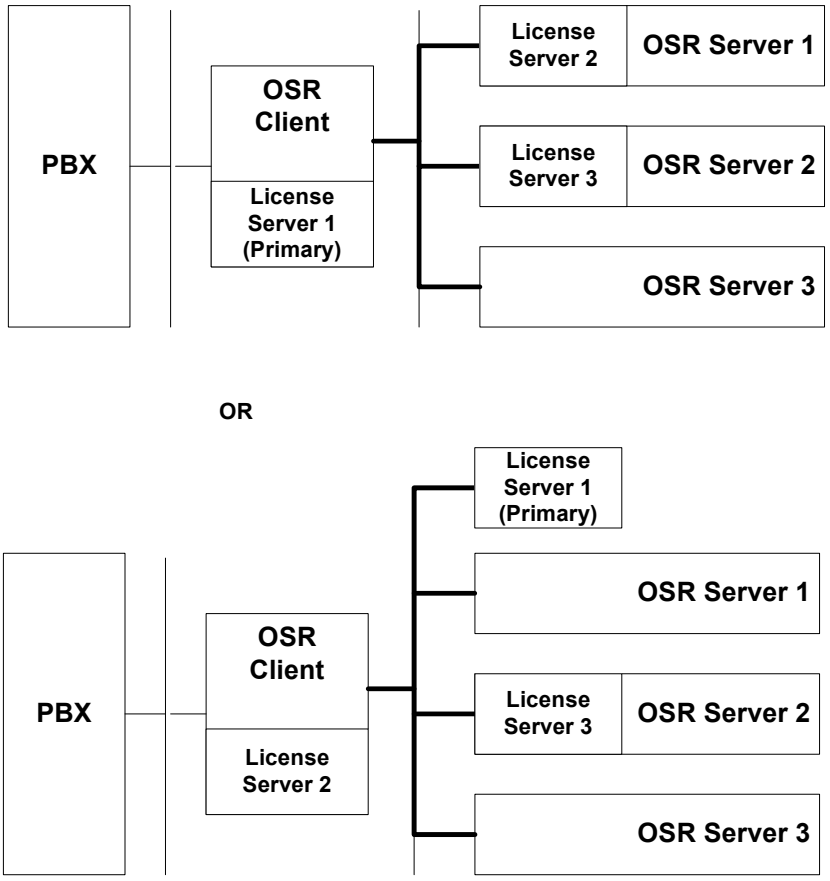
This following illustration shows two configurations for server-configured redundancy. These are all-in-one systems. (The diagram shows OSR, but equally applies to RealSpeak.) The first example is preferred (with the primary server on a separate machine):



Example configuration with RealSpeak or OSR Client-Server

Licensing for RealSpeak or OSR client-server is similar, but with more choices because you can run license servers on the client, on the server, or on a separate machine. For OSR, the license server provides licenses for both the endpointer (SWIepAPI) and the recognizer (SWIrecAPI).

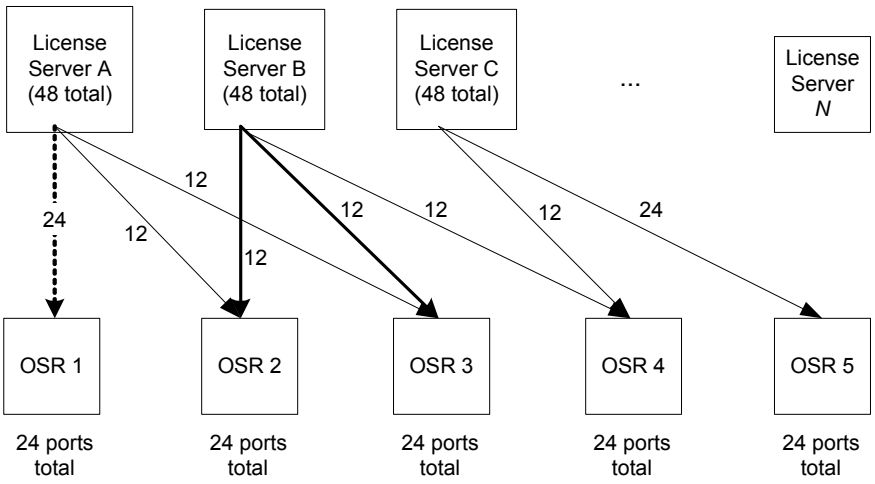
Two OSR examples are shown below (but the pictures apply equally to RealSpeak). The second example is the preferred configuration:



Client-configured redundancy

You can add redundancy to load balanced systems by allowing all license servers on the network to allocate licenses to all license clients. (See “Balancing license server load” on page 17 for more information about load balancing.) For client-configured redundancy, licenses are divided into multiple license pools, each administered by a single license server.

There is no practical limit to the number of license servers that you can designate for each license client machine.



For example, if License Server A fails, OSR no longer runs, but 2 and 3 continue with limited ports (12 and 12), since 2 and 3 are partially served by License Server B.

You can make this configuration more redundant by specifying the hostnames of *all* license servers for each OSR and RealSpeak machine; if any license server fails, the others will have licenses available.

(Note that this example shows OSR but applies the same to RealSpeak.)

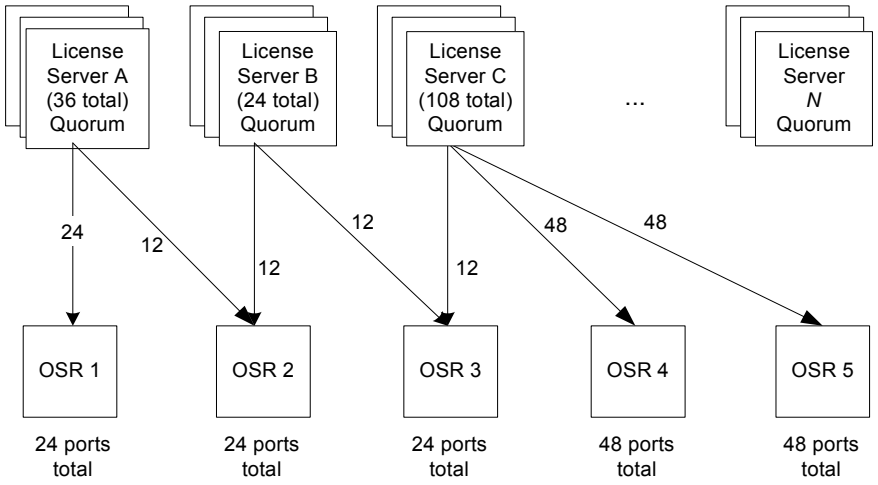
Combining server-configured and client-configured redundancy

You can combine both redundancy methods:

- Designate multiple primary license servers for each OSR machine as you would do in “Client-configured redundancy” above. (See “Configuring OSR on Windows” on page 35 or “Configuring RealSpeak on Windows” on page 36.)

- 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 setting the license servers with SWIlicenseServerList or SSFT_TTS_LICENSE_SERVERS, you must keep all the quorum servers together in the list. For example, for OSR or for RealSpeak all-in-one the list might appear as follows:

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

For RealSpeak client/server:

```
<license_servers>
  <server> 27000@tatooine </server>
  <server> 28001@nicosia </server>
  <server> 28001@arctic </server>
  <server> 28001@nepal </server>
  <server> 27000@hoth </server>
  <server> 28001@dagobah </server>
  <server> 28001@endor </server>
  <server> 28001@naboo </server>
</license_servers>
```

In both examples, bold indicates members of a quorum. Given this list, the ScanSoft product would request licenses in the following order: tatooine, nicosia, hoth, and dagobah. If nicosia becomes unavailable, the ScanSoft product would search arctic for licenses after tatooine. (Finally, if both nicosia and arctic are unavailable, then nepal **would not be used** because the quorum has been compromised.)

Sharing a license server with OSR and RealSpeak

The same license server instance may serve OSR and RealSpeak licenses. However, by default, installing OSR and RealSpeak installs separate license servers. This separate license server installation includes different software installation areas and different service names for the Globetrotter FLEXlm tools on Windows. To use a single license server for both OSR and RealSpeak, follow these steps:

1. For a network license server that serves only licenses (and doesn't run either product), install the license server from either one of the products (it doesn't matter which product).

2. Manually combine the OSR and RealSpeak licenses into a single file by opening both license files, then copy and paste the text of the INCREMENT lines from one file into the bottom of the other. For an example, see page 52.

3. Use the Globetrotter FLEXlm tools from one of the products (it doesn't matter which product) to configure the licensing server as normal – pointing it at the license file that now contains both the OSR and RealSpeak licenses.

To configure licensing, first configure OSR to set the licensing mode and the license server list. (See "Configuring OSR on Windows" on page 35 or "Configuring OSR on Linux" on page 42.) Next, configure RealSpeak to set the licensing mode and license server list. (See "Configuring RealSpeak on Windows" on page 36 or "Configuring RealSpeak on Linux" on page 43.)

Platform integration design for licensing

While the previous information in this chapter focused on the physical architecture of license servers and ScanSoft product machines, the following sections describe the software mechanisms that trigger the individual license allocations.

Overview of licensing modes

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

- *Default* licensing – For OSR, licenses are allocated and freed automatically as speech detector and recognizer resources are created. For 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 four API functions. To use explicit licensing for OSR, the platform must call the following functions:

  - SWIepResourceAllocate( )
  - SWIepResourceFree( )
  - SWIrecResourceAllocate( )
  - SWIrecResourceFree( )

  RealSpeak uses these 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 a configuration parameter (see below).

How to set licensing modes

OSR licensing modes

For OSR, the default licensing mode is specified in the Baseline.xml file. You can override the mode in a user.xml configuration file. *You cannot set these parameters dynamically via SWIrecSetParameter( ).*

Specify the licensing mode separately for speech detection (SWIep) and recognition (SWIrec) with the swiep_licensing_mode and swirec_licensing_mode parameters.

Since the modes are specified separately for SWIep and SWIrec licenses, you can, for example, configure OSR to have SWIep licenses allocated with the default mode (when speech detectors are created) while SWIrec licenses are allocated with platform control (using explicit licensing).

RealSpeak licensing modes

For RealSpeak all-in-one, the default licensing mode is specified via the SSFT_TTS_LICENSE_MODE environment variable. For RealSpeak client-server, the default licensing mode is specified via the license_mode parameter in the RealSpeak server configuration file. See “Configuring RealSpeak on Windows” on page 36 or “Configuring RealSpeak on Linux” on page 43.

Default OSR licensing

In this mode, OSR automatically allocates a speech license when either SWIepDetectorCreate( ) or SWIrecRecognizerCreate( ) is called. OSR frees licenses when SWIepDetectorDestroy( ) or SWIrecRecognizerDestroy( ) is called.

If OSR cannot check out a valid license from the license server under this mode, the create functions return a failure (SWIep_ERROR_NO_LICENSE or SWIrec_ERROR_NO_LICENSE, respectively).

See the *OSR Reference Manual* for details on the API functions and return codes.

Considerations for using default licensing mode

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

- You plan to use all created speech detectors and recognizers for actual detection and recognition. If you create extra detector or recognizer objects that you are not using for detection or recognition, you should select a different licensing mode. Otherwise, you can purchase more licenses than your application actually needs.

- If you are detecting barge-in or using the OSR speech detector for begin-of-speech detection, the speech detector is always "active," and therefore, is probably active on every channel on your system. In this case, you need a license for every channel. The default licensing scheme for the speech detector is appropriate in this case.

- You have already completed an integration with the OSR 1.*n* software and do not want to perform additional integration work. This method is fully backwards compatible with OSR 1.*n* and allows your integration code to execute as before.

- You are deploying your license server on a separate machine in a wide-area network (WAN). Across such a network, latency is a factor and frequent round-trip communication to and from the license server is not advisable. Assuming that you do not create and destroy detectors and recognizers frequently, access to the license server is minimized.

Explicit OSR licensing

With this mode, the platform integrator decides when to allocate and free licenses for speech detectors and recognizers. Since every call to SWIepDetectorCreate( ) or SWIrecRecognizerCreate( ) creates a separate instance of a detector or recognizer, each instance requires a license when executing.

Four API functions are available; two each for the recognizer and speech detector (for function details and examples, see the *OSR Reference Manual*):

- SWIepResourceAllocate( ) and SWIepResourceFree( )
- SWIrecResourceAllocate( ) and SWIrecResourceFree( )

Use SWIepResourceAllocate( ) and SWIrecResourceAllocate( ) to allocate licenses for detector and recognizer objects.

Allocation can fail for these reasons:

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

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 and to avoid the situation described above in the default mode. 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 SWIrecResourceAllocate( ) (or SWIepResourceAllocate( )), and after hang-up has been detected, call the corresponding Free( ) functions. This is only one example of how these functions can be used.
- You have a pool of OSR licenses to use for multiple OSR servers or clients, but want to explicitly decide which licenses go to which machines (and only to those machines).
- You are running load tests that simulate speech 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 license server, although negligible in overall performance impact, may affect your performance numbers. You can use the explicit mode to ensure that the license server is accessed only once (regardless of your use of any other API function).

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 license 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 license server on a separate machine in a wide-area network (WAN). Across such a network, latency is a factor and frequent roundtrip communication to and from the license server is not advisable. Assuming that you do not create and destroy engines frequently, access to the license 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 license server for your license client is unavailable. As shown previously, license clients can point to multiple license servers, each of which may issue their own pre-allocated pool of licenses, so all license 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 and to avoid the situation described above in method I. 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 machines (and only to those machines).
- 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 license server, although negligible in overall performance impact, may affect your performance numbers.

CHAPTER 3

Configuring Licensing on Windows

License server installation

Install from the installation CD

The OSR and RealSpeak installation procedure includes the needed files for licensing.

During installation, one step of the procedure lists software components and asks you to choose which ones to install on the current machine. For licensing, the needed option is “3rd Party Licensing Components.” Thus, during a product installation, you have these options for licensing:

- Install OSR or RealSpeak with a license server (default).
- Install OSR or RealSpeak without a license server (by de-selecting the “3rd Party Licensing Components” option).
- Install only a license server (de-select all options except the “3rd Party Licensing Components” option).

NOTE

Do not install the licensing component for both RealSpeak and OSR on the same system, as they will conflict. Instead, only install one (such as the OSR licensing component), then combine your OSR and RealSpeak licenses into a single license file

and start the licensing service as normal. (See "Sharing a license server with OSR and RealSpeak" on page 24 for details.) Otherwise on reboot you will get a Windows error saying one or more services could not be started with the OSR or RealSpeak Licensing Service not starting.

If by accident you do this and get these errors, you can resolve this by disabling the RealSpeak licensing service, then configuring the OSR licensing service to use a combined license file. To disable the RealSpeak licensing service, open Control Panel >> Administrative Tools >> Services. Double-click RealSpeak Licensing Service, change the Startup Type from Automatic to Disabled, and click OK.

Configure licensing after the installation

After completing the software installation, follow these steps before running a speech application:

1. Obtain a valid license file from ScanSoft and place it on your system. For details, see "Obtaining and managing licenses" on page 3.

2. Configure the license server (this is optional if you store the license file in the recommended default location). See the next section below.

3. Start the license server (this can done with a reboot of the system if you instruct the operating system to do so). See the next section below.

4. For OSR, set up the SWILicenseServerList variable on each license client. See "Configuring OSR on Windows" on page 35. For RealSpeak, set up the SSFT_TTS_LICENSE_SERVERS environment variable for each RealSpeak all-in-one system, or license_servers parameter for each RealSpeak server. See "Configuring RealSpeak on Windows" on page 36.

5. For OSR on the Windows XP Professional operating system, you must open the system's firewall to allow access to the port configured by SWILicenseServerList. See the *OSR Installation Guide* for details.

Once the steps above are complete, the product software is operational.

Configuring and starting the license server

Configuring, starting, and stopping is simple; there are very few steps, and most are optional.

Default configuration

When you install the license components for the first time, a Windows service called "OSR Licensing Service" or "RealSpeak Licensing Service" is created. By default, each service is configured to start automatically with every system reboot.

If you do not need to change the default, then the remaining tasks are:

1. Copy the license file you received from ScanSoft to the default location (for OSR or RealSpeak, appropriately):

```
$SWISRSDK\flexlm\license folder\osr.lic
$SSFTTTSSDK\flexlm\license folder\realspeak.lic
```

2. Reboot the machine (or start the service manually via the Windows Services control panel applet).

Once the license server is running, it writes logs of its operations to this default location:

```
$SWISRSDK\flexlm\license folder\osr-lic.log
$SSFTTTSSDK\flexlm\license folder\realspeak-lic.log
```

Changing the configuration

To change the default location of the license file, the license log file, or the auto-start configuration for the service, you can use the **lmtools** graphical tool or the **installs.exe** command line interface. For OSR, both tools are located in $SWISRSDK\flexlm\components. For information on using the tools, see the *FLEXlm End Users Guide* in $SWISRSDK\flexlm\components\htmlman\TOC.htm. (For RealSpeak, use $SSFTTTSSDK instead of $SWISRSDK.)

The following instructions perform these tasks using lmtools:

1. Copy the license file you received from ScanSoft to the desired location.

2. Run the **lmtools** application.

3. Click the “Server/License File” tab, and select “Configuration Using Services” if it is not selected. (It should be selected by default.) If you do not do this, you cannot proceed using the steps below; the tabs at the top of the application will be absent or different.

4. Click the “Config Services” tab to edit the service called “OSR Licensing Service” or “RealSpeak Licensing Service” as appropriate. Verify the paths of osr.lic or realspeak.lic (the license file installed in step 1), lmgrd.exe (the license server executable), and the debug log file. Change the paths if desired.

5. Also in the “Config Services” tab, select the “Use Services” check box. ScanSoft recommends that you also select the “Start Server at Power Up” check box so that the service starts automatically with every reboot of the machine.

6. Click “Save Service,” then click “Yes” to confirm.

7. To start the service, click the “Start/Stop/Reread” tab, and click “Start Server.”

By repeating the configuration steps above, you can create a new log file or change the default location of the license file.

Manually starting and stopping the license server

Although ScanSoft recommends that you configure the license server to automatically start upon reboot of the machine, you can start it manually with the **lmgrd** command and the name of your license file:[1]

```
lmgrd -c osr.lic
lmgrd -c realspeak.lic
```

Similarly, ScanSoft recommends that the license server always remain running, but you can stop it manually with the appropriate **lmutil** command:

```
lmutil lmdown -c osr.lic
lmutil lmdown -c realspeak.lic
```

Above, when you enter the lmgrd and lmutil commands, you may need to add path information to the commands and/or the license filenames depending on the location of your working directory.

For information on lmgrd and lmutil options, see the *FLEXlm End Users Guide*.

1. Run lmgrd and lmutil from the $SWISRSDK\flexlm\components directory (for OSR) or $SSFTTTSSDK\flexlm\components (for RealSpeak).

Configuring OSR on Windows

After a license server is running with a valid OSR license file on a host in the subnet, you must ensure that the SWILicenseServerList variable is set on every license client machine. (As explained below, you might not need to change the default setting that is established during OSR installation.) Then, once you start the license manager service, your OSR application is able to retrieve valid licenses and run properly.

Setting up SWILicenseServerList

On Windows, SWILicenseServerList is defined in the SpeechWorks.cfg configuration file.

Set SWILicenseServerList to the port number and hostname of the license server machine using the following format:

```
port_number@hostname
```

This example is for a license server running on the current machine:

```
27000@osr-hostname
```

By default, the OSR installation sets SWILicenseServerList to specify the machine on which OSR is installed and the default FLEXlm port of 27000. In other words, SWILicenseServerList is set to 27000@localhost. You must change this setting if there is no license server running on the installation machine, or if your primary license server is on another machine (recommended).

If you install OSR on host groucho, but want to run your license server on host harpo, you need to change the value of SWILicenseServerList on groucho (the OSR machine) to 27000@harpo.

If you install OSR Client-Server software, you must change the default SWILicenseServerList setting on every OSR client and OSR server machine unless that machine is running the designated license server.

You can also configure each OSR machine to look for licenses from several different FLEXlm license servers that you have started. Set SWILicenseServerList to specify a list (separated by semi-colons) of port@server combinations. For example, if you have started license servers on both harpo and groucho, set the SWILicenseServerList parameter on your OSR host to 27000@harpo;27000@groucho.

Opening firewall access on Windows XP

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

For details on opening ports through the firewall, see the *OSR Installation Guide*.

Configuring RealSpeak on Windows

After a license server is running with a valid RealSpeak license file on a host in the subnet, you must:

- Set the licensing mode.
- Set the license_servers parameter on every RealSpeak server machine, or set the SSFT_TTS_LICENSE_SERVERS environment variable on every RealSpeak all-in-one machine.

Then when you start the license manager service, RealSpeak is able to retrieve valid licenses and run properly.

Configuring RealSpeak manually

Configuring for RealSpeak client-server

To set the licensing mode manually, set the value of the license_mode parameter on the RealSpeak server in $SSFTTTSSDK\config\ttsserver.xml:

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

Also in ttsserver.xml, set license_servers to the port number and hostname of the license server machine using the following format:

```
<license_servers>
  <server> port_number@hostname </server>
</license_servers>
```

By default, the RealSpeak installation sets license_servers to 27000@localhost. Thus, if you are running the license server on the same machine where the RealSpeak server is running, you do not need to change the default.

If you install the RealSpeak server on host groucho, but want to run your license server on host harpo, you need to change the value of license_servers on groucho (the RealSpeak server machine) to 27000@harpo.

You can also configure RealSpeak to look for licenses from several different FLEXlm license servers that you have started. Set license_servers to specify a list of port@server combinations. For example, if you have started license servers on both harpo and groucho, set the license_servers parameter to:

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

RealSpeak looks for valid RealSpeak licenses on each of the servers in the order they are listed, going to the next server in the list only when valid licenses cannot be obtained from the previous server (the server is down, is out of licenses, or produces some other error).

Configuring for RealSpeak all-in-one

In RealSpeak all-in-one, there is no ttsserver.xml. Use environment variables to set the licensing mode and license servers.

To set the licensing mode manually, set the value of the SSFT_TTS_LICENSE_MODE variable to “default” or “explicit.” By default, this environment variable doesn’t exist, and RealSpeak assumes “default.”

To set the license servers, set the SSFT_TTS_LICENSE_SERVERS environment variable to the port number and hostname of the license server machine using the following format:

```
port_number@hostname
```

This example is for a license server running on the current machine:

`27000@realspeak-hostname`

By default, SSFT_TTS_LICENSE_SERVERS isn't present, and the RealSpeak installation assumes 27000@localhost. Thus, if you are running the license server on the same machine where RealSpeak is running, you do not need to change the default.

If you install RealSpeak on host groucho, but want to run your license server on host harpo, you need to change the value of SSFT_TTS_LICENSE_SERVERS on groucho (the RealSpeak machine) to 27000@harpo.

You can also configure each RealSpeak machine to look for licenses from several different FLEXlm license servers that you have started. Set SSFT_TTS_LICENSE_SERVERS to specify a list (separated by semi-colons) of port@server combinations. For example, if you have started license servers on both harpo and groucho, set the SSFT_TTS_LICENSE_SERVERS parameter on your OSR host to 27000@harpo;27000@groucho.

CHAPTER 4

Configuring Licensing on Linux

Starting the FLEXlm license server

Once you have installed OpenSpeech Recognizer or RealSpeak and obtained a valid license file from ScanSoft, Inc, you need to start the FLEXlm license server before you can run a speech application. The license server can be run either on the same host that is running OSR or RealSpeak, or on another host on the same subnet (recommended). You can start the license server manually with the lmgrd command and you can stop it with lmutil (see below for details), or configure the system to automatically start and restart the license server.

Manually starting and stopping the license server

To start the license server manually, use the **lmgrd** command with the name of your license file (for OSR or RealSpeak, appropriately):[1]

```
lmgrd -c osr.lic
lmgrd -c realspeak.lic
```

1. Run lmgrd and lmutil from the $SWISRSDK/flexlm/components directory for OSR, and from the $SSFTTTSSDK/flexlm/components directory for RealSpeak.

To stop the license server manually via the command line, use the **lmutil** command with the name of your license file:

```
lmutil lmdown -c osr.lic
lmutil lmdown -c realspeak.lic
```

Above, when you enter the lmgrd and lmutil commands, you may need to add path information to the commands and/or the license filenames depending on the location of your working directory.

For information on lmgrd and lmutil options, see the *FLEXlm End Users Guide*.

Automatically starting the license server

To start the service automatically after rebooting your machine, add a script to the /etc/rc.d/init.d directory. This script must contain commands to start and stop the license server. Then, enable the service using the "/sbin/chkconfig" system utility.

Creating log files

By default, the license server doe not write operational log files. To create logs, you must add the -l option to the lmgrd command line. For example:

```
lmgrd -c /your/path/osr.lic -l /your/log/path/osr-lic.log
```

Use the plus symbol (+) to append to an existing log. For example, use the symbol in the /etc/rc.d/rc.local file when automatically starting the licensing after reboots:

```
lmgrd -c /your/path/osr.lic -l +/your/log/path/osr-lic.log
```

Running the license server on a separate host

You can also run the license server software on a different host than the one running OSR or RealSpeak. To use a separate host as a license server, first install the license server software on the OSR or RealSpeak host via the installation program. This configuration installs the server in the flexlm directory under the product root directory.

- For OSR, copy $SWISRSDK/flexlm and its contents from the OSR host to the desired separate host machine. For RealSpeak, copy $SSFTTTSSDK/flexlm and its contents from the RealSpeak host.

- For OSR, change the SWILicenseServerList parameter in the SpeechWorks.cfg file to the name of the new machine or machines. (See “Configuring OSR on Linux” below.) For RealSpeak, set up the SSFT_TTS_LICENSE_SERVERS environment variable for each RealSpeak all-in-one system, or license_servers parameter for each RealSpeak server. (See “Configuring RealSpeak on Linux” below.)

Please remember that a license you receive from ScanSoft is tied to a specific license server. You cannot run a license server with a license file that was created for another server.

Configuring OSR on Linux

After a license server is running with a valid OSR license file on a host in the subnet, you must ensure that the SWILicenseServerList variable is set on every license client machine. (As explained below, you might not need to change the default setting that is established during OSR installation.) Then, once you start the license manager service, your OSR application is able to retrieve valid licenses and run properly.

Setting up SWILicenseServerList

SWILicenseServerList is a parameter in the $SWISRSDK/config/SpeechWorks.cfg configuration file. By default, the value is loaded from the file unless you define the parameter as an environment variable before starting the application.

Set SWILicenseServerList to the port number and hostname of the license server machine using the following format:

```
port_number@hostname
```

This example is for a license server running on the current machine:

```
27000@localhost
```

By default, the OSR installation sets SWILicenseServerList to specify the machine on which OSR is installed and the default FLEXlm port of 27000. In other words, SWILicenseServerList is set to 27000@localhost. You must change this setting if there is no license server running on the installation machine, or if your primary license server is on another machine (recommended).

Once you start the license manager service, your OSR application is able to retrieve valid licenses and run properly.

If you install OSR on host groucho, but want to run your license server on host harpo, you need to change the value of SWILicenseServerList on groucho (the OSR machine) to 27000@harpo.

You can also have OSR look for licenses from several different FLEXlm license servers that you have started. Set SWILicenseServerList to specify a list (separated by colons) of port@server combinations. For example, if you have started license servers on both harpo and groucho, set the SWILicenseServerList parameter on your OSR host to 27000@harpo:27000@groucho.

Configuring RealSpeak on Linux

After a license server is running with a valid RealSpeak license file on a host in the subnet, you must:

- set the licensing mode
- set the SSFT_TTS_LICENSE_SERVERS environment variable for each RealSpeak all-in-one system, or license_servers parameter for each RealSpeak server

Then when you start the license manager service, RealSpeak is able to retrieve valid licenses and run properly.

Configuring RealSpeak manually

Configuring for RealSpeak client-server

To set the licensing mode manually, set the value of the license_mode parameter on the RealSpeak server in $SSFTTTSSDK\config\ttsserver.xml:

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

Also in ttsserver.xml, set license_servers to the port number and hostname of the license server machine using the following format:

```
<license_servers>
  <server> port_number@hostname </server>
</license_servers>
```

By default, the RealSpeak installation sets license_servers to 27000@localhost. Thus, if you are running the license server on the same machine where the RealSpeak server is running, you do not need to change the default.

If you install the RealSpeak server on host groucho, but want to run your license server on host harpo, you need to change the value of license_servers on groucho (the RealSpeak server machine) to 27000@harpo.

You can also configure RealSpeak to look for licenses from several different FLEXlm license servers that you have started. Set license_servers to specify a list of port@server combinations. For example, if you have started license servers on both harpo and groucho, set the license_servers parameter to:

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

RealSpeak looks for valid RealSpeak licenses on each of the servers in the order they are listed, going to the next server in the list only when valid licenses cannot be obtained from the previous server (the server is down, is out of licenses, or produces some other error).

Configuring for RealSpeak all-in-one

In RealSpeak all-in-one, there is no ttsserver.xml. Use environment variables to set the licensing mode and license servers.

To set the licensing mode manually, set the value of the SSFT_TTS_LICENSE_MODE variable to “default” or “explicit.” By default, this environment variable doesn’t exist, and RealSpeak assumes “default.”

To set the license servers, set the SSFT_TTS_LICENSE_SERVERS environment variable to the port number and hostname of the license server machine using the following format:

```
port_number@hostname
```

This example is for a license server running on the current machine:

```
27000@realspeak-hostname
```

By default, SSFT_TTS_LICENSE_SERVERS isn’t present, and the RealSpeak installation assumes 27000@localhost. Thus, if you are running the license server on the same machine where RealSpeak is running, you do not need to change the default.

If you install RealSpeak on host groucho, but want to run your license server on host harpo, you need to change the value of SSFT_TTS_LICENSE_SERVERS on groucho (the RealSpeak machine) to 27000@harpo.

You can also configure each RealSpeak machine to look for licenses from several different FLEXlm license servers that you have started. Set SSFT_TTS_LICENSE_SERVERS to specify a list (separated by colons) of port@server combinations. For

example, if you have started license servers on both harpo and groucho, set the SSFT_TTS_LICENSE_SERVERS parameter on your OSR host to 27000@harpo:27000@groucho.

APPENDIX A

License Server Host IDs

FLEXlm uses different machine identifications for different machine architectures. The program lmhostid prints the exact hostid that FLEXlm expects to use on that machine. See the *FLEXlm End Users Guide* for more details about hostids.

This table lists alternate methods to obtain the required hostid for each machine architecture. If you have not installed FLEXlm software, you can find the hostid with:

```
ipconfig /all
```

Typically, FLEXlm and its ScanSoft licensing components run on the same machine. The available platforms are listed in the first portion of the following table. However, FLEXlm also runs on hardware platforms where the ScanSoft components are not supported (shown in the second portion of the table), and it is possible to configure FLEXlm to run on one machine while the ScanSoft components run on another.

Hardware platform	Hostid	Command to run on license server	Example
ScanSoft-supported and FLEXlm-supported:			
AIX (RS/6000, PPC) (RealSpeak only)	32-bit hostid	`uname -m` This command returns a 12-digit string, e.g., 000276513100. Remove the first two and the last two digits.	02765131
Linux (OSR and RealSpeak)	ethernet address	`/sbin/ifconfig eth0` Remove colons from HWaddr, e.g., 00:40:05:16:E5:25.	00400516E525
SUN (RealSpeak, or OSR client only)	32-bit hostid	`hostid`	170a3472

Hardware platform	Hostid	Command to run on license server	Example
Windows (OSR and RealSpeak)	ethernet address	`lmutil lmhostid` Run lmutil from the $SWISRSDK\flexlm\components directory. Remove hyphens from the “Physical Address.”	00B0A9DF9A32

FLEXlm-supported only:

DEC Alpha	ethernet address	`netstat -i`	080020005532
HP	32-bit hostid	`uname -i` Convert to hex, or prepend with #.	778DA450 or #2005771344
	ethernet address	`lanscan` Station address without leading 0x.	0000F0050185
SCO	hostid string	`uname -x` Serial is SCO00354; prefix with “ID_ STRING=”.	ID_STRING=SCO00354
SGI	32-bit hostid	`/etc/sysinfo -s` Convert to hex, or prepend with #.	69064C3C or #1762020412

APPENDIX B

License Files

This appendix describes the details of the license files. As an end-user, you are allowed to make the following changes to the files (any other changes invalidate the license):

- Change the machine name (*not* the hostid) on the SERVER line of the license file. For example, this is useful if you rename the machine or if you run lmgrd on a different machine from the ScanSoft components.
- 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).
- Add an INCREMENT line if directed by ScanSoft technical support or when merging OSR and RealSpeak license files (page 24). This line enables new features. In these instances, you edit the license file and paste the provided text underneath the last FEATURE or INCREMENT line in your current file.
- Add new licenses to an existing license server (for example, to add new ports for a new application). For details, see “Making changes to generated licenses” on page 4.

The format of the license file depends upon the type of license that is generated, based upon the chosen licensing policy; if you edit this file (e.g., to use the same license server for both OSR and RealSpeak), *be very careful.*

Filenames and status after initial installation

The default license file names are:

Product	License file name
OSR	osr.lic
RealSpeak	realspeak.lic

When you install OSR, the installation process specifies the hostname and port of the license server where the license is installed.

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

RealSpeak configures license servers in the configuration file, specifying the hostname and port of the license server where the license is installed. The default configuration value does not need to be changed unless you're using a remote license server.

Server configuration	Configuration parameter	Default
all-in-one	SSFT_TTS_LICENSE_SERVERS	27000@*realspeak-hostname*
client-server	license_servers (server configuration file)	27000@*realspeak-hostname*

Assuming that the license server is up and running with a valid license, and the license server name and port are specified, nothing else needs to be done. See "Configuring OSR on Windows" on page 35 or "Configuring RealSpeak on Windows" on page 36 for more information about using a different license server or using a pool of license servers.

For more information about the license server, see "Configuring and starting the license server" on page 33.

Sample license file for OSR

Below is a sample license file for OSR:

```
SERVER bellagio 0010a4c4d149 27000
VENDOR swilmgrd
USE_SERVER
INCREMENT osr_swirec swilmgrd 1.1 permanent 4 SIGN="0995
   D853 6B3F CFB2 CA4C 4B7A 3506 41C2 DEDB A9A5 1A2E 9AFD
   46D9 E60F 73DD 0293 A78E 8201 EDC6 5057 88F8 A0EA 4722
   EF9D 446A 8552 8C23 8B02 B00F 8362"
INCREMENT osr_swiep swilmgrd 1.1 permanent 4 SIGN="0F89 429B
   7967 0196 84A7 9726 BD54 E02E FE21 09E3 4D26 A947 648B
   3DDB A9FA 1B62 E6E1 D6A5 8894 7668 F3B7 4573 01C1 29C6
   B2B9 7AC1 6E44 26C8 88C6 E6CD"
```

The components of the license file include these lines:

- The SERVER line identifies the name of the server and its hostid. The final number on the line (27000) is the license server port (the port you specify when configuring OSR).
- The VENDOR line names the ScanSoft vendor daemon. It can point to a different directory if swilmgrd and lmgrd are not in the same directory.
- USE_SERVER is explained in the *FLEXlm End Users Guide*.
- The INCREMENT line includes the name of the feature (e.g., osr_swirec or osr_swiep), the vendor daemon to use (swilmgrd), the version of the license (1.1), the expiration of the license (permanent), the number of licenses (4), and the signature that verifies the license is valid. You can add RealSpeak INCREMENT lines to this file below the OSR lines if you want to merge the two products under one license server. (See “Sharing a license server with OSR and RealSpeak” on page 24.)

Sample license file for RealSpeak

Below is a sample license file for RealSpeak:

```
SERVER venecia 0010a4c4d149 27000
VENDOR swilmgrd
USE_SERVER
INCREMENT speechify_switts swilmgrd 1.1 permanent 6 \
  SIGN2="0A34 731E \
  BBFC 05D6 2606 A624 4545 EDB8 46C7 A2B1 755A A338 \
  D9A7 5343 7CED 1FDF 7B9C D8A9 857A 7EAF 588D 2D33 9C29 \
  2F73 57BD 3D95 88A8 18B4 1DBA 642E"
```

The components of the license file include these lines:

- The SERVER line identifies the name of the server and its hostid. The final number on the line (27000) is the license server port (the port you specify when configuring RealSpeak).
- The VENDOR line names the ScanSoft vendor daemon.
- USE_SERVER is explained in the *FLEXlm End Users Guide*.
- The INCREMENT line includes the name of the feature (e.g., speechify_switts), the vendor daemon to use (swilmgrd), the version of the license (1.1), the expiration of the license (permanent), the number of licenses (6), and the signature that verifies the license is valid. You can add RealSpeak INCREMENT lines to this file below the OSR lines if you want to merge the two products under one license server. (See “Sharing a license server with OSR and RealSpeak” on page 24.)

Sample shared (merged) license file for OSR and RealSpeak

Below is a sample license file that merges the sample OSR and RealSpeak files described on the previous pages. This allows the same server instance to provide licenses for both products.

In this example, the INCREMENT lines from the RealSpeak file were appended to the OSR file. Alternatively, the lines from OSR could have been added to the RealSpeak sample.

```
SERVER bellagio 0010a4c4d149 27000
VENDOR swilmgrd
USE_SERVER
INCREMENT osr_swirec swilmgrd 1.1 permanent 4 SIGN="0995
  D853 6B3F CFB2 CA4C 4B7A 3506 41C2 DEDB A9A5 1A2E 9AFD 46D9
  E60F 73DD 0293 A78E 8201 EDC6 5057 88F8 A0EA 4722 EF9D 446A
  8552 8C23 8B02 B00F 8362"
INCREMENT osr_swiep swilmgrd 1.1 permanent 4 SIGN="0F89 429B
  7967 0196 84A7 9726 BD54 E02E FE21 09E3 4D26 A947 648B 3DDB
  A9FA 1B62 E6E1 D6A5 8894 7668 F3B7 4573 01C1 29C6 B2B9 7AC1
  6E44 26C8 88C6 E6CD"
INCREMENT speechify_switts swilmgrd 1.1 permanent 6 \
  SIGN2="0A34 731E \
  BBFC 05D6 2606 A624 4545 EDB8 46C7 A2B1 755A A338 \
  D9A7 5343 7CED 1FDF 7B9C D8A9 857A 7EAF 588D 2D33 9C29 \
  2F73 57BD 3D95 88A8 18B4 1DBA 642E"
```

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