Nuance Voice Platform
5.2.2 and 5.3.2

Installing Nuance Voice Platform

NUANCE

Notice

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One Wayside Road, Burlington, Massachusetts 01803, U.S.A.
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System requirements

This chapter describes the system requirements for the Nuance® Voice Platform (NVP). See the *Release Notes* for supported versions and any updates.

Software requirements

This section describes supported operating systems and third-party software.

Operating systems

NVP is supported on 64-bit versions of CentOS and Windows 2008 R2, Enterprise and Standard Editions.

Database products

NVP supports open-source and commercial MySQL 64-bit version.

Java

NVP requires that Java be installed on all hosts.

Required third-party software

For full functionality, make sure that all hosts that access the Management Station have:

- Internet Explorer or Mozilla Firefox
- PDF-reading software (required for viewing Management Station reports)

SIP softphones

Optionally, you may choose to install SIP softphones like SJphone or HearMe. You can download these for free from their websites. No special configuration is required to use these softphones with NVP.

A SIP softphone is a software application that lets you make calls over a VoIP connection. Since NVP is configured by default to use SIP, using a SIP softphone gets you quickly up and running on NVP, and is a way to test that you have successfully installed NVP. To avoid a port conflict, install the softphone on a non NVP-host.

Configuration requirements

This section lists the processor, memory, and storage requirements for running NVP in the development and deployment environments.

Processor

The processor requirements for all hosts in either environment are:

- Minimum: Dual-Core Intel Xeon 2.0 GHz or Dual-Core AMD Opteron 2216 2.4 GHz
- Recommended: Dual Quad-Core Intel Xeon E5410 2.33 GHz

NVP recommends a more powerful machine for large deployments with high port densities and heavy call volumes. NVP has tested these scenarios on a Dell™ PowerEdge™ R710 using Intel Xeon 5500 series processors with 48 GB RAM.

Development environment

For application development, demos, or prototyping, you can install all NVP components (including the Management Station) on a single host and assign it one of the standalone roles. Suggested configuration requirements are:

- Memory: 4 GB
- Storage: Varies according to the port density:

Host	Storage
Standalone 1 or 4 ports	▪ 10 GB (minimum) ▪ 20 GB (recommended)
Standalone 23 ports	▪ 30 GB (minimum) ▪ 40 GB (recommended)

Deployment environment

In a deployment environment, Nuance recommends installing the Management Station and Conversation Server on separate hosts. This arrangement separates Management Station activities from the call-handling activities on the other hosts.

Management Station

Memory and storage requirements vary depending on the volume of data you plan to collect and store. This table lists recommended configuration requirements.

Memory	Storage
▪ 2 GB (minimum) ▪ 4 GB (recommended)	▪ 50 GB (minimum) ▪ 200 GB (recommended)

Conversation Server

Conversation Server hosts run the components necessary to interact with a VoiceXML speech application, and include a VoiceXML interpreter, telephony components to handle audio and call control, and the Nuance Speech Server, which handles recognition and text-to-speech (TTS) requests.

Depending on the role you assign these hosts in the Management Station, they can run all services or be configured to run only some of them if you're setting up a distributed deployment. For example, the *Conversation Server: All Services* roles include the voice browser service, telephony session service, and the Speech Server. The *Conversation Server: Browser services* roles include the voice browser and telephony session services. You would need to assign a Nuance Speech Server role to another host.

The following table gives guidelines for different kinds of Conversation Server hosts performing moderate logging and unilingual recognition. Any host running the Speech Server must provision for storing call log files, utterances, and whole-call recordings (if enabled).

Host	Memory (RAM)	Storage
All-services hosts (1-4 ports)	▪ 2 GB (minimum) ▪ 4 GB (recommended)	▪ 20 GB (minimum) ▪ 50 GB (recommended)
All-services hosts (23-46 ports)	▪ 4 GB (minimum) ▪ 8 GB (recommended)	▪ 100 GB (minimum) ▪ 250 GB (recommended)
All-services hosts (92 ports)	▪ 6 GB (minimum) ▪ 10 GB (recommended)	▪ 250 GB (minimum) ▪ 500 GB (recommended)
All-services hosts (184 ports)	▪ 16 GB (minimum) ▪ 32 GB (recommended)	▪ 500 GB (minimum) ▪ 1 TB (recommended)
All-services hosts (HA: 184 ports)	▪ 48 GB (recommended)	▪ 1 TB (recommended)
Browser hosts (23-46 ports)	▪ 2 GB (minimum) ▪ 4 GB (recommended)	▪ 20 GB (minimum) ▪ 50 GB (recommended)
Browser hosts (92 ports)	▪ 4 GB (minimum) ▪ 8 GB (recommended)	▪ 50 GB (minimum) ▪ 100 GB (recommended)
Nuance Speech Server hosts (standalone)	▪ 4 GB (minimum) ▪ 8 GB (recommended)	▪ 100 GB (minimum) ▪ 250 GB (recommended)

Memory considerations in a multilingual deployment

Multilingual deployments must make sure they have enough physical memory and per-process user address space. When the Nuance Speech Server loads more than one language, that host must have 4 GB or more of physical memory. On 64-bit Linux, the per-process user space is 4 GB when running 32-bit applications.

Languages, voices, and grammars must be provisioned so as not to exceed the user space limit. Additionally, about 500 MB of headroom should be reserved to allow for non steady-state events such as dynamic grammars, acoustic adaptation, and call log cleanup. To respect the user space limit of 4 GB (and keep 500 MB of headroom) in a deployment environment, Nuance recommends that a Speech Server load only up to two languages. In the case of 64-bit Linux, and the host has more than 4 GB of physical memory (for example, 8 GB of physical memory), the Speech Server can load up to three languages. If you are running more than three languages, you must provision appropriately. For example, a host running five languages and three recognition services should have about 12 GB of physical memory.

This figure takes into account the shared-memory region automatically created by NVP whenever a host is configured to run multiple recognition services. The recognition services use this region to share resources like acoustic models.

See also:

- *Administering Nuance Voice Platform* for more information about shared memory
- *Localizing Nuance Voice Platform* for more information about setting up a multilingual deployment

Installation

NVP packages several components to provide a complete VoiceXML-compliant platform. These include products like:

- Nuance® Recognizer, for recognition.
- Nuance® Vocalizer™, for text-to-speech (TTS).
- Nuance® Speech Server, Nuance's MRCP standard for integrating recognition and TTS functionality.
- Nuance® Management Station, for configuring, deploying, administering, and managing voice applications on a distributed network. Principal features include network design, system monitoring and control, system performance and analysis, and data management.
- Nuance® License Manager, for distributing licenses.

The installation includes the Recognizer, Vocalizer, and Speech Server components as part of the *Nuance Conversation Server* installation option. When you install the Conversation Server on a host, in addition to these components, you are also installing a VoiceXML interpreter (voice browser service) and telephony components for call control and audio (telephony session service and audio providers). This provides everything you need to interact with a voice application.

Version information

NVP provides a command-line utility that displays information about all installed components. For example, you can see what language is installed, and the versions for included NVP products and third-party components. Open a command-prompt window and type: `nuance-version -p`. The *Release Notes* also provides this information.

Before you install

To ensure a smooth installation:

- Start off with a clean system before installing NVP for the first time. Remove unsupported versions of MySQL, earlier versions of NVP, or standalone Nuance products before starting.
- Install the supported versions of MySQL and the MySQL java connector on the host to run the designated Management Station host. Instructions follow.
- To use NVP's audit logging feature, create a MySQL audit logging database and user on the designated Management Station host. The audio database records user actions on the Management Station. Instructions follow.
- Install Java SE (JDK). See the *Release Notes* for the supported versions.
- Generate your license. Instructions follow.

- Install NVP on host machines with static IP addresses (recommended). If you install on hosts with dynamic IP addresses, make sure the hostnames are resolvable, for example, using ping.
- On Linux, NVP runs under user nuance and group nuance. By default, all NVP components are configured to output data like diagnostic logs, call logs, and so on, under *$NUANCE_DATA_DIR*, which belongs to user/group nuance. (The environment variable is set to *var/local/Nuance*.)

  Should you change this so that NVP components write to other directories outside of *$NUANCE_DATA_DIR*, they must allow write permission to user and group nuance. This restriction also applies to third-party application servers watched by the Management Station. All data written to disk by the application server must write to a directory that user or group "nuance" can write to.
- Multilingual deployments must make sure they have enough physical memory and per-process user address space. When the Nuance Speech Server loads more than one language, that host must 4 GB or more of physical memory. It is also important to make sure that each process does not run more than the per-process user address space allowed by the operating system. This is 4 GB on 64-bit operating systems. See the discussion on memory considerations for multilingual deployments in the *Localizing Nuance Voice Platform* for more information.

Installing and configuring MySQL

Before installing NVP, you must install and MySQL on the designated Management Station host. The Management Station uses the MySQL database to store operational and system configuration information collected from Conversation Server hosts. This data includes imported call log files, utterances, vital signs, and alarms generated by services.

The NVP installation creates the Management Station database in: *`mysql_installation_path`*`\mserver`. For a typical MySQL installation, the default location is:

- Windows: *C:\ProgramData\MySQL\MySQL Server 5.1\data\mserver*
- Linux: */var/lib/mysql/mserver*.

Please note:

- You must install MySQL with an InnoDB storage engine.
- NVP supports open-source and commercial MySQL, 64-bit versions. Check the *Release Notes* for supported versions.
- If you have an existing Management Station database (*mserver*) and audit database created with a supported MySQL version, you can keep them. The NVP installation detects them and uses them.

  If you want the installation program to create a new *mserver* instead of reusing an existing one, you must remove it using the MySQL drop database command before installing NVP. Open a command-prompt window and enter:

  > mysql -h *`fully_qualified_domain_name`* -u *`mserver_username`* -p*`mserver_password`* -e "drop database mserver;"

  For example, with *`hostname`* mtl-venus.nuance.com, *`mserver_username`* ms, and *`mserver_password`* msp, the command is:

  > mysql -h `mtl-venus.nuance.com` -u `ms` -p`msp` -e "drop database mserver;"

  To remove an existing audit database, use the same command and substitute the audit username, password, and database name.

Procedure

These instructions show how to install open-source MySQL 5.1.62 on Windows and Linux. Please modify these accordingly if you use commercial packages or another supported version.

1. Go to the MySQL archives download site at *http://dev.mysql.com/downloads/*.
2. Select Archives→MySQL Community Server→5.1.62.
3. Select your platform:
   - Windows: Microsoft Windows
   - Linux: Linux - Generic
4. Download the required executable(s) to a temporary location on the designated Management Station host:

Operating system	Name	Filename
Windows	Windows (x86, 64-bit), MSI Installer Essentials—Recommended	*mysql-essential-5.1.62-winx64.msi*
Linux (three packages)	Generic Linux (glibc 2.3) (x86, 64-bit), RPM Package Shared components	*MySQL-shared-5.1.62-1.glibc23.x86_64.rpm*
	Generic Linux (glibc 2.3) (x86, 64-bit), RPM Package Client Utilities	*MySQL-client-5.1.62-1.glibc23.x86_64.rpm*
	Generic Linux (glibc 2.3) (x86, 64-bit), RPM Package MySQL Server	*MySQL-server-5.1.62-1.glibc23.x86_64.rpm*

The naming scheme should be similar for the commercial packages.

5 Go back to the Archives page, scroll down, and select MySQL Connector/J→ 5.1.6.

6 Download the file appropriate for your operating system, Windows (ZIP format) or Linux. The download filename is *mysql-connector-java-5.1.6.*`extension`.

7 Extract the connector file. The file you need to point to during the installation is *mysql-connector-java-5.1.6-bin.jar*.

8 Verify that you don't have another version of MySQL installed. Remove it if you do.

9 Install MySQL.

- Windows: Run the msi program.
- Linux: Run these commands:

```
> rpm -ivh MySQL-server-5.1.62-1.glibc23.x86_64.rpm
> rpm -ivh MySQL-shared-5.1.62-1.glibc23.x86_64.rpm
> rpm -ivh MySQL-client-5.1.62-1.glibc23.x86_64.rpm
```

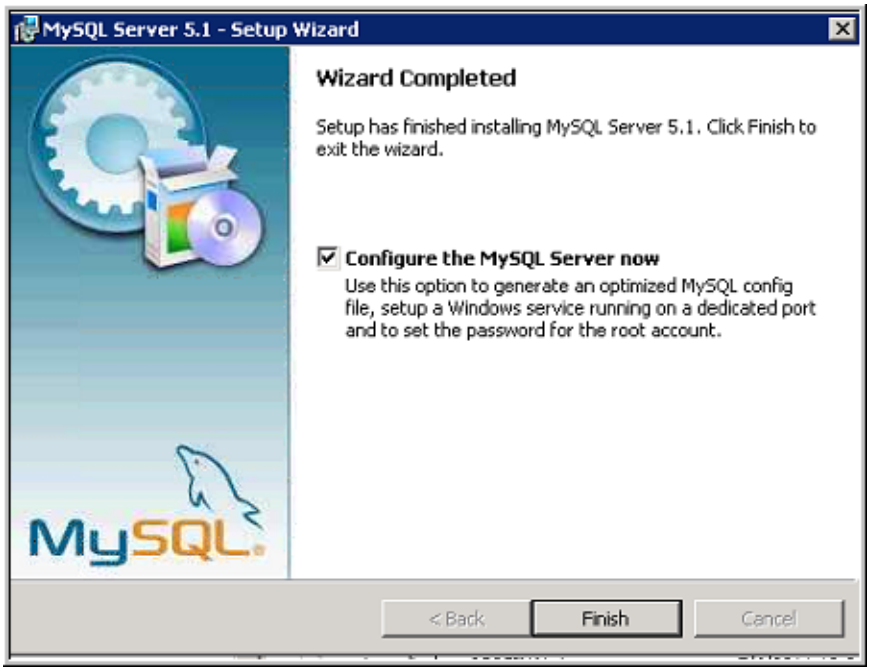
  Note: If prompted to set a password for the root user, do not do this now. Do this after installing the Management Station.

10 If you're installing on Linux, skip the remaining steps and go directly to Configuring MySQL for the Management Station. If you're installing on Windows, continue with the steps.

11 For Setup Type, choose Typical.

12 Install MySQL in the default locations.

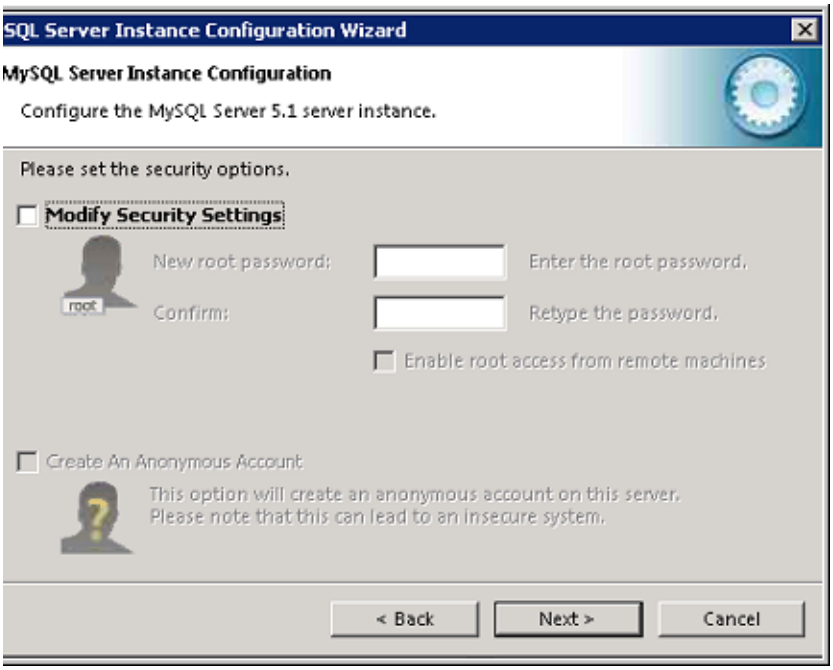
13 When the installation is complete, select Configure the MySQL Server now and click Finish. For example:



14 The MySQL Server Instance Configuration Wizard appears. Click Next and select Standard Configuration.

15 On the set Windows options screen, select Include BIN Directory in Windows PATH. Your screen should look like this:

16 On the security options screen, deselect Modify Security Settings. For example:



17 On next screen, click Execute to start the configuration.

18 Click Finish when done.

Creating MySQL user account (Windows only)

Before installing NVP on Windows, you must create a MySQL user account. Please note:

- You can assign any username and password. Nuance suggests *ms*, *msp*. They're easy to remember.
- The hostname must be a fully qualified domain name, *hostname.domain.com*. For example, *my_host.nuance.com*. The NVP installation could fail if the *hostname* is not fully qualified.

1 Open a command-prompt window and enter these commands:

```
> mysql -u root -e "CREATE USER 'username'@'fully_qualified_hostname'
IDENTIFIED BY 'password';"

> mysql -u root -e "GRANT ALL PRIVILEGES ON *.* TO
'username'@'fully_qualified_hostname' IDENTIFIED BY 'password';"

> mysql -u root -e "FLUSH PRIVILEGES;"
```

2 Verify the access rights by entering this command:

```
> mysql -D mysql -u username -h fully_qualified_hostname -ppassword -e
"SELECT create_priv FROM user WHERE user='username' AND
host='fully_qualified_hostname';"
```

MySQL inform you that privileges were successfully created:

If you don't see "create_priv Y" or if you get an error, verify your steps. If necessary, drop the user and start over. The MySQL drop command is:

```
> mysql -u root -e "drop user 'username'@'fully_qualified_hostname';"
```

3 Note the *username* and *password*. The NVP installation prompts you for these values.

Configuring MySQL for the Management Station

You should configure the MySQL database to ensure optimal performance with the Management Station, especially if your deployment takes a high volume of calls during peak busy hours. This requires creating a *my.* configuration file with specific settings.

1 If you are using MySQL for non-NVP reasons, please back up your databases.

2 Stop the MySQL service, for example:

Windows: From the Control Panel (Administrative Tools→Services)

Linux: `> service mysql stop`

3 Create or modify the MySQL configuration file with these settings.

Windows: Modify *C:\Program Files\MySQL\MySQL Server x.x\my.ini*, adding any lines shown below not present in the original file.

Linux: Create */etc/my.cnf*

```
[client]
port=3306


[mysqld]
port=3306
wait_timeout=2147482
init_connect='set AUTOCOMMIT=0'
default-character-set=latin1
default-storage-engine=INNODB
sql-mode='NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION'
max_connections=600
query_cache_size=0
table_cache=512
tmp_table_size=103M
thread_cache_size=16

#*** MYISAM Specific options ***
myisam_max_sort_file_size=100G
myisam_sort_buffer_size=205M
key_buffer_size=175M
read_buffer_size=64K
read_rnd_buffer_size=256K

sort_buffer_size=20M

#*** INNODB Specific options ***
innodb_additional_mem_pool_size=12M
innodb_flush_log_at_trx_commit=0
skip-external-locking
innodb_file_per_table
innodb_log_buffer_size=4M
innodb_buffer_pool_size=1024M
innodb_log_file_size=25M
innodb_thread_concurrency=16
```

4 Delete the *ib_logfile** files located, by default, under:

Windows: *C:**ProgramData**\MySQL\MySQL Server x.x\data*

Linux: */var/lib/mysql*

5 Start the MySQL service, for example:

Windows: From the Control Panel (Administrative→Tools Services)

Linux: `service mysql start`

Creating an audit database

An audit database logs all Management Station user actions. To use this optional feature, you must create the audit database and an audit user before installing NVP. During the NVP installation, you are prompted to enable it.

1. Log onto the host to serve as the dedicated Management Station as root or Administrator (or as a user with root/administrator privileges).
2. Open a command-prompt window and run MySQL as root, for example:

   ```
   > mysql -u root
   ```

3. Enter this command:

   ```
   > CREATE DATABASE audit_db;
   ```

   Where *audit_db* is the name for the database.

4. Create the audit user:

   ```
   > CREATE USER 'username'@'hostname' IDENTIFIED BY 'password';
   ```

   Where *username* is the user account name, *hostname* is the fully qualified domain name for your host, and *password* is the password for the user account. A fully qualified domain name is in the form, *hostname.domain.com*. For example, *my_host.nuance.com*.

5. Grant privileges to the audit user:

   ```
   > GRANT ALL PRIVILEGES ON *.* TO 'user_name'@'hostname' IDENTIFIED BY
   'user_password' WITH GRANT OPTION;
   ```

6. Flush the privileges:

   ```
   > FLUSH PRIVILEGES;
   ```

7. Note the *audit_db*, *user_name*, and *password*. The NVP installation prompts you for these values to enable the audit database.

Installing Java

Before installing NVP, either as a fresh install or upgrade, you must install the supported 32-bit version of Java SE Development Kit (JDK) on all hosts. See the *Release Notes* for supported versions. To install the JDK:

- Windows: Run the *.exe* file
- Linux: Run `rpm -Uvh rpm_filename`

The NVP installation prompts you for the location so it can set *%JAVA_HOME%*. For a typical JDK installation, the default location is:

- Windows: *C:\Program Files (x86)\Java\jdkversion*
- Linux: */usr/java/jdk_version*

Licensing NVP

Several components of NVP require a license. These are:

- Vocalizer, TTS component of the Nuance Speech Server
- Recognition service
- Management Station
- Nuance Speech Server encryption (optional)

Though the order is not critical—you can install NVP first and generate a license after—it's easier if you obtain the license first, especially for the Linux installation since you can provide it with the install command.

Note: If you've already obtained a license from a previous installation, your current license is still valid with service-pack upgrades. You can skip this section and go directly to:

- Installing NVP on Windows
- Installing NVP on Linux

Before you begin

You should have already determined your license architecture. You can install and run the Nuance License Manager on all hosts (default) or you can install and run it from a dedicated license licensing server host. This host distributes licenses to all hosts on the network requiring a license.

In a dedicated licensing architecture, you should configure redundant licensing server hosts to avoid a single point-of-failure. See *Licensing with Nuance License Manager* for more information.

Generating the license

Follow these steps to generate and install a license.

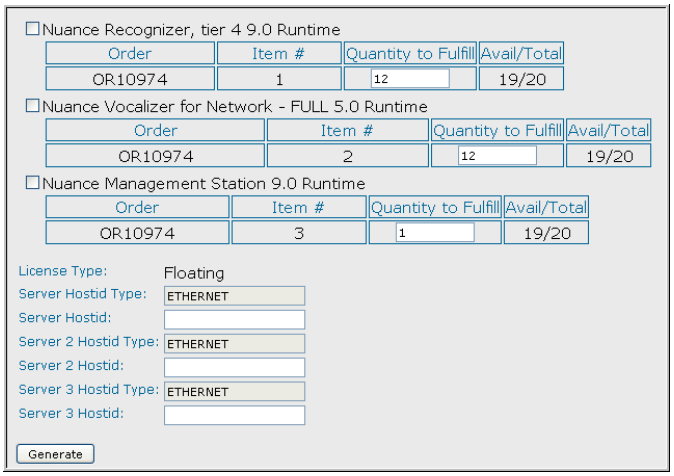
1. Contact your Nuance Sales Representative to obtain a License Authorization Code (LAC).
2. On each host running the License Manager, open a command-prompt window and run the appropriate command to get the MAC (physical) address.

   On Windows: Run `ipconfig/all`

   On Linux: Run `/sbin/ifconfig`

   A permanent license is generated for a specific host and cannot be used on another host.
3. Go to *licensing.nuance.com* to generate your license.
4. Enter the LAC and click Submit.
5. Click Generate Licenses. The list of available products appears. The Avail/Total field shows the number of available ports remaining for the total number of ports to which you are entitled based on your LAC.
6. Select all appropriate products to create a merged license file: Nuance Recognizer, Nuance Vocalizer, Nuance Management Station, and optionally, Nuance Speech

Server Encryption. This way you can just install the same license file on any host requiring a license. For example:



The Nuance Vocalizer product runs in-process with the Nuance Speech Server. The Nuance Recognizer product is run by the Nuance recognition service.

7 For Server Hostid, enter the MAC address you obtained earlier. Enter only the numbers. For example, if the MAC address is 01-22-AB-C3-44-F3, enter 0122ABC344F3.

8 Click Generate. The Confirm Selection page appears where you can make corrections, if necessary.

9 Click Generate. The generated license appears.

10 Copy the license into a text file and save it in a safe place with a meaningful filename, for example, *NVP_Version.lic*.

11 Install NVP following the instructions for your operating system:

- Installing NVP on Windows
- Installing NVP on Linux

Installing NVP on Windows

Nuance recommends you install NVP on host machines with static IP addresses. If you install on hosts with dynamic IP addresses, make sure the hostnames are resolvable, for example, using ping.

Configuring Windows before installing

Before installing NVP, disable the firewall capabilities. From the Control Panel, select Windows Firewall and check Off.

Installing NVP for the first time

You must run the installation on each host in the network. The Management Station component should be installed on a separate host.

Before starting the installation:

- You must have installed and configured MySQL on the designated Management Station host. See Installing and configuring MySQL if you haven't done this. If you intend to use the audit logging feature, you must have already created the audit logging database and user. See Creating an audit database for instructions.
- You must have also installed a supported 32-bit JDK. See Installing Java for more information.
- You should also have your license file ready. See Generating the license for more information.

Note: You can reuse the Management Station and audit (if created) databases if you uninstalled and are now reinstalling NVP. These were preserved. You still have to re-enter the database information when prompted.

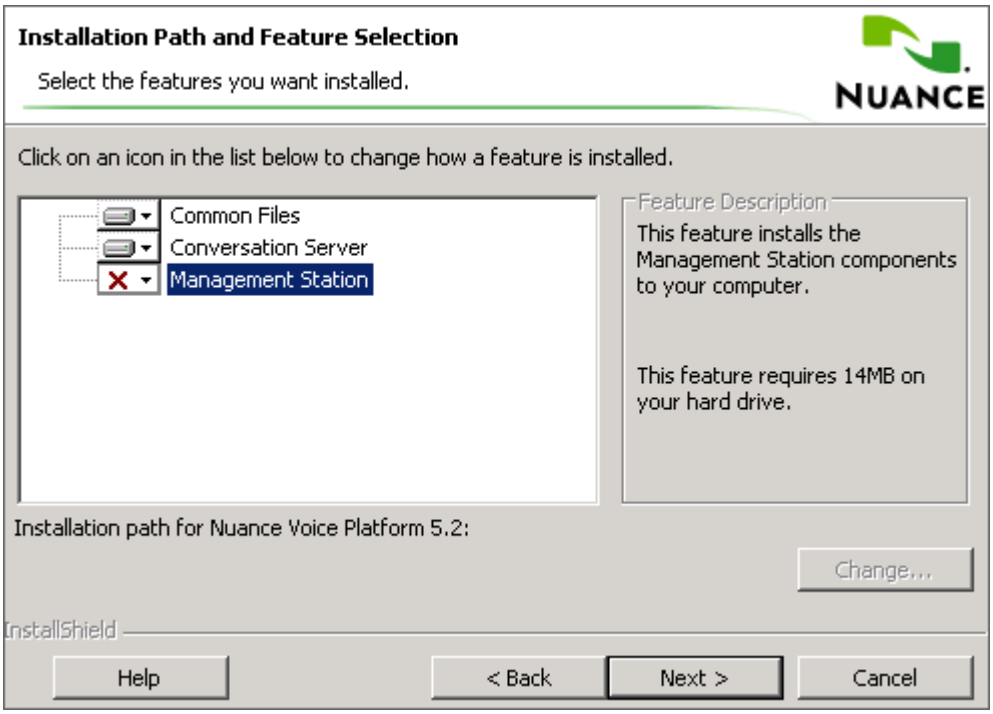
To install NVP on a host:

1. Log on to the host as Administrator or as a user with administrator privileges.
2. Download the NVP installation package from Nuance Network at *http://network.nuance.com*.
3. Extract the *zip* file to a temporary directory. (It's not recommended to run the installer from the WinZip window.) If you're installing NVP on multiple hosts, you can extract the files to a network-visible drive. However, you must mount the drive using UNC format, `\\network_file_server\network_shared_directory`.

   For example: `\\mydisk\downloads\installation_pkg`
4. Run the *.exe* installer from the directory where you extracted the NVP files and follow the instructions in the install screens.
5. When prompted for the Java Development Kit location, click Change and browse to the *jdk*`version` directory. The installation program sets *%JAVA_HOME%* to this location.
6. Select the components you wish to install on this host. By default, all components are preselected. To deselect a component (for example, to not install the Management Station on Conversation Server hosts):
   - Click the icon next to the name of the component.

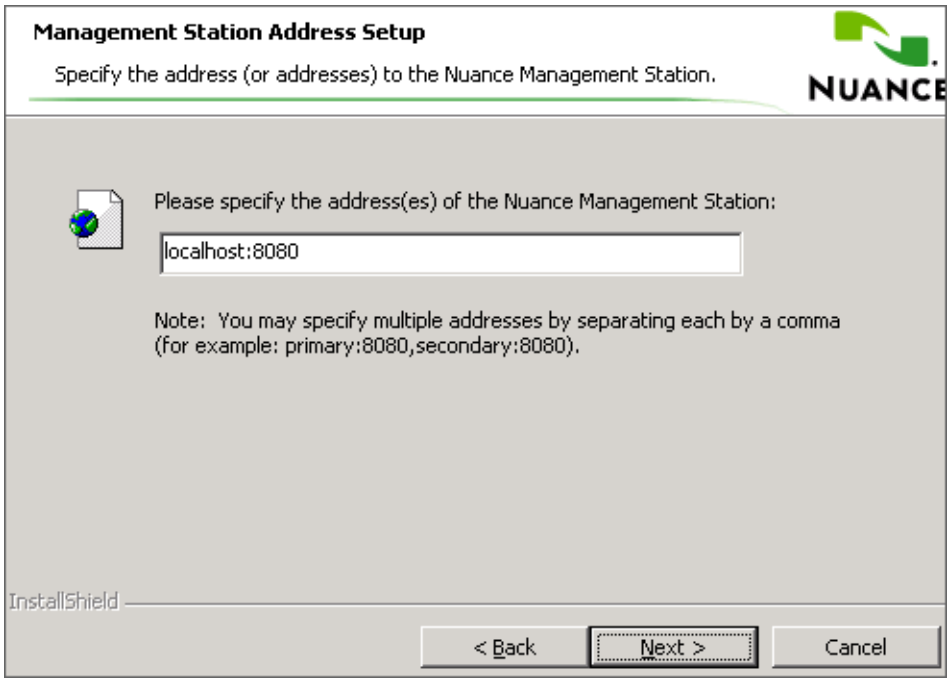
- Choose the installation option for the selected component. For example, to not install a component, choose the option "This feature will not be available."

For example:



Note: You can't deselect Common Files. All hosts need this component. In a testing environment, you can install all components on the same host, but in a real deployment, you should install the Management Station component on a separate host.

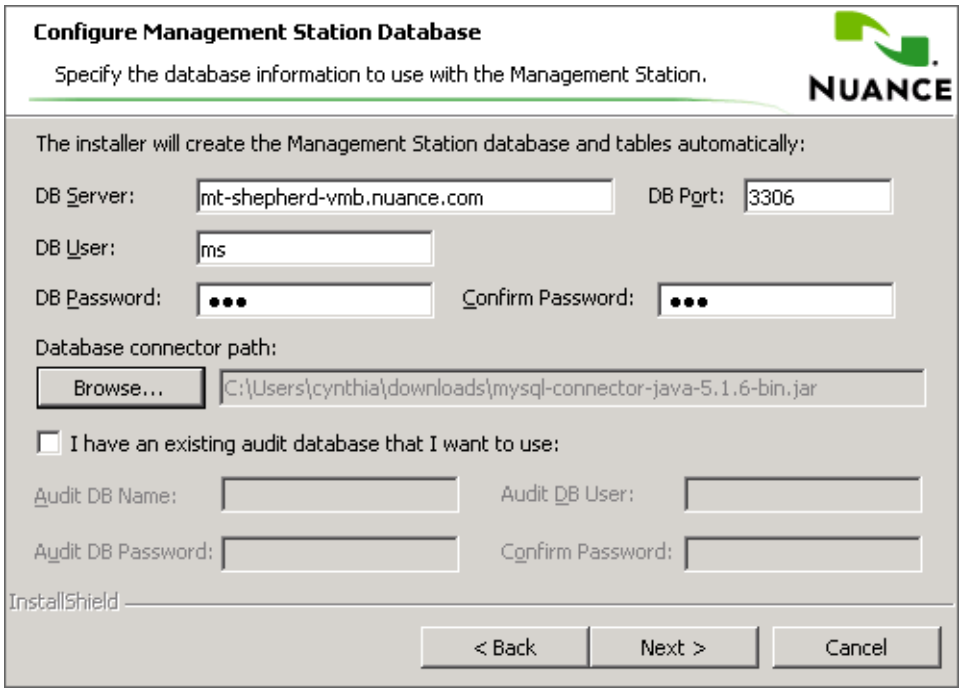
7 For Conversation Server hosts, identify the computer(s) running the Management Station as a comma-separated list of *`hostnames:portnumber`* pairs. The *`hostname`* can be the machine name or IP address. The port number is always 8080. For example:



If you identify two Management Stations, the first one is considered to be the primary and the second one is the standby. It's good practice to configure a primary and a standby Management Station, in case the primary machine goes down. See Configuring a standby Management Station for more information.

You can also change the Management Station address or configure additional standby Management Stations after installation via the Configure Management Station Addresses option, available from the Start→All Programs menu. This displays the *%NUANCE%\data\oam\mserver_hosts.txt* file for editing. Each entry must be on a separate line.

8 For the Management Station host, configure the Management Station database for the MySQL and audit databases:



- DB Server: Specify the hostname or IP address where you installed MySQL. The Management Station component must be installed on this host.
- DB Port: Specify the port MySQL is running on. The default is 3306.
- DB User, DB Password: Specify the MySQL username and password you used for creating the MySQL account. See Creating MySQL user account (Windows only) for more information.
- Database connector path: Click Browse and select the MySQLJava Connector file you downloaded earlier. The Management Station requires this file. If you don't have this, see Installing and configuring MySQL for more information.
- Audit DB fields: If you want to use the audit logging feature, check the "I have an existing audit database..." field. Enter the database name, user, and password for the audit database you created earlier. (See Creating an audit database for more information.)

  If you do not have an existing audit database, keep this field unchecked. Note that you will not be able to enable audit logging later on.

  You can disable audit logging after installation by setting the AuditLogging property to false in the *mserver_cfg.properties file*, located under *%MSTATION_HOME%\mserver\webapps\mserver\config*. Setting it back to true re-enables it.

Note: If you are reinstalling NVP, you must re-enter the database information even though the Management Station and audit (if created) databases are preserved.

9 On the Ready to Install the Program dialog, click Install.

10 Click Finish.

11 The installation prompts you to restart when finished. Don't do this yet. Install the license first:

   a Copy the license you generated earlier to *%NUANCE_LICMGR%\license*.

   b Reconfigure the License Manager for the correct license (currently, it points to a dummy license, *temp.lic*).

   - From the All Programs menu, run Nuance→Voice Platform→License Manager→ Licensing Tools. The LMTOOLS window appears.
   - Make sure "Configuration using Services" is enabled, then select Nuance Licensing Service from the list.
   - Change to the Config Services tab and set the Path to the license file field to point to the valid license file.
   - Click Save Service.
   - Click the Start/Stop/Reread tab.
   - Select the Force Server Shutdown checkbox and click Stop Server. Then click Start Server in order for the service to use the new license. The file and path is registered in the Windows registry for all subsequent restarts of the service.

12 Restart the host.

13 Install NVP on the other hosts.

14 If you're setting up one host to distribute licenses across the network, see Setting up a dedicated licensing server host for further instructions.

Upgrading to a service pack

This section describes how to upgrade to a service pack. Service packs are cumulative. You can install any service pack over the GA version, and install any service pack over an earlier service pack.

A restriction applies. NVP comes in two flavors: 5.2.*x* and 5.3.*x*. (The only difference between them is the bundled Vocalizer component.) You can upgrade service packs for 5.2.*x* on top of 5.0, 5.1, and 5.2.*x*. You can upgrade service packs for 5.3.*x* only on top of 5.3.*x*.

Prior to starting the installation, you must have installed a supported 32-bit JDK, even if you're upgrading from an NVPversion that bundled Java. See Installing Java for more information.

Please note:

- Your current license is still valid.
- When upgrading the Management Station, your previous password and password-security settings are preserved.
- The Management Station and audit (if created) databases are reused but you still have to re-enter the database information when prompted.

  As a precaution, back up the Management Station *mserver* directory in case you need to roll back to your current installation. See the Backing up the Management Station database guide for details.

- The upgrade doesn't reuse an existing *userdata* directory. If you've modified any *\userdata\config* files, for example, *mstation-license.properties*, back these up and copy them to the new *userdata* directory after upgrading.
- Nuance recommends that you upgrade clusters in a single maintenance window if possible. If this is not possible, you should schedule your maintenance window so that you have enough time to upgrade an entire cluster during each window.
- You should also plan to upgrade during a time when system use is low to minimize potential impact on callers.
- It's not necessary to shut down services on hosts. The installation takes care of stopping and restarting services.

1. Log on to the host being upgraded as a user with administrator privileges. Nuance recommends you upgrade the Management Station first to avoid generating minor alarms about a host going down as it's being upgraded.
2. Download the NVP installation package from Nuance Network at *http://network.nuance.com*.
3. Extract the *zip* file to a temporary directory. (It's not recommended to run the installation from the WinZip window.) If you're installing NVP on multiple hosts, you can extract the files to a network-visible drive.
4. Run the installation from the directory where you extracted the NVP files and follow the instructions in the install screens. See Installing NVP for the first time if you need more information about any of the prompts.

   Restart when prompted. The services are automatically restarted on each host once the upgrade is complete.

   Note: Before accessing the Management Station, you might need to run a migration script to update the mserver database. Check the *Release Notes* for more information.
5. Repeat for the remaining hosts.

Installing NVP on Linux

This section describes installing NVP on Linux.

Nuance recommends you install NVP on host machines with static IP addresses. If you install on hosts with dynamic IP addresses, make sure the hostnames are resolvable, for example, using ping.

Configuring Linux before installing

You must configure Linux before installing NVP. Unless otherwise noted, these instructions apply to RHEL 5.*x*, and CentOS 5.*x* and 6.*x*. Using the yum command on RHEL requires a licensed version.

1. Make sure the DNS and hostname are returned correctly with these commands:
   - `> hostname` (returns the hostname)
   - `> hostname -f` (returns the fully qualified hostname)
   - `> hostname -i` (returns the IP address)
2. Disable the firewall capabilities with these commands:

- `> service iptables stop`
- `> service ip6tables stop` (if using IPv6 firewall)

3 To prevent the firewall from starting whenever you restart the machine, enter:

- `> chkconfig --level 2345 iptables off`
- `> chkconfig --level 2345 ip6tables off` (if using IPv6 firewall)

4 Edit the file */etc/selinux/config* and set SELINUX to disabled.

5 Operate at *runlevel 3*. Edit the file */etc/inittab* and set `id:3:initdefault:`

6 Make sure all required packages are installed. Use the `yum` command to install all dependencies. There is no harm to running this command on a system with specified packages already installed.

- Version 5.*x*: `> yum install openssl-devel`

  This command installs these required packages: httpd-*`version`*, zlib-devel-*`version`*, krb5-devel-*`version`*, openssl-devel-*`version`*. The *`version`* is OS-dependent.

- Version 6.*x*: `> yum install compat-libstdc++-33.i686 libstdc++ libstdc++.i686 openssl098e.i686 openssl098e.x86_64 httpd dos2unix perl`

7 Version 6.*x* only: Create this link if not already present:

```
> ln -sf /lib64/ld-linux-x86-64.so.2 /lib64/ld-lsb-x86-64.so.3
```

8 Version 6.3 and later may include the mysql-libs package. This conflicts with the Enterprise (commercial) MySQL packages needed by the Management Station and must be removed. Enter this command:

```
> rpm -e mysql-libs --nodeps
```

Installing NVP for the first time

You must run the installation on each machine (or host) in the network. The Management Station component should be installed on a separate host.

Before starting the installation:

- You must have installed and configured MySQL on the designated Management Station host. See Installing and configuring MySQL if you haven't done this. If you intend to use the audit logging feature, you must have already created the audit logging database and user. See Creating an audit database for instructions.
- You must have also installed a supported 32-bit JDK. See Installing Java for more information.
- You should also have your license file ready. See Generating the license for more information.

Note: You can reuse the Management Station and audit (if created) databases if you uninstalled and are now reinstalling NVP. These were preserved. You still have to

re-enter the database information when prompted. The database user is *ms*, the password is *msp*.

1. Log on to the host as root.
2. Download the NVP installation package for Linux from Nuance Network at *http://network.nuance.com*. The directory you are downloading to should be empty.
3. Change to this directory and extract the file. If you're installing NVP on multiple hosts, extract it to a network-visible drive. The command is:

   ```
   > tar -zxf NVP_Linux_inst_pkg.tgz
   ```

4. Change to the *nuance-voice-platform-x.x.x* directory where *x.x.x* is the NVP version.
5. Run the *install* script supplying the -f and -c command-line options:

   ```
   > ./install.sh -f License -c MySQL_Java_Connector -j JDK_Location
   ```

   The -f option specifies the pathname of the valid license you generated earlier and configures the License Manager to use it. The -c option specifies the path and filename of the MySQL database connector, *mysql-connector-java-5.1.6-bin.jar*. The installation needs this file to create the Management Station database. The -j option specifies the path to the JDK directory.

   For example:

   ```
   > ./install.sh -f /tmp/NVPx.x.x-license.lic -c
   /tmp/mysql-connector-java-5.1.6-bin.jar -j /usr/java/jdkx.x.x_xx
   ```

   Note: Type `./install.sh -h` for a list of all command-line options.

6. Press Enter to view the license agreement.
7. Type y to accept it.
8. Select the NVP components to install by typing the appropriate number. You can install:
   - 1) All NVP components: (Conversation Server, Management Station, License Manager, Documentation)
   - 2) All NVP components *except* the Management Station
   - 3) Only the Management Station and the License Manager (includes documentation)
9. Specify the installation prefix (location of NVP) or press Enter to accept the default (*usr/local*).

Management Station

These instructions are specific to installing the Management Station component. You must install the Management Station on the host where you installed MySQL. The installation creates the Management Station *mserver* database with the user account, *ms* (user), *msp* (password).

10. Specify a *userdata* storage location. The *userdata* directory stores some configuration files, one being a license file that you would use if you need to point the Management Station to a dedicated licensing server host.
11. Press Enter to accept the path to the JDK location you specified with the `-j` option, or enter a new path.

12 Press Enter to accept the path and filename of the MySQL Connector file you specified with the `-c` option, or enter a new path.

13 If you want to use the audit logging feature, enter the name of the audit database you created earlier (see Creating an audit database for more information.)

   a If you accept the default, installation proceeds and audit logging is not enabled. Note that you will not be able to enable it later on.

   b If you enter the audit database name, the installation prompts you to enter the audit username and password.

   You can disable audit logging after installation by setting the AuditLogging property to false in the *mserver_cfg.properties file*, located under *$MSTATION_HOME/mserver/webapps/mserver/config*. Setting it back to true re-enables it.

If you are reinstalling NVP, you must re-enter the database information even though the Management Station and audit (if created) databases are preserved.

Conversation Server

These instructions are specific to installing the Conversation Server component:

14 Press Enter to accept the path to the JDK location you specified with the `-j` option, or enter a new path.

15 Identify the host(s) running the Management Station as a comma-separated list of *`hostnames:portnumber`* pairs. The *`hostname`* can be the machine name or IP address. The port number is always 8080. For example:

   mtl-venus:8080,10.0.0.00:8080

   If you identify two Management Stations, the first one is considered to be the primary and the second one is the standby. It's good practice to configure a primary and a standby Management Station, in case the primary machine goes down.

   You can also change the Management Station address or configure additional standby Management Stations after installation by modifying the *mserver_hosts.txt* located in *$NUANCE/data/oam*. When adding Management Stations, enter each *`hostname:portnumber`* combination on a separate line.

All components

16 The installation presents the selections you have made. Type y to confirm and continue.

17 Install NVP on the other hosts.

18 If you're setting up one host to distribute licenses across the network, see Setting up a dedicated licensing server host for further instructions.

Sourcing environment variables

After NVP is installed, source files are created under */etc/profile.d* that allow the user to access environment variables. Open a new session to make these environment variables available to your environment.

Upgrading to a service pack

This section describes how to upgrade to a service pack. Service packs are cumulative. You can install any service pack over the GA version, and install any service pack over an earlier service pack.

A restriction applies. NVP comes in two flavors: 5.2.*x* and 5.3.*x*. (The only difference between them is the bundled Vocalizer component.) You can upgrade service packs for 5.2.*x* on top of 5.0, 5.1, and 5.2.*x*. You can upgrade service packs for 5.3.*x* only on top of 5.3.*x*.

Prior to starting the installation, you must have installed a supported 32-bit JDK, even if you're upgrading from an NVPversion that bundled Java. See Installing Java for more information.

Please note:

- Your current license is still valid.
- When upgrading the Management Station, your previous password and password-security settings are preserved.
- The Management Station and audit (if created) databases are reused but you still have to re-enter the MySQL database information when prompted.

  As a precaution, back up the Management Station *mserver* directory in case you need to roll back to your current installation. See the Backing up the Management Station database guide for details.
- The upgrade doesn't reuse an existing *userdata* directory. If you've modified any */userdata/config* files, for example, *mstation-license.properties*, back these up and copy them to the new *userdata* directory after upgrading.
- Nuance recommends that you upgrade clusters in a single maintenance window if possible. If this is not possible, you should schedule your maintenance window so that you have enough time to upgrade an entire cluster during each window.
- You should also plan to upgrade during a time when system use is low to minimize potential impact on callers.
- It's not necessary to shut down services on hosts. The installation takes care of stopping and restarting services.

1. Log in to a host as root. Nuance recommends you upgrade the Management Station first to avoid generating minor alarms about a host going down as it's being upgraded.
2. Download the NVP installation package for Linux from Nuance Network at *http://network.nuance.com*. The directory you are downloading to should be empty.
3. Extract the file. If you're upgrading NVP on multiple hosts, extract it to a network-visible drive. For example:

   ```
   > tar -zxf NVP_Linux_inst_pkg.tar.gz
   ```
4. Change to the *nuance-voice-platform-version* directory.
5. Run the install script with the -U (upgrade) and j (JDK path) options. Java is no longer bundled with NVP so you must specify this information. For example:

   ```
   > ./install.sh -Uj /usr/java/jdk_x.x.x_xx
   ```

   Note: Type `./install.sh -h` for a list all available options.

6 Accept the license agreement.

7 The upgrade displays the installation choices. Type y to proceed.

8 Repeat for the remaining hosts. The services are automatically restarted on each host once the upgrade is complete.

Note: Before accessing the Management Station, you might need to run a migration script to update the mserver database. Check the *Release Notes* for more information.

Troubleshooting

Due to a possible Linux operating system installation problem, you may notice some NVP services fail to start, or they may appear twice or under the wrong host in the Management Station tree view.

Should this happen:

1 Open the */etc/hosts* file.

2 Change the following line:

```
127.0.0.1 hostname   localhost.localdomain
```

To:

```
127.0.0.1    localhost   localhost.localdomain
ipAddress   hostname
```

Where:

- *ipAddress* is the IP address of the NVP host
- *hostname* is the name of the NVP host

For example:

```
127.0.0.1    localhost   localhost.localdomain
11.2.3.4    myhost
```

3 Restart the Management Station services. See Starting and stopping the Management Station manually. You might also want to restart the watcher service on the managed host. See Starting and stopping the watcher service manually.

Setting up a dedicated licensing server host

If you're setting up a dedicated licensing server host to distribute licenses to hosts on the network, follow these steps:

Management Station

On the Management Station host:

1 Open *%NVP_HOME%\userdata\config\mstation-license.properties*.

2 Change the LicenseServerList property to point to the licensing server host. The default is 27000@localhost. You can use the hostname or IP address. For example:

```
LicenseServerList=27000@caliban
```

3 Restart the Nuance Management Station service in the Windows Control Panel for the change to take effect. On Linux, use this command:

```
> service initScriptmserver.sh restart
```

Nuance Speech Server hosts

On all hosts running the Speech Server:

1 Open *%SWISRSDK%\config\SpeechWorks.cfg*. *%SWISRSDK%* is the Recognizer location. Change SWILicenseServerList to point to the licensing server host, for example:

```
SWILicenseServerList=27000@caliban
```

2 Open *Vocalizer_install_path\config\baseline.xml*. Change <license_servers> to point to the licensing server host, for example:

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

3 If you have purchased an encryption license, open *%NSSSVRSDK%\config\NSSserver.cfg*. Change server.licenseManager.Address to point to the licensing server host, for example:

```
server.licenseManager.Address=27000@caliban
```

4 Start the Nuance Speech Server and Nuance recognition service from the Management Station to register the new license.

Modifying the license

If you ever modify the license—for example, to change the port numbers or add more Management Stations, follow these steps:

1 Copy the new license to the *license* directory on all hosts running the License Manager.

2 Restart the Nuance Licensing Service from the Windows Control Panel. On Linux, enter:

```
> service nuance-licmgr restart
```

3 Restart the Nuance Management Station Service from the Windows Control Panel. On Linux, enter:

```
> service initScriptmserver.sh restart
```

4 If the number of ports in the new license has *decreased*, you also must restart the Nuance Speech Server and Nuance recognition service from the Management Station. There is no need to restart these services if the number of ports has increased, if more components have been added to the license, or if the expiration date has changed.

Testing your installation

To test your installation, run the PizzaTalk sample application. If you need help on any of the following steps, see *Administering Nuance Voice Platform*.

1 If you haven't already done so, download and install a SIP softphone like SJPhone or HearMe. A SIP softphone is a software application that lets you make calls over a VoIP

connection. To avoid a port conflict, the SIP softphone should be running on a machine that does not have NVP.

2 Start the Management Station. You can use the start link on the Management Station host (Windows only) or enter the URL, *http://`MS_hostname`:8080/mserver,* in a web browser. Supported browsers are Internet Explorer and Firefox. The *`MS_hostname`* can be a name or IP address.

3 Log in to the Management Station. The default user is *Administrator*. The password is *changeit*. You are prompted to change your password.

   The hosts managed by this Management Station appear in the left frame. The green LEDs indicate they are online. If they are not online (gray LEDs), restart them.

4 From Network Design:

   a Choose Type: Host.

   b Assign it the Standalone: Conversation Server & Application Environment (1 Port, Developer Testing) role.

   c Select a physical host under Resource.

   d Click Add Network Element.

5 Select the host from the network tree and click Services.

6 Start all services.

7 Start your SIP softphone and dial PizzaTalk by entering:

   `sip:nvp@`*`hostname`*

   The *`hostname`* is IP address or name of the host you configured with the Standalone role.

8 If NVP was installed successfully, you can talk with the application (order some pizza) using your computer's microphone or a headset.

Configuring the Management Station after installation

This section describes post-installation information for the Management Station. For detailed information—specifically on how to use the Management Station to set up a network, create clusters, and assign roles—see *Administering Nuance Voice Platform*.

Migrating the Management Station database

After upgrading to a service pack, you might need to run a migration script on the Management Station database. Check the *Release Notes* for more information.

Date and time considerations

Nuance recommends that you configure the date and time of all host machines in the network to Coordinated Universal Time (UTC). Having all hosts use a common date and time reference makes troubleshooting and comparing system logs easier.

Deployment considerations

When setting up your network, you assign a role to each host. The roles are based on predefined configurations that support different combinations of Nuance services.

You can assign roles that run all services necessary to interact with a VoiceXML application on the same host. These all-services roles include the voice browser service, telephony session service, and the Nuance Speech Server.

You can assign roles that distribute the services among different hosts. In such a distributed environment, you would have dedicated browser hosts assigned roles running the voice browser and telephony session services, and Speech Server hosts, assigned roles running the Nuance Speech Server.

Nuance recommends you run all services on one host to reduce network load and latency among the components. This deployment would have:

- Management Station host(s)
- Application server hosts
- Conversation Server: All Services hosts

Integrating with the Management Station

To manage and monitor the services in your network, you need to configure the Management Station. The Management Station allows you to:

- Set up your network and configure services at initialization
- Start, stop, and restart services
- Receive notification of alarm events
- Import data from the various components for reporting and tuning purposes

To integrate with the Management Station:

1. Start the Management Station. You can use the start link on the Management Station host (Windows only) or enter the URL *http://`MS_hostname`:8080/mserver* in a web browser. Supported browsers are Internet Explorer and Firefox. The `MS_hostname` can be a name or IP address.
2. Log in the Management Station. The default user is *Administrator.* The password is *changeit*. You must change this to a more secure password when logging on the first time. You can reset the password at any time via Administration→Users→Current User→Change Password.

   Note: As a security precaution, the Management Station locks out a user after five unsuccessful login attempts. See *Administering Nuance Voice Platform* for more information about resetting the lock.

   The hosts managed by this Management Station appear in the left frame.
3. Set up your network and assign an appropriate role to each host. A role configures the host to run certain services. See the Overview chapter of *Administering Nuance Voice Platform* for descriptions of the available roles.
4. Set audio.Provider on the Advanced tab of telephony session service to the correct audio provider. The default is sip.
5. Display the Applications tab for the voice browser service and change the default application to point to your application. You can also specify a *session.xml* file to load. This file specifies parameter defaults and resources to load for a specific application. See *Administering Nuance Voice Platform* for information on configuring the voice browser service.

6 If you are running all services on one host, skip this step. If you are running a distributed environment—the Nuance Speech Server on one host, the voice browser and telephony session services on another host, display the Advanced properties tab for the voice browser service and edit browser.mrcp.serverAddress to point to the Speech Server host.

7 Issue a Start All on each host or at the cluster level to start all the services.

Configuring Conversation Server hosts after installation

This section describes post-installation and configuration information. Refer also to the *Release Notes* for other platform-specific details.

Licensing for the number of ports on Nuance Speech Server hosts

On all Nuance Speech Server hosts:

- Display the Advanced properties tab for the Nuance Speech Server and set server.mrcp2.sip.maxCountOfSession to the total number of ports the voice browser service is running (or no more the 5% over this number). This service property specifies the maximum number of concurrently active sessions between the voice browser service and the Nuance Speech Server. The default is 96.
- Open *`Vocalizer_install_path`*`\`*config*`\`*baseline.xml* and set <tts_license_ports> and <tts_license_ports_overdraft_thresh> equal to server.mrcp2.sip.maxCountOfSession.
  - The property <tts_license_ports> specifies the number of TTS licenses to acquire at startup. The default is 4.
  - The property <tts_license_ports_overdraft_thresh> specifies the threshold to warn users they are approaching the TSS license limit. The default is 4.
- Open *%SWISRSDK%*`\`*config*`\`*Baseline.xml* and set swirec_license_ports (default 4) equal to server.mrcp2.sip.maxCountOfSession. Set swiep_license_ports (default 8) to 2X server.mrcp2.sip.maxCountOfSession. These parameters control endpointer and recognizer licensing.

  %SWISRSDK% is the Recognizer location.
- Restart the Speech Server and Nuance recognition service in the Management Station for the changes to take effect.

Installing different recognition languages

NVP is packaged with the North American language (en-US). Other languages can be downloaded from Nuance Network at *http://network.nuance.com*.

Multilingual deployments must make sure that they have enough physical memory and per-process user address space. Hosts loading more than one language must have 4 GB or more of physical memory and 3 GB of per-process user address space. See *Localizing Nuance Voice Platform* for more information about localizing NVP and memory considerations in multilingual deployments.

A language provides needed resources to perform recognition in that language and includes localized:

- Acoustic models
- Pronunciation models and lexicon

- Standard VoiceXML built-in grammar types like date and digits

Install languages on hosts running the Nuance Speech Server:

1. Log onto the host as Administrator (Windows) or root (Linux).
2. Download the file(s) for your operating system from Nuance Network at *http://network.nuance.com*. Languages are found under the Nuance Recognizer 10 product.
3. Extract the language to a temporary location.
4. Change to the extracted directory and install the language:
   - Windows: Run the *msi* program
   - Linux:.Run the command: `./install.sh`

   Languages are installed in language-specific directories under *%SWISRSDK%*, the Nuance Recognizer location. Each language comes with its own documentation, installed in *%SWISRSDK%\documentation\languages*. Refer to this documentation for information about the included built-in grammars, phonemes, IPA transcriptions, and SAMPA conversions for that language. See also *Using Recognizer Language Packs* for general information.

Installing different Vocalizer voices

NVP is packaged with the North American female voice, Samantha (BET1). Other voices can be downloaded from Nuance Network at *http://network.nuance.com*.

A voice contains recorded audio files used by Vocalizer to enable TTS personas. Voices are installed in language-specific directories under the Vocalizer installation location. Each voice comes with its own documentation, installed under *`Vocalizer_install_path`/doc/languages*.

Install voices on hosts running the Nuance Speech Server:

1. Log onto the host as Administrator (Windows) or root (Linux).
2. Download the file(s) for your operating system from Nuance Network at *http://network.nuance.com*. Voices are found under the specific Vocalizer product, either Nuance Vocalizer for Network or Nuance Vocalizer for Enterprise. You must install the voice for the Vocalizer component bundled with NVP.
3. Unzip the voice to a temporary location.
4. Change to the extracted directory and install the voice:
   - Windows: Run the *msi* program
   - Linux: Run the command: `rpm -i voice.rpm`

You can install a voice to a non-default location then set the Vocalizer *..._VOICE_PATH* environment variable to point to it. The environment variables are specific to the Vocalizer product bundled with your version of NVP. See VNETWORKV5_VOICE_PATH or VOCALIZER_VOICE_PATH for details.

In a multiple-voice situation, what voice Vocalizer uses as the default depends on different factors:

- Vocalizer uses the first voice in ascending order of the language codes as the default. For example, if en-US (United States-English) and de-GE (German-German) voices are installed, the default voice is de-GE. If you install another voice having a

higher-ranked language code, for example, ca-ES, then that voice becomes the new default.

- If you have two *same* voices with the same language code (en-US), say Samantha BET1 and Samantha BET4, Vocalizer uses the newer technology voice (BET4) by default. BET4 voices produce higher quality speech but use more disk space, CPU, and memory.
- If you have two *different* voices with the same language code (en-US), say Samantha BET1 and Tom BET4, Vocalizer uses the voice installed first as the default. For example, NVP bundles Samantha BET1 and so it's the default. If you install Tom BET4 after, Samantha remains the default.

As a best practice, set the voice at the application level to avoid any surprises, as described in these use cases.

Use case—Changing the default voice

Say you wanted to use the male voice, Tom, in your application instead of the default female voice, Samantha. Once you've installed Tom, set the voice parameter in a *session.xml* file. Each *session.xml* file is associated with a particular voice application, and specifies default values that apply for that application only. For example:

```
<sessionparameters>
...
    <speechsynth>
      <param name="language"><value>en-US</value></param>
      <param name="voice"><value>Tom</value></param>
    </speechsynth>
...
```

You'll find a sample *session.xml* in *%NSSSVRSDK%\config\example_session.xml* that you can use as a template when creating your own *session.xml*. See Application defaults for more information about *session.xml*. See Specifying a session.xml file for how to configure the voice browser service to use a *session.xml* file for a particular application.

Use case—Specifying a voice model

More than one voice model may be available, depending on when the voice was manufactured. (Newer voices have better quality.) By default, NVP bundles the Samantha BET1 voice (8 and 22 kHz frequencies). If you install Samantha BET4, NVP automatically detects and uses the newest (BET4). To specify the older voice model, set switts.voice_model in a <property> element or voice_model in a *session.xml* file.

For example:

```
<sessionparameters>
...
    <speechsynth>
      <param name="language"><value>en-US</value></param>
      <param name="voice_model"><value>full_encryptf8</value></param>
    </speechsynth>
...
```

See voice_model for more information.

Use case—Specifying two voices

If you wanted to use male and female voices in the same application (for example, Tom and Samantha), use the voice SSML element within a prompt in your application instead of using a *session.xml* file. For example:

```
<form>
  <block>
  <!-- This text is spoken by Tom, the North American English male voice.
  -->
    <prompt>
      <voice name="Tom">Hello, how may I help you?</voice>
    </prompt>
  </block>
</form>
```

A <prompt> without a <voice> uses the default voice, Samantha. See the *Nuance Voice Platform VoiceXML Developer's Reference* for more information.

Uninstalling a language or a voice

Uninstall a language or voice using Remove Programs from the Windows Control Panel. On Linux, use `rpm -e language_or_voice`.

Specifying an HTTP proxy server

When a call comes in to NVP, the system requests an initial page from a URL that points to a location on an application server. This VoiceXML application itself may involve other resources—grammars, audio files, other VoiceXML pages—that must themselves be fetched from a different location. For example, if your application is onsite, each call may involve several fetches to a remote location. This in turn can introduce considerable delays while the voice browser service performs these fetches.

An *HTTP proxy* is a machine that mediates between the platform and the application server. It reduces latency by fetching resources on behalf of the platform and storing them in its own cache, so they can be used to respond to future requests quickly.

When an NVP service is configured to use a proxy server, the service sends resource fetching requests to the specified proxy server instead of fetching them directly. The proxy server then checks its cache for the resource. If the resource is already there, the proxy returns it to the NVP service. If not, the proxy performs the fetch itself, and then both returns the resource to the NVP service, and stores the resource in its cache.

You can configure the Speech Server to use an HTTP proxy server by setting certain service properties via the Management Station. Similarly, you can implement a proxy server for the voice browser service by setting certain Java properties.

Setting up an HTTP proxy server itself is beyond the scope of NVP. For our purposes, it is assumed that you have already set up a proxy, and need only to specify it within NVP.

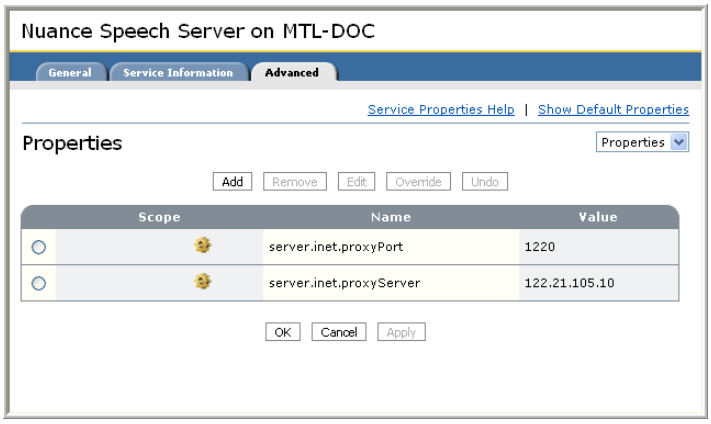
For roles that include more than one instance of a given service, you must specify the proxy separately for each service instance that is to use the proxy.

Specifying a proxy server for the Nuance Speech Server

To enable a proxy server for use with the Speech Server, you must specify values for these service properties on the Advanced tab for the Nuance Speech Server in the Management Station:

- server.inet.proxyServer: Hostname or IP address of the proxy server
- server.inet.proxyPort: Port number to be used to connect to the proxy server

This example configures this Speech Server instance to use a host at IP address 122.21.105.10 on port 1220 as an HTTP proxy server:



For a role that includes more than one Speech Server, you must specify these service properties separately for each Speech Server instance.

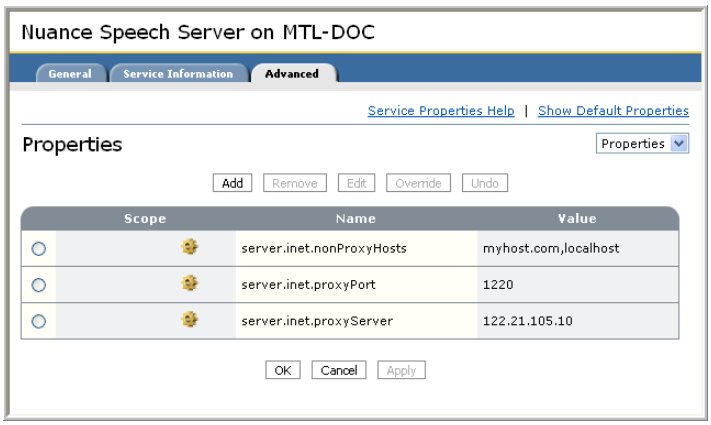
See the *Nuance Voice Platform Services and Utilities Reference* for more information about these service properties.

Specifying an exclusion list

When you specify an HTTP proxy, there may still be requests that do not need to use it. For example, some requests may go to a local host rather than one that is remote.

To indicate that a given request from the Speech Server should not use the proxy, you can specify an exclusion list in the server.inet.nonProxyHosts service property. This service property contains a comma-separated list of hosts and host/directory combinations that do not use the proxy when they appear in a request.

In this example, any requests to the local host or to the *myhost.com* server are sent directly, without recourse to the proxy. All other requests go to the defined proxy server.



Exclusion list strategies

The exclusion list entries can include a directory as part of the path. This allows you to use the proxy for some resources on a given host, but not others.

For example, if the resources to be fetched are put into separate directories organized by type, you can effectively place types of resources on this list. Suppose all grammars for an application are in a */grammars* directory, while audio prompts are stored in a */prompts* directory. If the grammars must be fetched directly (perhaps because the application uses dynamic grammars that must be generated each time), you can list *myhost.com/grammars* in the server.inet.nonProxyHosts exclusion list. Fetches to that directory then proceed as normal, while fetches to the */prompts* directory on the same host use the proxy.

Note: The server.inet.nonProxyHosts service property does not map hostnames to IP addresses. This means that if you use only the IP address for the host in the exclusion list, any requests that instead use the hostname do not bypass the proxy. Similarly, if only the hostname appears in the exclusion list, requests that use the matching IP address do not bypass the proxy. To be sure that all requests to a given host bypass the proxy, you must assign both the hostname and the IP address to the server.inet.nonProxyHosts list.

Specifying a proxy server for the voice browser service

You can also enable a proxy server for use with the voice browser service. To do so, you must specify values for the following two command line options:

- http.proxyHost: Hostname of the proxy server.
- http.proxyPort: Port number to be used to connect to the proxy server (default is 80).

You can specify an exclusion list for the voice browser service proxy by assigning a value to the http.nonProxyHosts command line option. This list must be a string of regular expressions, separated with a pipe (|). A regular expression in the list may include an asterisk as a wildcard character at the beginning or end of a host name. For example:

```
-Dhttp.nonProxyHosts=*.mycompany.com|localhost
```

The http.proxyHost, http.proxyPort, and http.nonProxyHosts properties are standard Java command line options. For more information, see the Java documentation on networking properties.

To set these options, edit the role file and add them to the command line for the voice browser service instance. As a best practice, you should make a copy of the role file and modify that. See *Administering Nuance Voice Platform* for more information on customizing role files.

For example:

```
<services>
  <service type="vws">
    <description>Voice Browser Service for one port.</description>
    <instance name="Voice Browser (1 Port)" startorder="8"
        starttype="automatic">
      <description>Voice Browser Service instance handling calls from a
          single Telephony Session Service instance (one incoming
          port).</description>
        <command>
          -wa
          watcher.QuiesceTimeoutMs=86400000
          -pa
          %JAVA_HOME%/bin/java
          -Xmx96m
          -Xrs
          -DVWS=%VWS%
          -classpath %VWS%/lib
          -Djava.endorsed.dirs=%VWS%/lib-override
          -Dhttp.proxyHost=myproxy.mydomain.com
          -Dhttp.proxyPort=port_number
          -Dhttp.nonProxyHosts=localhost|myhost.com|*.mycompany.com
          ...
          nuance.voyager.browser.Main
          ...
```

In this example:

- *myproxy.mydomain.com* is the hostname of the proxy server host.
- *port_number* is the port number to be used to connect to the proxy server host.
- *localhost|myhost.com|*.mycompany.com* is a list of hosts that do not use the proxy when they appear in a URL, instead triggering a direct request to that host.

For a role file that includes more than one voice browser service instance, you must specify these command line options for each voice browser service section in the role file.

Setting up HTTPS support

You can set up secure HTTPS connections within NVP. A secure connection between two components ensures that communications between those components are encrypted, and are therefore difficult to spy upon or tamper with. Since NVP uses the HTTP protocol for communication between components, anyone setting HTTPS should follow the standard process.

There are several principal channels of communication within NVP where you may need to set a secure connection:

- Between the Management Station host and the web browser
- Between the voice browser service and application server (one-way, or two-way)
- Between the Management Station and the watcher service
- Between other NVP components (Speech Server and recognition service) and the application server

Refer to your Certificate Authority vendor documentation for more information.

Starting and stopping the Management Station manually

The Management Station consists of two services:

- Nuance Management Station
- Nuance Management Station Data Collection

If necessary, you can manually start and stop the Management Station by starting and stopping these services.

Windows

Start and stop these services from the Windows Control Panel.

Linux

Log in as root and enter these start and stop commands from any directory (or just use the restart command):

- Nuance Management Station:

```
> service initScriptmserver.sh start
> service initScriptmserver.sh stop
> service initScriptmserver.sh restart
```

- Nuance Management Station Data Collection:

```
> service initScriptmserverdc.sh start
> service initScriptmserverdc.sh stop
> service initScriptmserverdc.sh restart
```

Starting and stopping the watcher service manually

The watcher service is the communication gateway between the Management Station and managed hosts and is installed on all Conversation Server hosts. The installation automatically starts the watcher service. You may need to verify the status and if necessary, restart the service. For example, if you notice an offline host in the Management Station but you know the watcher service is running, restarting the service on this host might fix the problem.

Windows

Verify and restart the watcher service from the Windows Control Panel. The service name is Nuance Watcher Daemon.

Linux

Log in as root. To verify that the watcher service is running, enter this command:

```
> service nuance-wd status
```

To explicitly start or stop the watcher service, enter these commands:

```
> service nuance-wd start
> service nuance-wd stop
```

Uninstalling NVP

This section describes how to uninstall NVP from Windows and Linux. The uninstall program:

- Removes NVP components and Apache Tomcat.
- Saves the *userdata* directory to *%NVP_HOME%\userdata_YYYYMMDD_HH.MM.SS* as a backup. This directory contains the *mstation-license.properties* file, used for configuring a standalone License Manager host.

  Note that even though *userdata* is saved, it will not be restored when you reinstall. NVP creates a new *userdata.*
- Saves the Management Station database (*mserver*) and audit database (if created) should you want to reuse them when reinstalling or upgrading NVP. The default locations for *mserver* and the audit database are under:
  - Windows: *C:\ProgramData\MySQL\MySQL Server x.x\data* where *x.x* is the MySQL version.
  - Linux: */var/lib/mysql/*

  The *mserver* database stores data about call logs, alarms, performance statistics, and so on collected from Nuance hosts and services. The audit database stores user actions on the Management Station.
- Saves current Management Station login usernames and passwords.

Removing an existing Management Station database and audit database

If you want the installation program to create a new *mserver* database instead of reusing an existing one, you should remove it before reinstalling NVP. Open a command-prompt window and enter this command:

> mysql -h *fully_qualified_domain_name* -u *mserver_username* -p*mserver_password* -e "drop database mserver;"

For example, with *hostname* mtl-venus.nuance.com, *mserver_username* ms, and *mserver_password* msp, the command is:

> mysql -h `mtl-venus.nuance.com` -u `ms` -p`msp` -e "drop database mserver;"

To remove a saved audit database, use the same command and substitute the audit username, password, and database name.

Windows

Uninstall NVP from the Control Panel. You should be Administrator or a user with administrator privileges.

Linux

To uninstall NVP from Linux:

1. Log on to the host machine as root.
2. Change to the *nuance-voice-platform-5.x.x* directory.
3. Enter `./install.sh -R`

   To access other uninstall options like repair, upgrade, or reinstall, type `./install.sh` without any arguments.

4 Follow the prompts as indicated.

Separating traffic

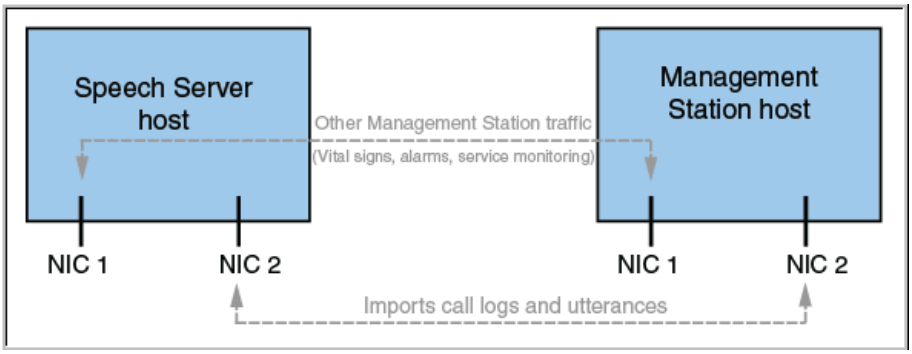
In order to reduce traffic and ensure that performance does not slow down, you may choose to split your network into subnets. Subnetting is a technique for breaking IP addresses into smaller blocks or subnets that can be used to define separate networks. For example, a subnet may represent all machines at one location, in one building, or on the same LAN (local area network).

On hosts with multiple network interfaces—such as hosts with multiple network interface cards (NICs) or with multiple network interfaces built into the motherboard—you can segregate network traffic by dedicating a second network interface or subnet to a specific type of traffic. This section describes how to dedicate a single network interface to a specific Management Station service such as call log and utterance collection.

Separating call log traffic from other Management Station traffic

By default, the Management Station (specifically the watcher service) routes all communication through a single network interface. This communication includes service control, vital sign monitoring and collection, call log imports, alarm traffic, and so on. This single network interface driver is the host's primary network interface or subnet.

On hosts with multiple network interfaces, you can configure a second network interface or subnet to handle call log activity, leaving the primary to handle all the other traffic. For example:



To specify the dedicated network interface for call log traffic, in the Management Station set the fta.LogImportSubnet service property for the file transfer service on all hosts that store call logs. These are Speech Server hosts but may also include application server hosts.

To set this service property for each host:

1 In the Management Station, display the Advanced properties tab for the file transfer service.

2 Click Add and enter fta.LogImportSubnet in the Name column.

3 In the Value column, specify the subnet address. Many resources are available on the Web to help you calculate this value. See Calculating the subnet address for one way.

4 Click OK to save the changes and close the window, or click Apply to save and keep the window open.

5 To modify the value, select the row and click Edit.

6 Restart the file transfer service for the changes to take effect.

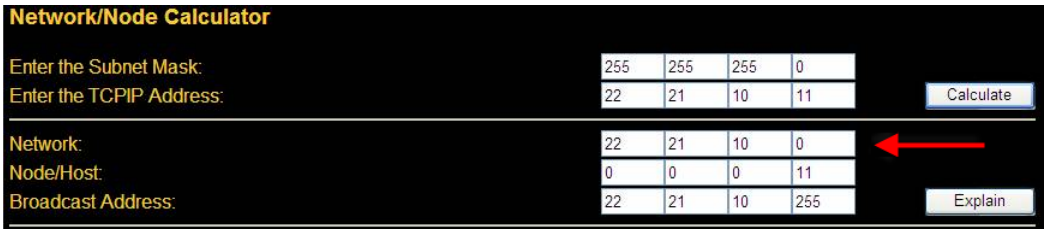
Calculating the subnet address

To calculate the subnet or network address, you must first determine your IP address and subnet mask. An IP address is made up of a network address and a host address. The subnet mask determines how the IP address is divided into network and host parts. Normally, on a class B network, the subnet mask would be 255.255.0.0. The 255s indicate that their position is part of the network address, while the zeros indicate that their position is part of the host address.

To find the IP address of a host, open a command-prompt window and enter the command ifconfig –a (Linux) or ipconfig /all (Windows). Details are shown for each of the host's network adapters including the IP address and subnet mask.

When you segment your network, you need to come up with alternate values for the host address portion of the IP address that will allow you to better regulate traffic flow. This alternate value is known as the subnet address. The subnet address is calculated by performing a binary AND on the host IP address against the subnet mask.

Many resources are available on the Web to help you calculate this value. One such resource is the free TCP/IP Network Calculators available at *www.subnetmask.info*. If using this resource, in the Network/Node calculator, simply enter the subnet mask value and the TCP/IP address, and click Calculate. Click Explain for clarification of the conversion process.



In the example, the subnet mask is 255.255.255.0 and the IP address is 22.21.10.11, making the network or subnet address (or value of the fta.LogImportSubnet service property) 22.21.10.0.