Transcription Services

Setup and Configuration Guide

QMS 9.4

General configuration and setup of transcription services for QMS

Enghouse Interactive

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Overview

QMS offers intregrations with several different Transcription Engines which allows QMS to submit the audio from a recorded call to the Transcription Engine to be transcribed. Once transcribed, the transcription text will be shown in the recording details along with the audio of the transcribed call.

Currently, QMS supports three different Transcription Engines: **Nuance Transcription Engine**, **Amazon Transcribe Speech-to-Text**, and **Azure Speech-to-Text**.

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Licensing

Transcription requires a Transcription license within QMS. Contact your Enghouse Interactive representative to get a new license key that includes the transcription licenses. Any user who is recording a call that needs to be transcribed will need a transcription license.

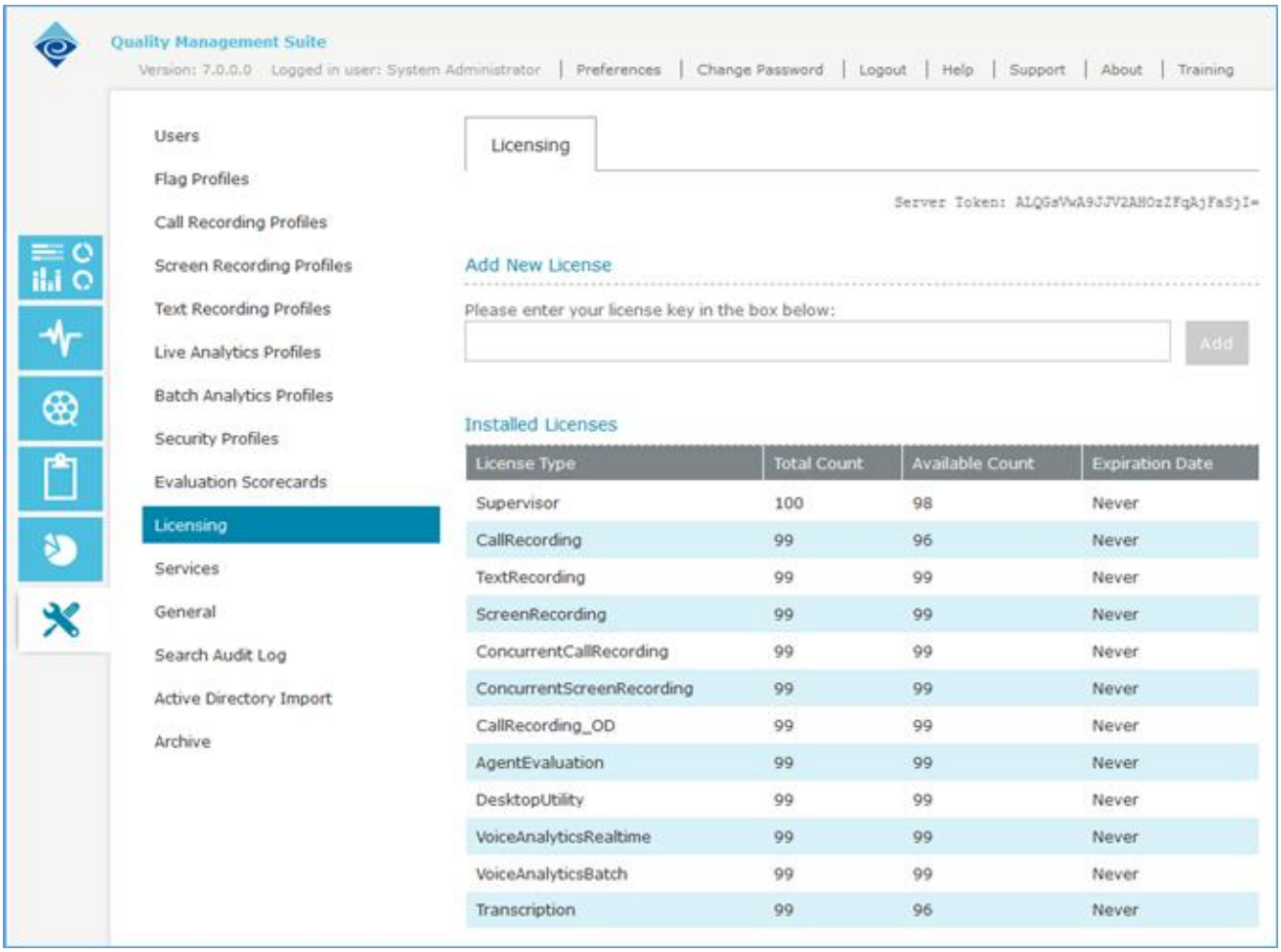

Figure 3: QMS Licensing

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User Configuration

Once transcription licenses are available, the next step is to assign licenses to users that need transcription. In the user edit screen, the Transcription license should now be available under the Analytics heading. Checking the license allows recordings created by this user to be transcribed. You can also use the **Multi-User Edit** functionality and the **Active Directory Import** to select and create users and assign the Transcription licensing.

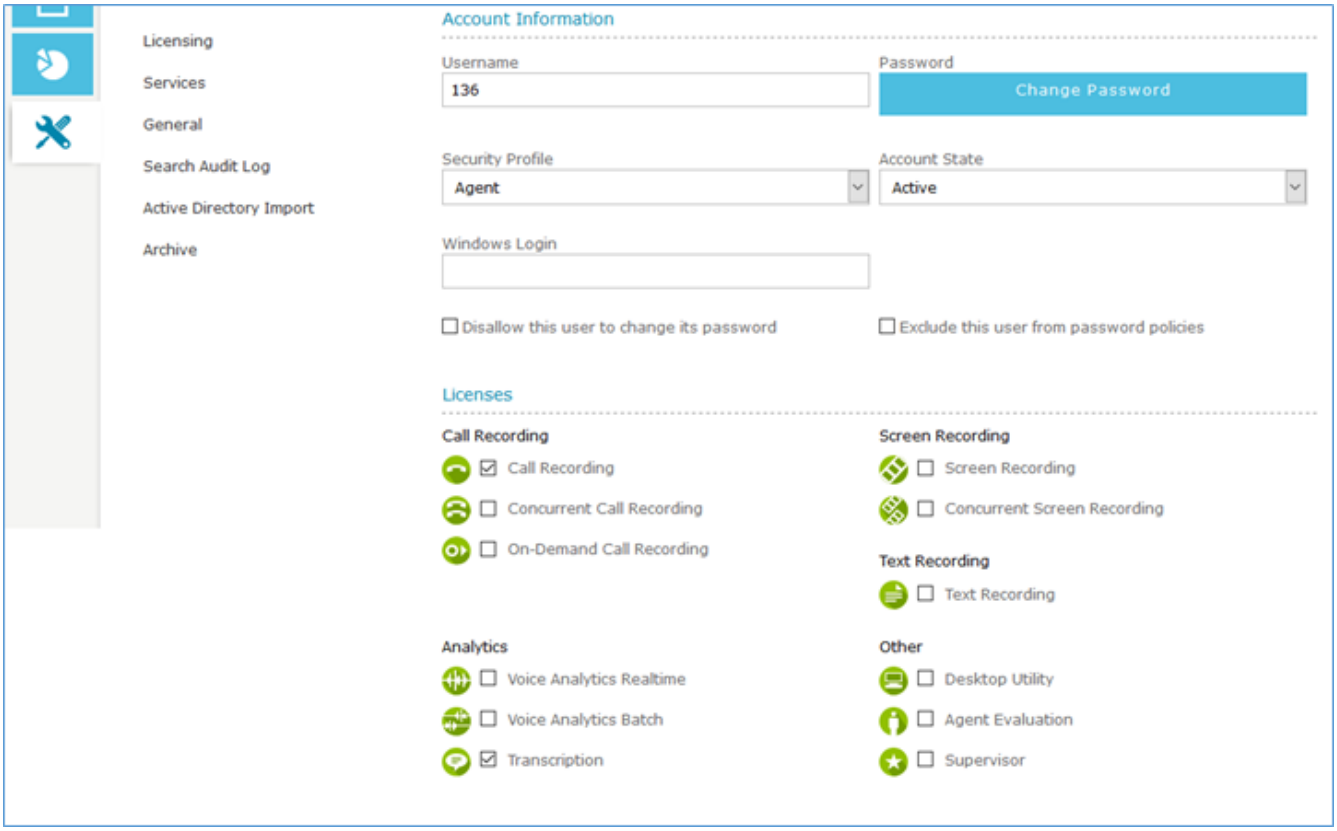

Figure 4: User Edit Licensing

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Nuance Transcription Engine

Overview

QMS releases from 7.3 onward include integration with the Nuance Transcription Engine (NTE) to provide transcription services for recordings. **Recording profiles** can be configured to automatically transcribe calls once the call has completed. This can be done for On Demand recordings as well. Recordings can be transcribed later through the client interface using the **Transcribe Now** feature.

NTE supports almost all languages currently supported by QMS and can be configured to auto-detect the language being used within the call. Like QMS, NTE supports highly available deployments and includes a load balancer to optimize server efficiency. This feature requires licensing both for QMS and Nuance to enable the functionality.

This document is intended to outline the general configuration and setup of transcription services within QMS. This document does not replace the “Using Nuance Transcription Engine” or other Nuance documentation that should be used to setup the NTE.

QMS with Transcription Topology

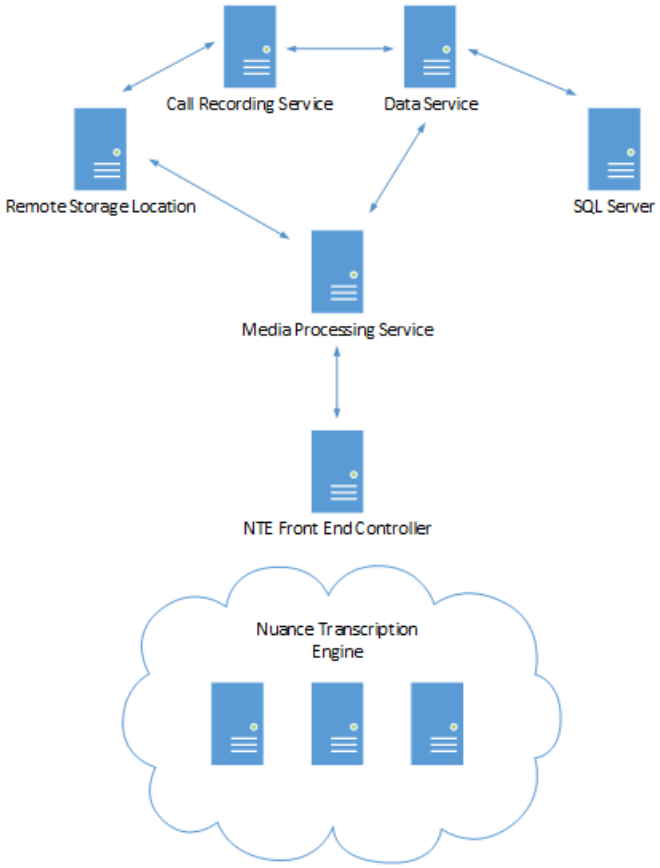

Figure 1: QMS with Nuance Transcription Engine

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A standard QMS deployment includes at least one Call Recording Service, Data Service, and Media Processing Service. Some deployments may include multiple instances of each of these services. Raw recording files are stored locally on the CR Service and is processed by the MPS once the call is complete. The MPS may store the recording locally or to a remote storage location, depending on the configuration.

If transcription is indicated for the recording, the MPS will also create a .wav and a .dat file that will be used to communicate to the NTE. NTE will only accept .wav formatted audio for transcription. The MPS sends the transcription request to the NTE Front End Controller along with the recorded audio. NTE will notify MPS once the file is fully received. MPS will continue with other processing until it receives a callback notification from NTE that the transcription is complete.

The transcription service may take a significant amount of time to process. The most accurate transcription setting has a one to one processing ratio with the length of the call. So, a 10 minute call could take 10 minutes to transcribe.

Once NTE has finished the transcription MPS will receive a callback with the processed transcription data. At this time the MPS will replace the .wav and .dat files stored for the transcription with a .txt file that contains the transcription data. This data includes not only the call text, but also speaker information, timing of the phrases within the call, and accuracy or confidence data for the recognition.

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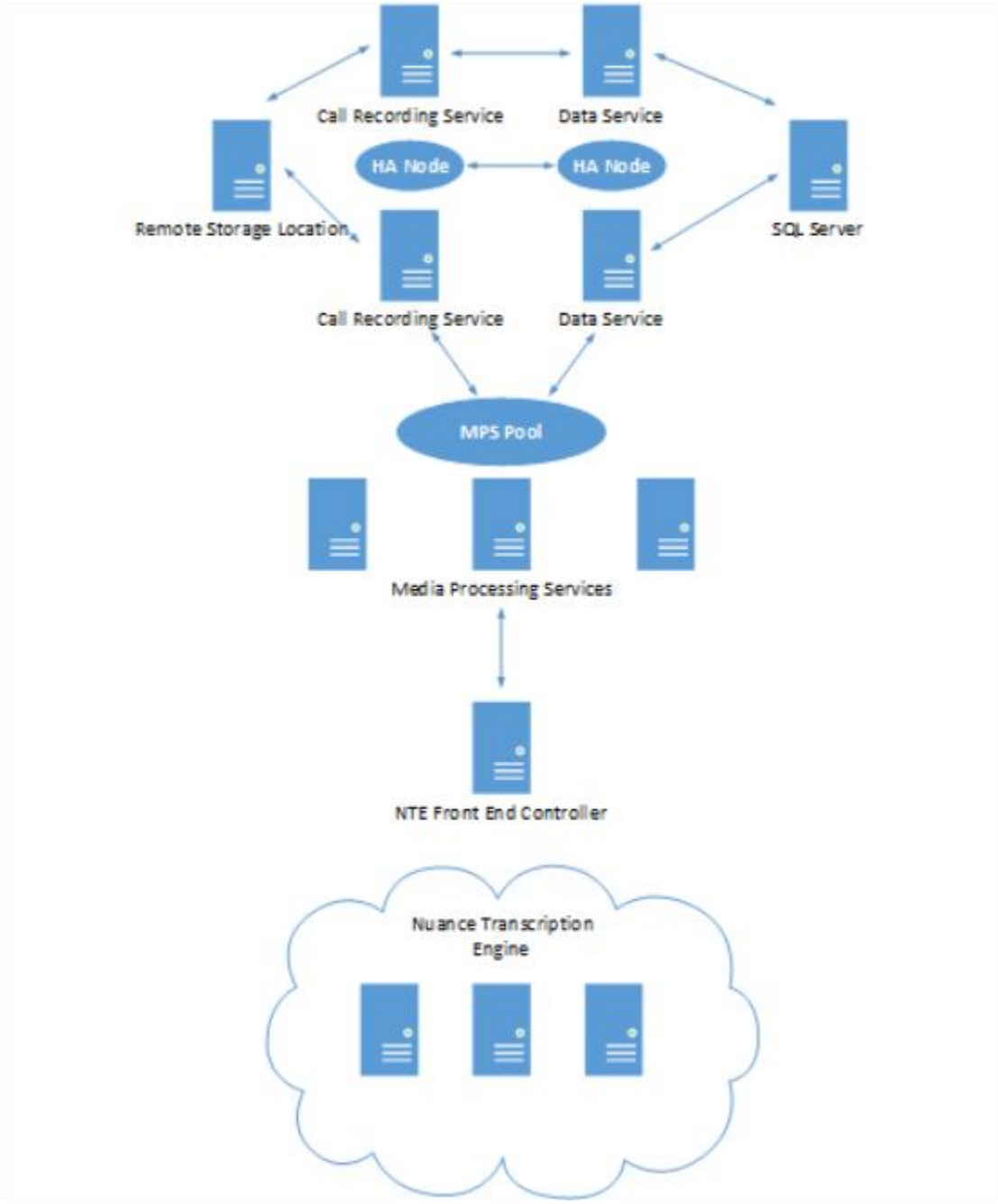

Figure 2: Highly Available QMS with NTE

The Highly Available deployment of QMS adds additional complexity. The Call Recording Service and Data Service would be setup as nodes with each service running on separate server instances. SQL also needs to be setup with Merge Replication and the data storage would need to be mirrored in some fashion to ensure no data loss. The MPS pool would service the HA deployment with two or more MPS running in conjunction.

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The MPS connects and interacts with the NTE in the same fashion as before. The NTE environment would also be setup in a highly available fashion. Please refer to Nuance documentation in how that is setup. In either the HA or non-HA case, QMS interfaces with a front-end service, so the configuration is the same.

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Licensing

In addition to QMS licensing, a Nuance license server and appropriate Nuance Transcription Engine licenses are required as part of the NTE setup.

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Media Processing Service Configuration

To setup the NTE connection, navigate to the **Services** section of the client administration. All Media Processing Services that are connecting to NTE should be available in the services list.

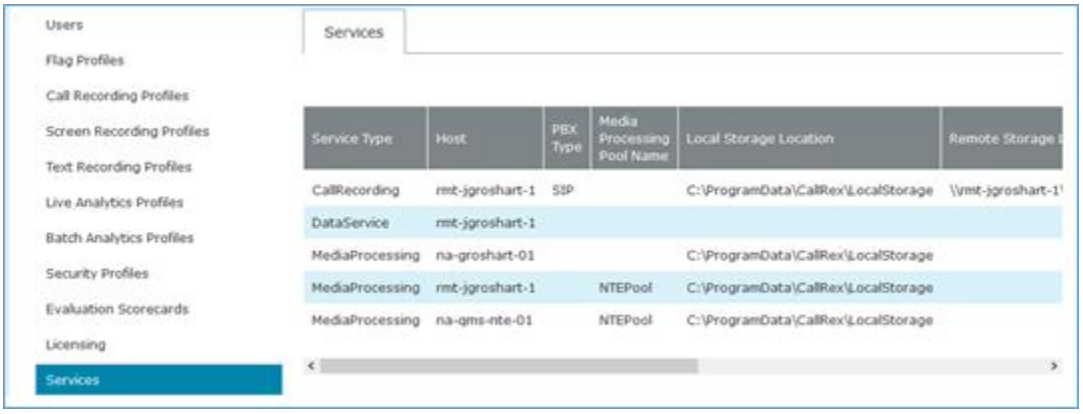

Figure 5: Services List showing Pooled MPS

The NTE Transcription settings can be configured independently for each MPS, unless the MPS is part of an MPS pool. Pooled Media Processing Services need to function and operate the same across the pool, so changing a transcription setting within any of these pooled MPS configurations will propagate the changes to the rest of the pool.

To change settings, open the **MPS Edit** tab and there will be a section called Nuance Transcription Engine Settings. First, you will want to check the Enable Transcription checkbox. This will show the rest of the available fields. The next field is the NTE Host Address. This is the IP or Hostname of the NTE Front End Controller. All MP Services must have free access to the NTE Host Address. Firewall settings must be open for all ports indicated within the Nuance documentation. The NTE Host Port should also match the NTE configuration. This is defaulted to 8080 and this port should be available through the firewall.

With these settings, QMS is able to connect and send transcription requests to NTE for processing. The NTE Callback URL is the location that NTE will send back the transcription response once processing is completed. This field is a standard URL text and you can specify either http or https in this field. The host and port of the URL should be the host/port of the MPS server that is servicing this request. MPS will listen on this port waiting for NTE to send the transcription callback to it.

The final section is the available language selection. The list includes all supported languages within NTE, but the administrator should select only the languages that are being used. Never select all languages and try to rely upon language identification as NTE identification quality is impacted the more languages it needs to work from. Typical deployments should only select two or three available languages and this should match the NTE licenses and language packs that are installed.

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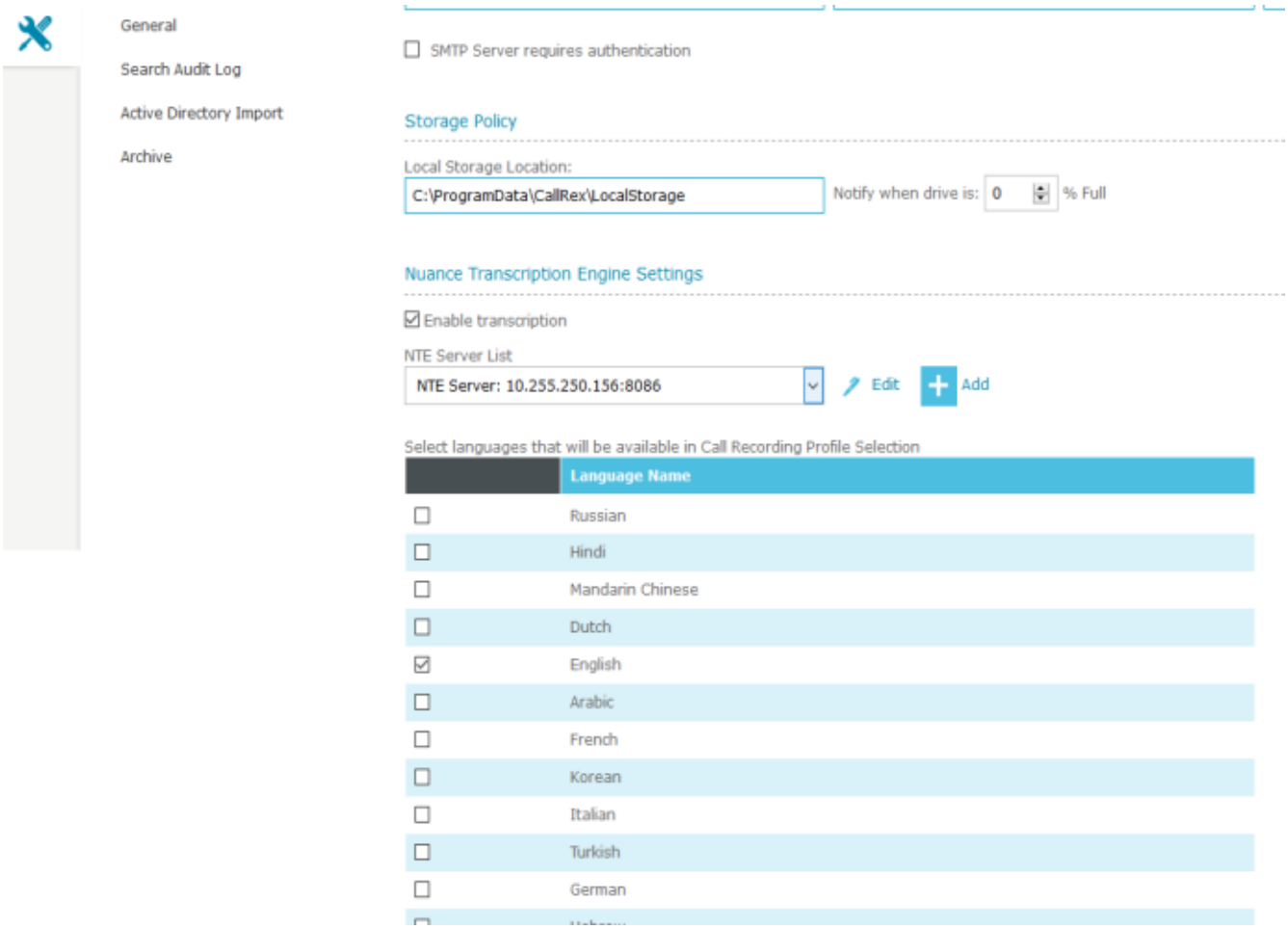

Figure 6: QMS Media Processing Service Configuration

Next to the NTE Server List, are an Edit and Add button. Clicking either of these will pop up a new window where the NTE Server details can be configured. Specifically, this allows you to set the NTE Host Address and Port information to connect to the NTE Server. With these settings, QMS is able to connect and send transcription requests to NTE for processing. The NTE Callback URL is the location that NTE will send back the transcription response once processing is completed. This field is a standard URL text and you can specify either http or https in this field. The host and port of the URL should be the host/port of the MPS server that is servicing this request. MPS will listen on this port waiting for NTE to send the transcription callback to it. The final piece of information is the FlexNet License Administrator Host Address and Port that the NTE server is connected to. Providing this information allows QMS to connect to the FlexNet License Administrator to gather License alerts, such as when licenses are running low or close to expiration.

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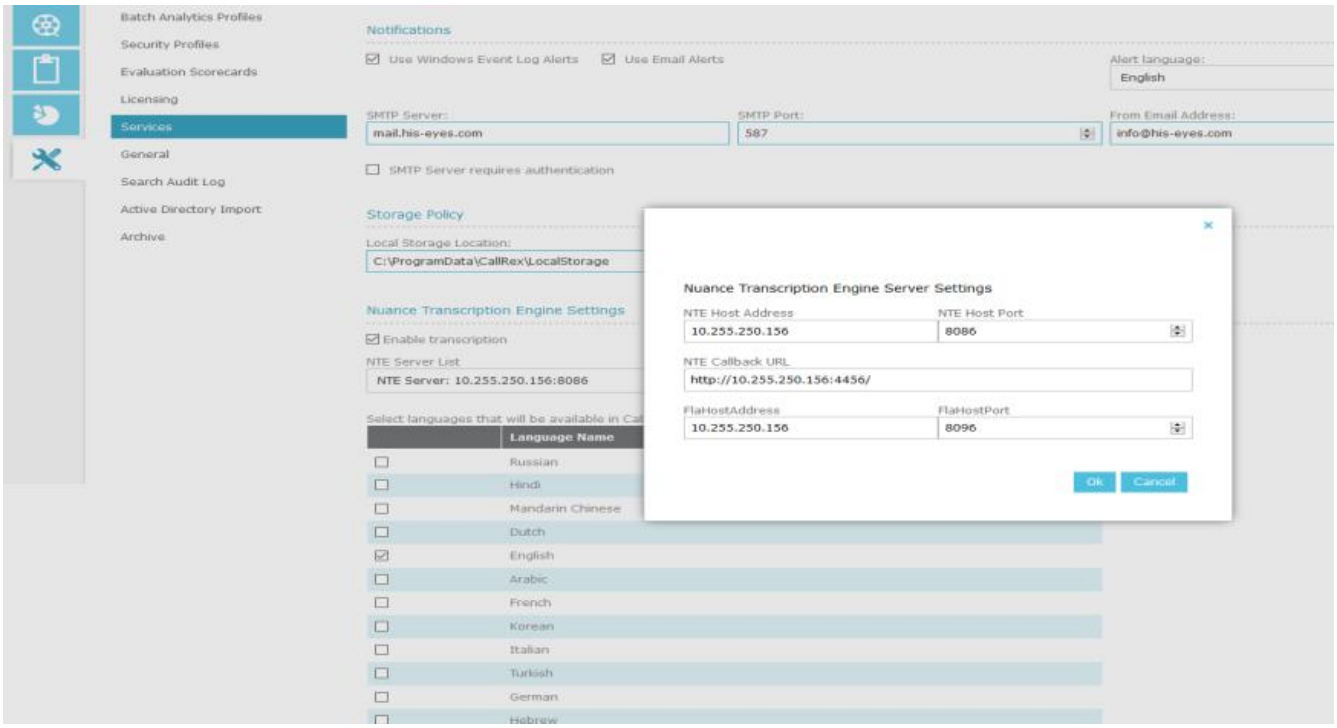

Figure 7: QMS Media Processing Service Configuration

The final section is the available language selection. The list includes all supported languages within NTE, but the administrator should select only the languages that are being used. Never select all languages and try to rely upon language identification as NTE identification quality is impacted the more languages it needs to work from. Typical deployments should only select two or three available languages and this should match the NTE licenses and language packs that are installed.

Once NTE is properly configured and saved, the MPS should establish a connection to the NTE server and await transcription requests. The MPS log will indicate if the NTE has been successfully connected. In the case where MPS is setup in a pool, you will get the following dialog indicating that the changes will be propagated to all Media Processing Services within the pool. The administrator must confirm to submit the change. This will propagate the Enable/Disable Transcription, NTE Host Address, NTE Host Port, and the protocol and port settings within the NTE Callback URL. The local MPS hostname/IP Address will be substituted within the NTE Callback URL.

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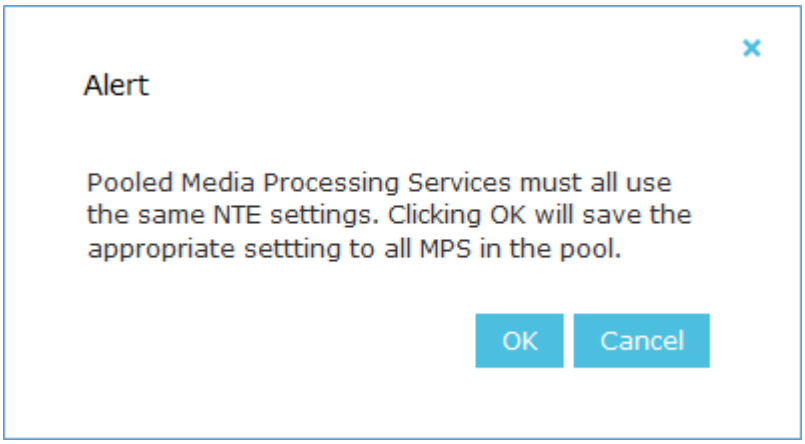

Figure 8: Pooled MPS Configuration Warning

Call Recording Profile Configuration

If calls should be transcribed automatically once the call completes, then transcription should be enabled within the appropriate **Call Recording Profile**. Within the Call Recording Profile, there is a Transcription Settings section. You will first need to Enable Transcription for this profile. Once enabled, you will see two other options. The first is the Transcription Operating Mode. This is an NTE setting that may have three values, Accurate, Fast, or Warp. The faster the setting, the lower the transcription accuracy will become. Accurate is obviously the most accurate, but the NTE will process the recording at 1x speed, meaning if the call is 10 minutes, the processing will take 10 minutes. The Fast setting is a little less accurate but runs at 3x speed, so the same recording will be done in 3 minutes, 33 seconds. The final mode is Warp, which runs at 10x speed, so the recording could be completed in 1 minute, but may contain more errors. This setting can be adjusted on a per Call Recording Profile basis, so you could setup some queues with better accuracy than others.

The final component is the language selection. This list will only contain languages that are checked above in the **MPS Service Configuration**. Select the language(s) that are used for this profile and save the profile.

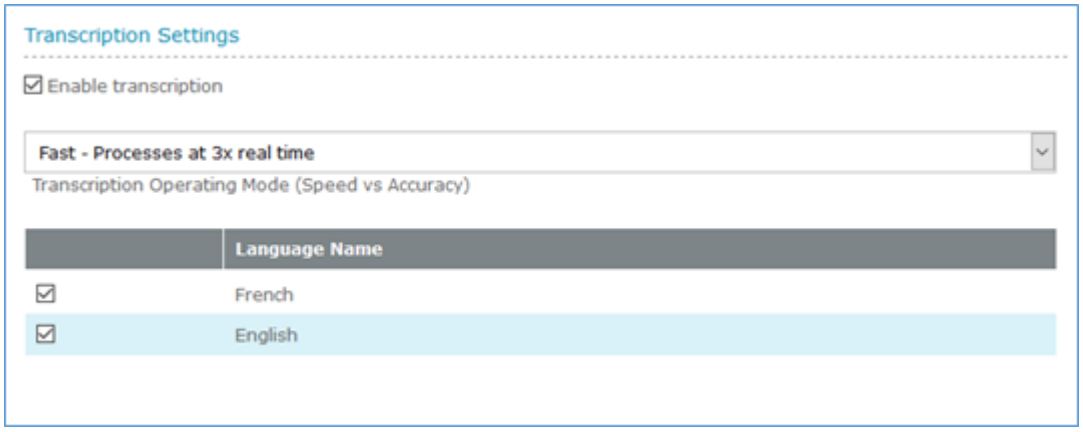

Figure 9: Call Recording Profile Transcription Settings

When transcription is enabled within a Call Recording Profile, when a call starts for a user who is in that profile, part of the evaluation of whether the call is recorded will also indicate whether the call is transcribed. If transcription is enabled, the recording is marked for transcription. Once the call completes, QMS will process the recording to create the call recording media. It will also create the .wav media needed for transcription and send the request to the NTE Front End Controller.

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On Demand Configuration

There is also the capability to automatically transcribe recordings that are done On Demand without a Call Recording Profile. The options for this are found within the General settings in the client administration. The General settings tab include a section called **On Demand Transcription Settings** that allows you to Enable Transcription and set the Transcription Operating Mode. These settings are the same as described in the **Call Recording Profile** configuration.

This section does not include a language selection however. This is because the language selection should be related to the agent on the call and not necessarily to the administrator who is initiating the On Demand call. So QMS will attempt to determine the appropriate language by checking if the agent is a member of any Call Recording Profile and if so, it will use the language settings from that profile. If it can't determine a language in this way, it will attempt to identify the language using all languages selected for the deployment from the MPS configuration.

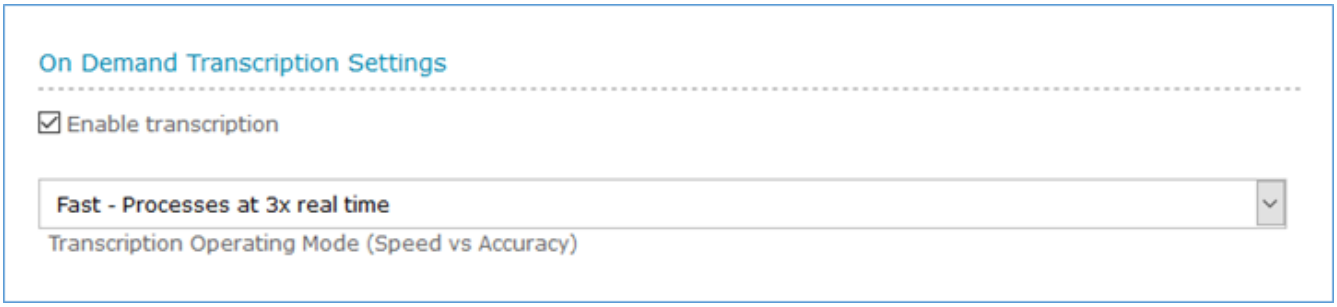

Figure 10: On Demand Transcription Settings

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High Availability

The **High Availability Deployment Guide** will contain more information on how to setup an HA QMS environment. There must be redundancy in all components to achieve HA. Both Call Recorders and Data Servers would be setup as nodes with a primary and secondary server for each. In addition, at least two Media Processing Services would be pooled and available to each of the nodes. It is possible to have more than one MPS pool that services different nodes, but there should always be more than one MPS in each pool. Figure 2 in the diagram above outlines how this works.

The Nuance_Transcription_Engine_Guide_4.1.pdf document also describes how to achieve HA through the Nuance environment. The Nuance Front End Controller acts as a single point of entrance for the QMS servers to send and receive transcription requests to Nuance. But behind that Front End Controller can actually be a number of Highly Available Nuance options.

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Transcription License Alerts

The Nuance FlexNet License Administrator (FLA) tool that hosts the NTE licenses also provides a mechanism for threshold and other alerts when those licenses are about to expire or run out. Nuance provides two types of licenses for the NTE server. The first type are instance licenses that are tied to a specific NTE Host. If the NTE host is running a Front End Controller, English Transcriber, and a French Transcriber, this will require three instance licenses.

The second type of license are consumable licenses that expire either monthly or yearly. These consumable licenses are based on transcription minutes. The number of transcription minutes corresponds to the length of the source audio. So, transcribing a 7 minute call will require 7 minutes of consumable licenses, regardless of the operating mode that is set. Therefore, if you have 2000 consumable minutes, you will have 1993 left after the transcription. Consumable minutes can be used for any language or tied to a specific language such as English or French.

FLA includes an Administration tab with an Alert Configuration option. Within this page you can configure the thresholds and types of alerts that you want FLA to send. Nuance's FLA only displays these alerts on the Dashboard display of FLA. But they also provide a SOAP interface to the alerts that QMS can consume.

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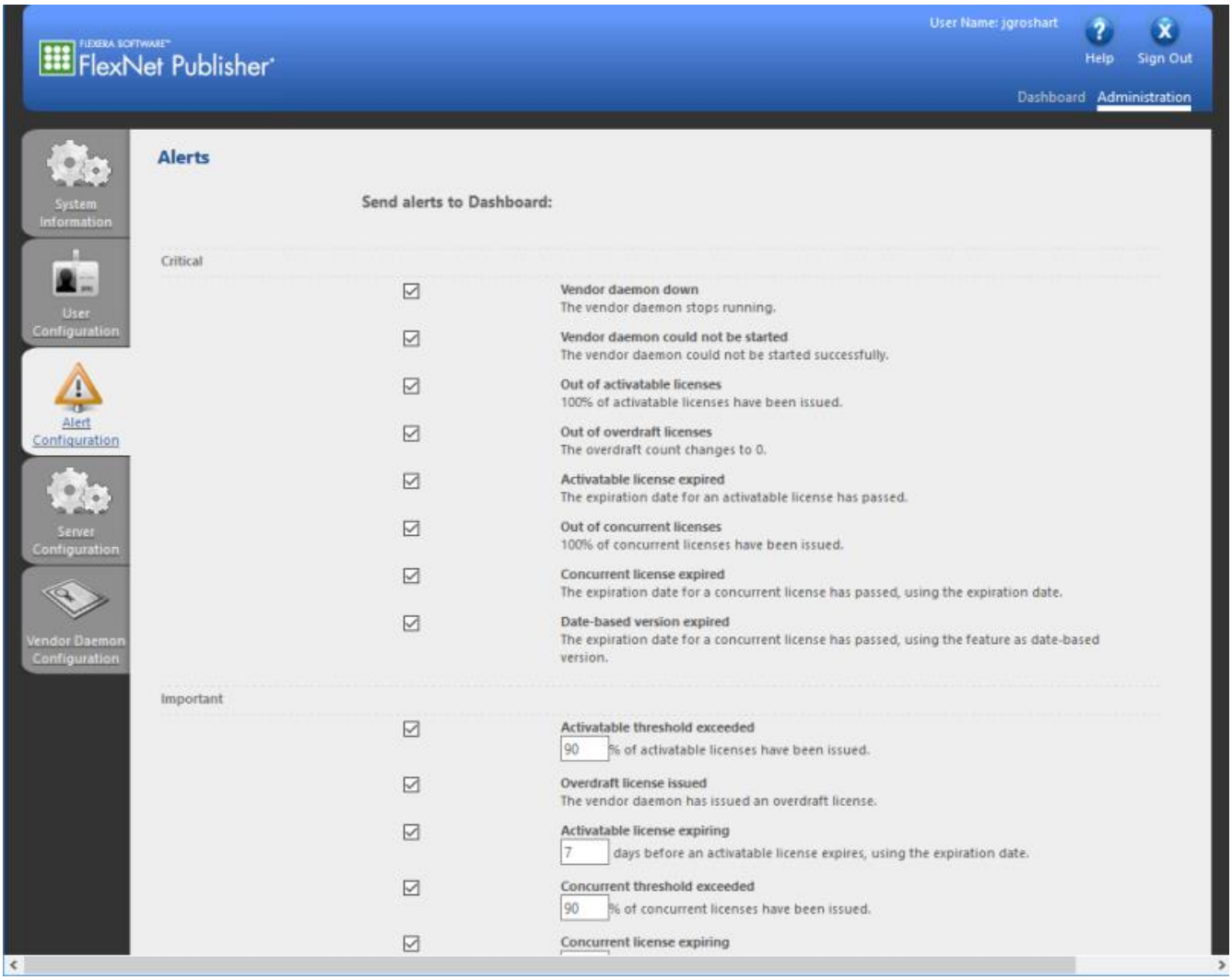
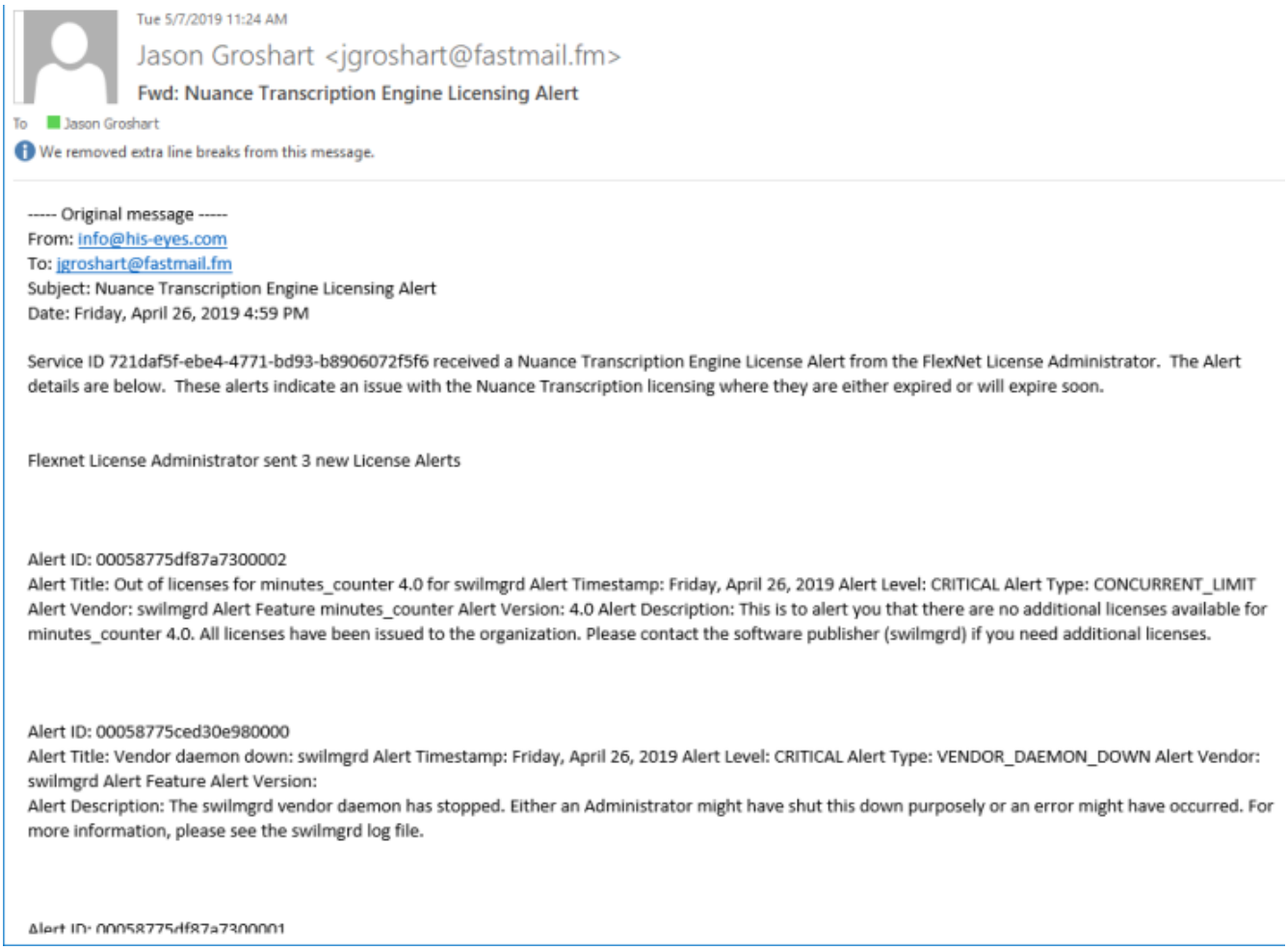


Figure 18: FLA Alert Configuration

QMS will poll FLA every hour to check for License Alerts. When a new alert is generated by FLA, QMS will pull in the data and generate an email notification that is sent to the notification destination configured within the MPS configuration. This email will have the subject “Nuance Transcription Engine Licensing Alert”. It will include the specific MPS id that sent the alert and each of the alerts sent. There could be multiple alerts sent.


Tue 5/7/2019 11:24 AM

Jason Groshart <jgroshart@fastmail.fm>

Fwd: Nuance Transcription Engine Licensing Alert

To Jason Groshart

We removed extra line breaks from this message.

----- Original message -----
From: info@his-eyes.com
To: jgroshart@fastmail.fm
Subject: Nuance Transcription Engine Licensing Alert
Date: Friday, April 26, 2019 4:59 PM

Service ID 721daf5f-ebe4-4771-bd93-b8906072f5f6 received a Nuance Transcription Engine License Alert from the FlexNet License Administrator. The Alert details are below. These alerts indicate an issue with the Nuance Transcription licensing where they are either expired or will expire soon.

Flexnet License Administrator sent 3 new License Alerts

Alert ID: 00058775df87a7300002
Alert Title: Out of licenses for minutes_counter 4.0 for swilmgrd Alert Timestamp: Friday, April 26, 2019 Alert Level: CRITICAL Alert Type: CONCURRENT_LIMIT Alert Vendor: swilmgrd Alert Feature minutes_counter Alert Version: 4.0 Alert Description: This is to alert you that there are no additional licenses available for minutes_counter 4.0. All licenses have been issued to the organization. Please contact the software publisher (swilmgrd) if you need additional licenses.

Alert ID: 00058775ced30e980000
Alert Title: Vendor daemon down: swilmgrd Alert Timestamp: Friday, April 26, 2019 Alert Level: CRITICAL Alert Type: VENDOR_DAEMON_DOWN Alert Vendor: swilmgrd Alert Feature Alert Version:
Alert Description: The swilmgrd vendor daemon has stopped. Either an Administrator might have shut this down purposely or an error might have occurred. For more information, please see the swilmgrd log file.

Alert ID: 00058775df87a7300001

Figure 19: Nuance Transcription Engine Licensing Alert

NTE Consumable License Usage Over Time Dashboard Widget

In the case where consumable licenses are used, QMS also provides a widget that can be added to the **Dashboard** screen that shows license usage over time. This is similar to the Storage Usage Over Time widget and will display data on an hourly resolution. The usage can be displayed by day, week, month or year. The chart will show the license usage. If there are more than one consumable license type, the graph will overlay each type to show the license usage.

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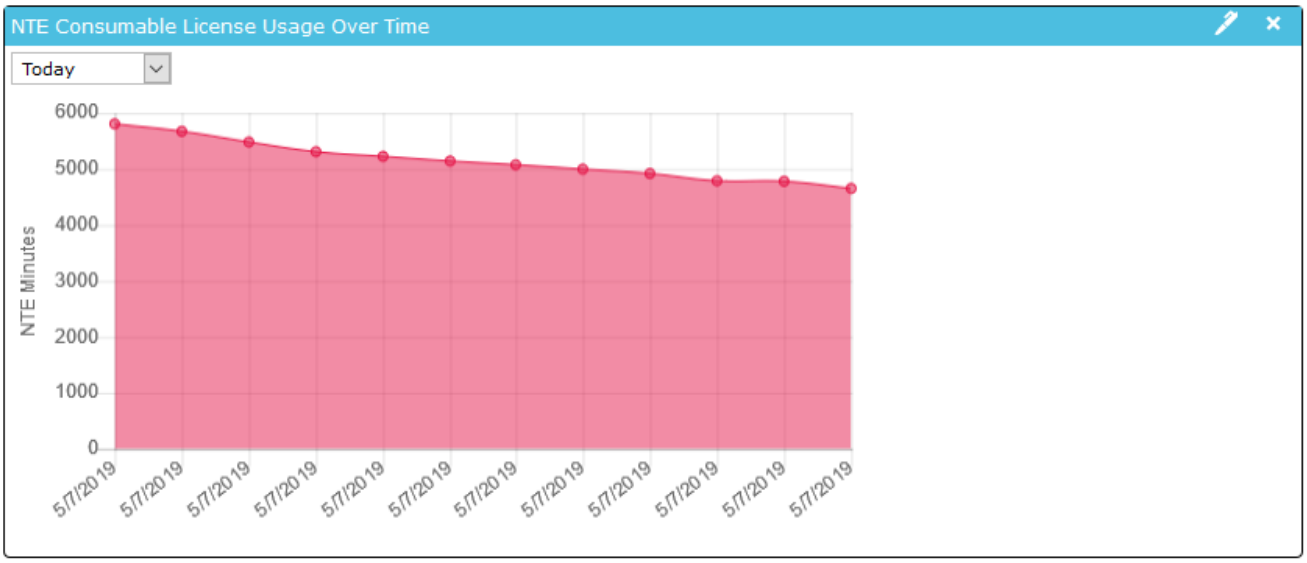

Figure 20: NTE Consumable License Usage Over Time Widget

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Amazon Transcribe

Overview

QMS releases from 9.0 onward include integration with the Amazon Transcribe Speech-to-Text service to provide transcription services for recordings. **Recording profiles** can be configured to automatically transcribe calls once the call has completed. This can be done for On Demand recordings as well. Recordings can be transcribed later through the client interface using the **Transcribe Now** feature.

Amazon Transcribe supports many different languages and attempts to auto-detect the language being used within the call.

This document is intended to outline the general configuration and setup of transcription services within QMS. This document does not replace the Amazon documentation (**https://docs.aws.amazon.com/transcribe/latest/dg/getting-started.html**) that should be used to setup the Amazon Transcribe services.

QMS with Transcription Topology

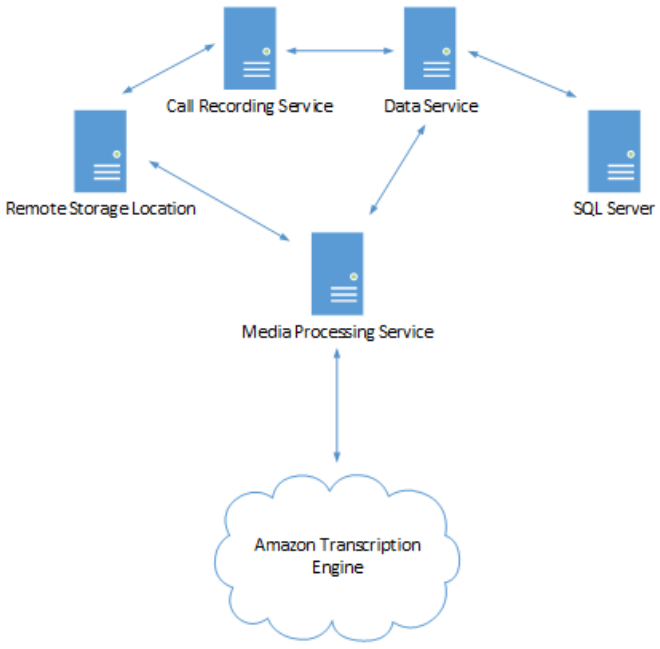

Figure 21: QMS with Amazon Transcribe Speech-to-Text Service

A standard QMS deployment includes at least one Call Recording Service, Data Service, and Media Processing Service. Some deployments may include multiple instances of each of these services. Raw recording files are stored locally on the CR Service and is processed by the MPS once the call is complete. The MPS may store the recording locally or to a remote storage location, depending on the configuration.

If transcription is indicated for the recording, the MPS will also create a .wav and a .dat file that will be used to communicate to the Amazon Trascribe service. The MPS sends the transcription request to the Amazon Transcribe service, along with uploading the recorded audio to the Amazon S3 location defined for the service. The MPS polls the Amazon Transcribe service to get the results of the transcription job. MPS will continue with other processing until it receives a response from the Amazon Trascribe service that the transcription is complete.

The transcription service may take a significant amount of time to process.

Once the Amazon Transcribe service has finished the transcription the MPS will receive a response with the processed transcription data. At this time the MPS will replace the .wav and .dat files stored for the transcription with a .txt file that contains the transcription data. This data includes not only the call text, but also speaker information, timing of the phrases within the call, and accuracy or confidence data for the recognition.

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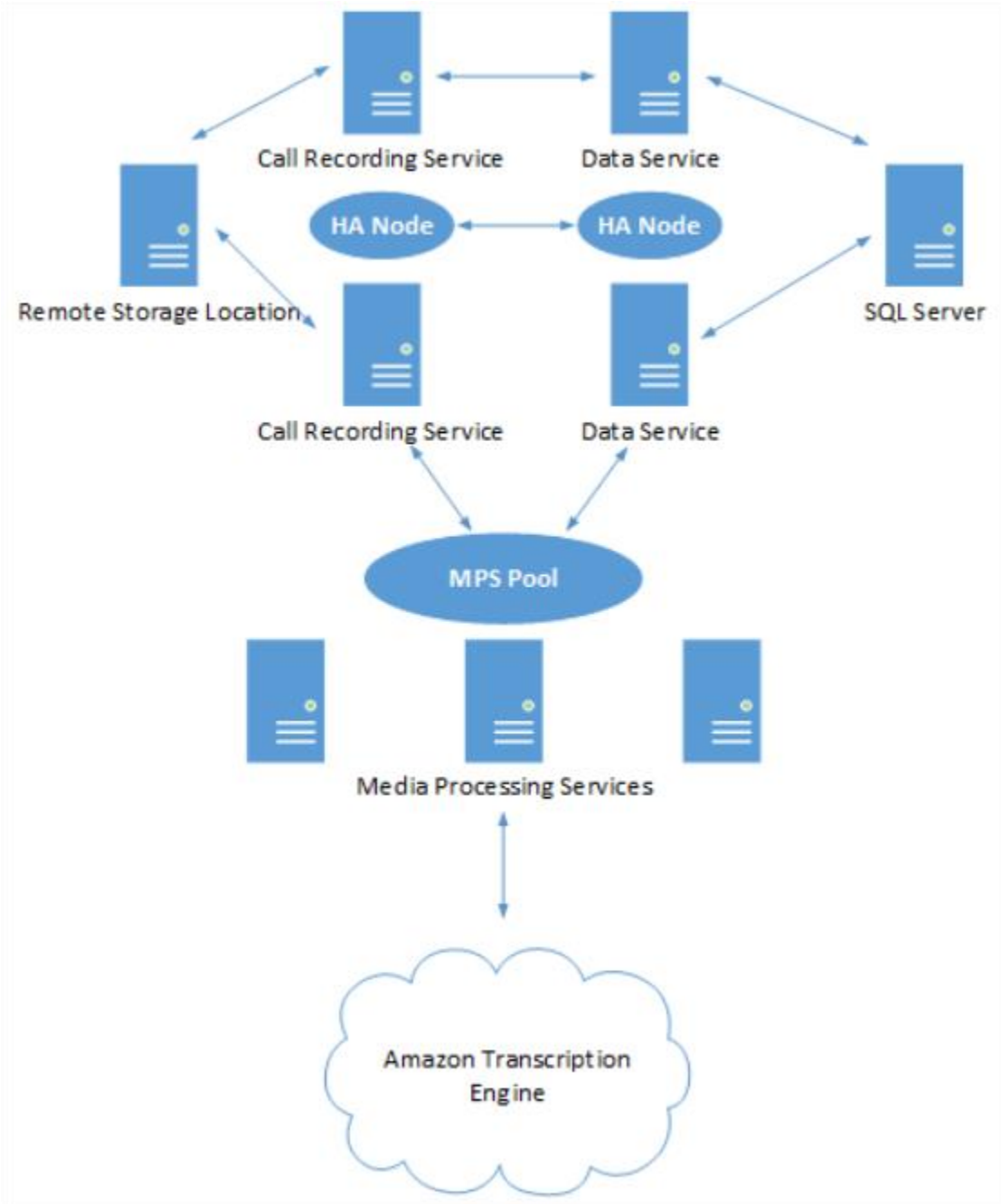

Figure 22: Highly Available QMS with Amazon Transcribe Speech-to-Text Service

The Highly Available deployment of QMS adds additional complexity. The Call Recording Service and Data Service would be setup as nodes with each service running on separate server instances. SQL also needs to be setup with Merge Replication and the data storage would need to be mirrored in some fashion to ensure no data loss. The MPS pool would service the HA deployment with two or more MPS running in conjunction.

The MPS connects and interacts with the Amazon Transcribe service in the same fashion as before.

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Media Processing Service Configuration

To setup the Amazon Transcribe service connection, navigate to the **Services** section of the client administration. All Media Processing Services that are connecting to the Amazon Transcribe service should be available in the services list.

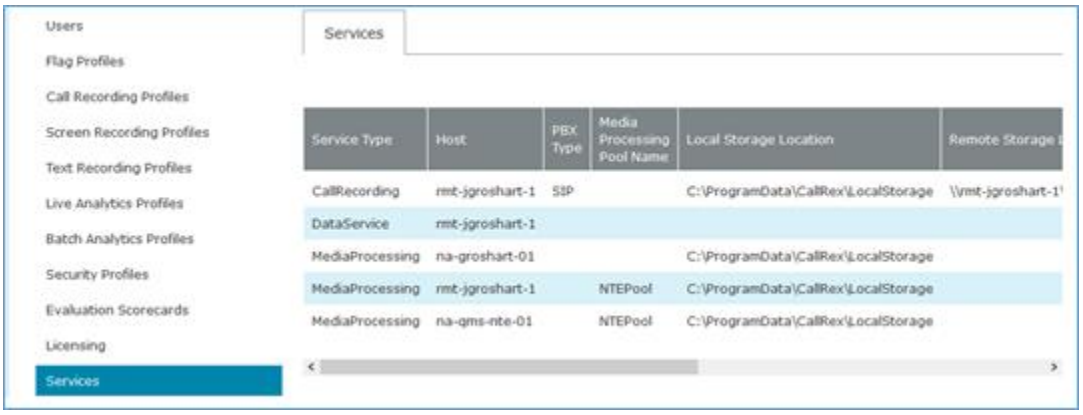

Figure 5: Services List showing Pooled MPS

The Amazon Transcribe settings can be configured independently for each MPS, unless the MPS is part of an MPS pool. Pooled Media Processing Services need to function and operate the same across the pool, so changing a transcription setting within any of these pooled MPS configurations will propagate the changes to the rest of the pool.

To change settings, open the **MPS Edit** tab and there will be a section called Transcription Engine Settings. First, you will want to check the Enable Transcription checkbox and select the "Amazon Transcribe" Transcription Engine Type.

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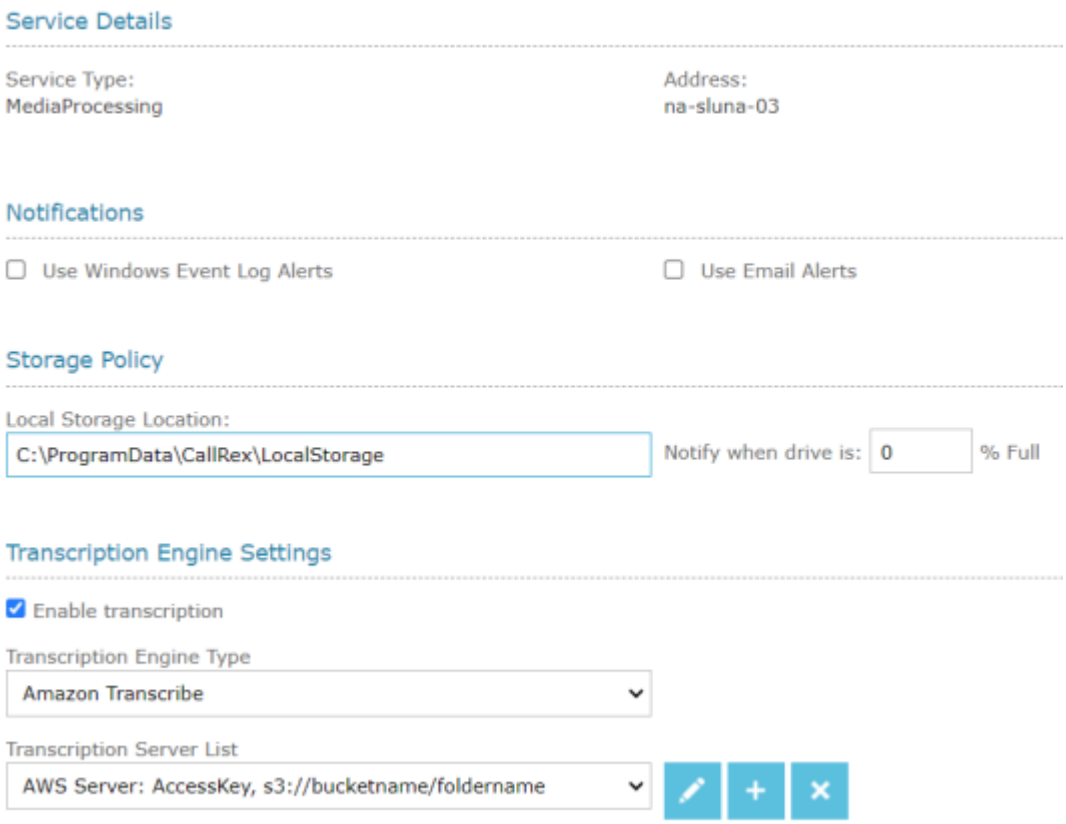

Figure 25: QMS Media Processing Service Configuration

Next to the Amazon Transcribe Server List, are an Edit and Add button. Clicking either of these will pop up a new window where the Amazon Transcribe Server details can be configured.

i. **Access Key ID** – enter the access key for the Amazon account to be used for transcribing.
ii. **Secret Key** – enter the secret key for the Amazon account to be used for transcribing.
iii. **Server Regions** – select the region where the Amazon account resides from the drop-down.
iv. **Amazon S3 Location** – enter the Amazon S3 storage location that will be used for uploading source audio files and holding transcription results files.
v. **Content Redaction** – click the button to configure content redaction.
vi. **Test Connection** – click the button to test the settings entered in the above fields.

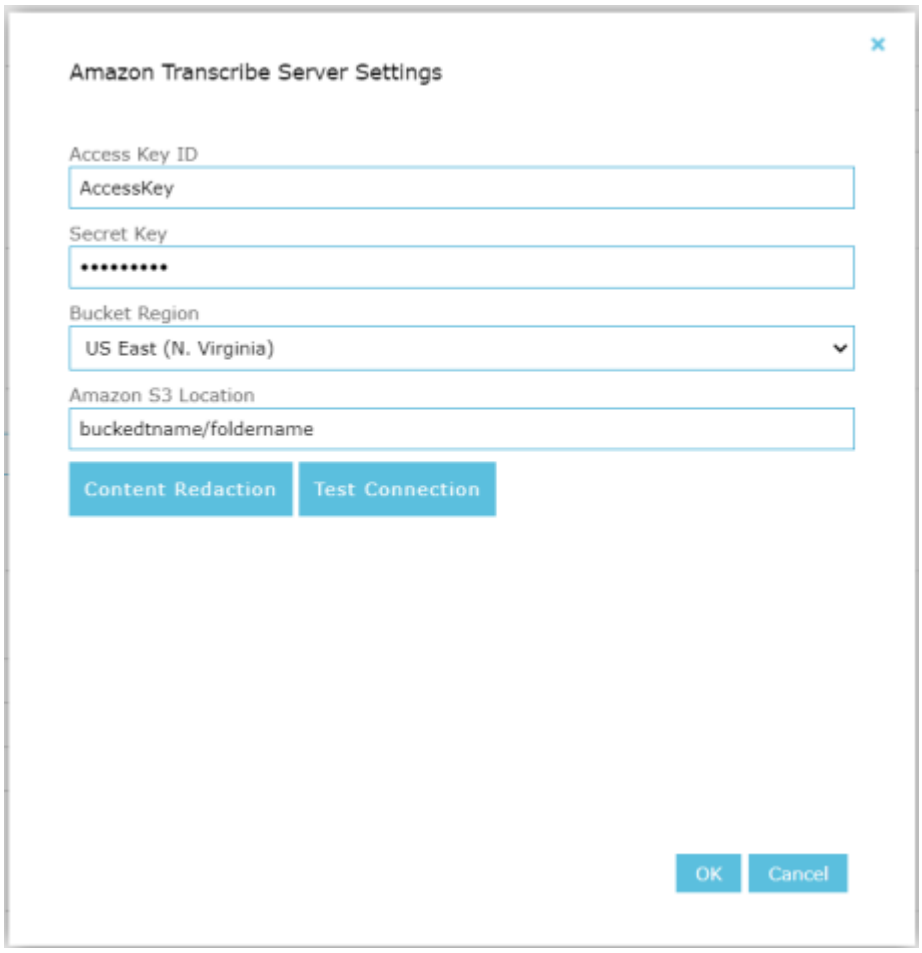

Figure 26: Amazon Transcribe Server Settings

Optionally, if you click on the Content Redaction button, you can configure the Amazon Transcribe service to redact certain information from the transcription results. Currently Amazon Transcribe only supports this feature for US English only. If Redaction is enabled, the language code for all transcriptions will be set to US English.

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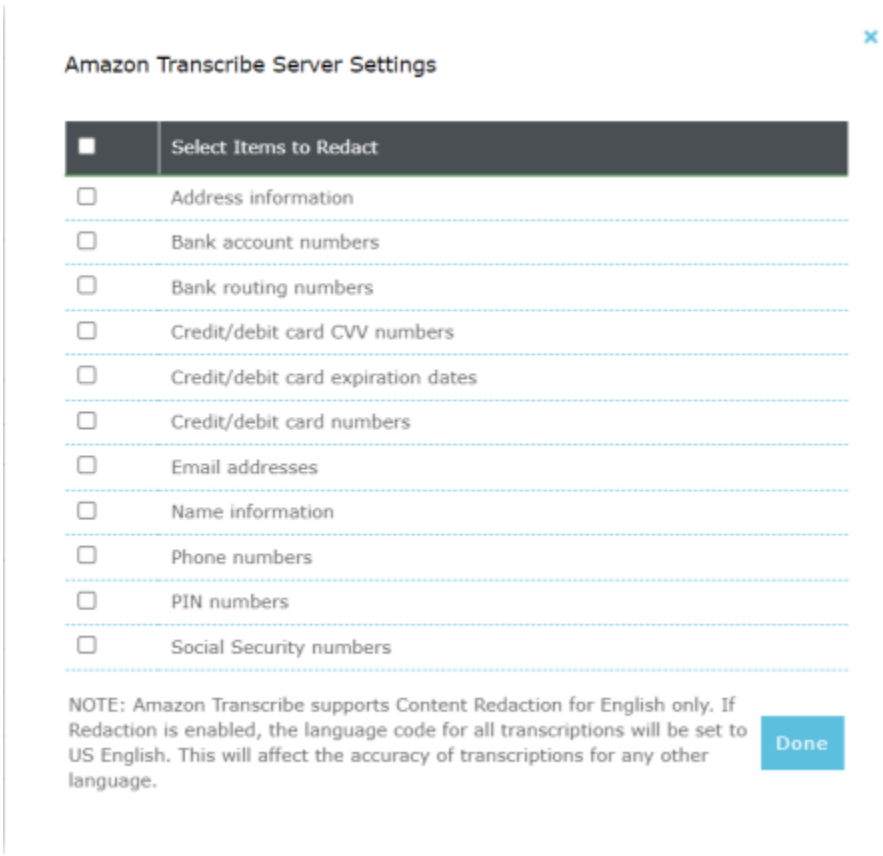

Figure 27: Amazon Transcribe Content Redaction Settings

Call Recording Profile Configuration

If calls should be transcribed automatically once the call completes, then transcription should be enabled within the appropriate **Call Recording Profile**. Within the Call Recording Profile, there is a Transcription Settings section. To turn on transcription for this profile check the Enable Transcription box and save the profile.

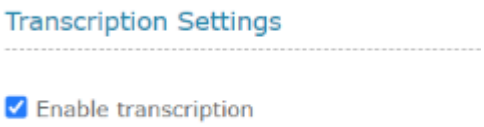

Figure 28: Call Recording Profile Transcription Settings

When transcription is enabled within a Call Recording Profile, when a call starts for a user who is in that profile, part of the evaluation of whether the call is recorded will also indicate whether the call is transcribed. If transcription is enabled, the recording is marked for transcription. Once the call completes, QMS will process the recording to create the call recording media. It will also create the .wav media needed for transcription and send the request to the Amazon Transcribe service.

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On Demand Configuration

There is also the capability to automatically transcribe recordings that are done On Demand without a Call Recording Profile. The options for this are found within the General settings in the client administration. The General settings tab include a section called **On Demand Transcription Settings** that allows you to Enable Transcription. These settings are the same as described in the **Call Recording Profile** configuration.

Figure 29: On Demand Transcription Settings

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Azure Speech-to-Text

Overview

QMS releases from 9.0 onward include integration with the Azure Transcribe Speech-to-Text service to provide transcription services for recordings. **Recording profiles** can be configured to automatically transcribe calls once the call has completed. This can be done for On Demand recordings as well. Recordings can be transcribed later through the client interface using the **Transcribe Now** feature.

Azure Transcribe supports many different languages and attempts to auto-detect the language being used within the call.

This document is intended to outline the general configuration and setup of transcription services within QMS. This document does not replace the Azure documentation for creating Speech Services (**https://learn.microsoft.com/en-us/azure/cognitive-services/speech-service/speech-to-text**) or Azure Blob Storage (**https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction**) that should be used to setup the necessary Azure Transcribe services.

QMS with Transcription Topology

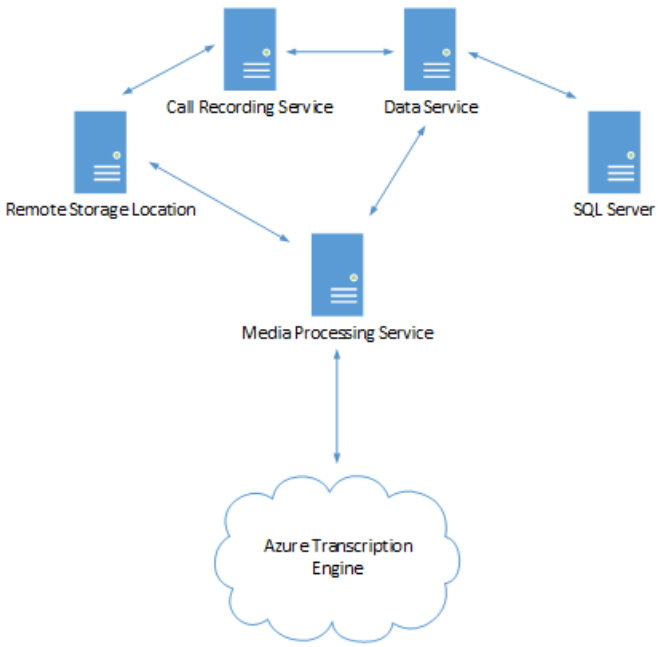

Figure 21: QMS with Azure Transcribe Speech-to-Text Service

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A standard QMS deployment includes at least one Call Recording Service, Data Service, and Media Processing Service. Some deployments may include multiple instances of each of these services. Raw recording files are stored locally on the CR Service and is processed by the MPS once the call is complete. The MPS may store the recording locally or to a remote storage location, depending on the configuration.

If transcription is indicated for the recording, the MPS will also create a .wav and a .dat file that will be used to communicate to the Azure Transcribe service. The MPS sends the transcription request to the Azure Transcribe service, along with uploading the recorded audio to the Azure S3 location defined for the service. The MPS polls the Azure Transcribe service to get the results of the transcription job. MPS will continue with other processing until it receives a response from the Azure Transcribe service that the transcription is complete.

The transcription service may take a significant amount of time to process.

Once the Azure Transcribe service has finished the transcription the MPS will receive a response with the processed transcription data. At this time the MPS will replace the .wav and .dat files stored for the transcription with a .txt file that contains the transcription data. This data includes not only the call text, but also speaker information, timing of the phrases within the call, and accuracy or confidence data for the recognition.

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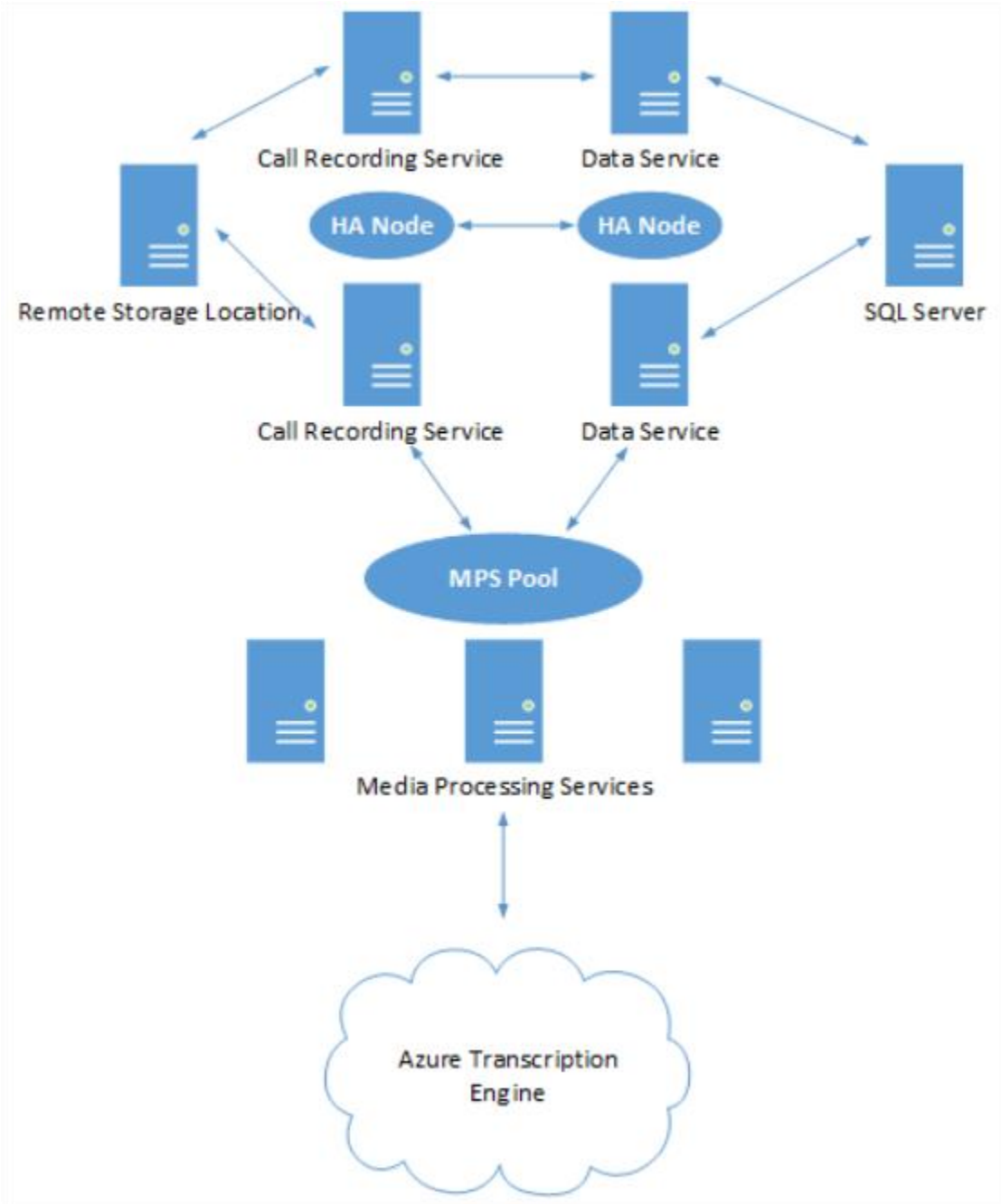

Figure 24: Highly Available QMS with Azure Speech-to-Text Service

The Highly Available deployment of QMS adds additional complexity. The Call Recording Service and Data Service would be setup as nodes with each service running on separate server instances. SQL also needs to be setup with Merge Replication and the data storage would need to be mirrored in some fashion to ensure no data loss. The MPS pool would service the HA deployment with two or more MPS running in conjunction.

The MPS connects and interacts with the Azure Transcribe service in the same fashion as before.

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Media Processing Service Configuration

To setup the Azure Speech-to-Text service connection, navigate to the **Services** section of the client administration. All Media Processing Services that are connecting to the Azure Speech-to-Text service should be available in the services list.

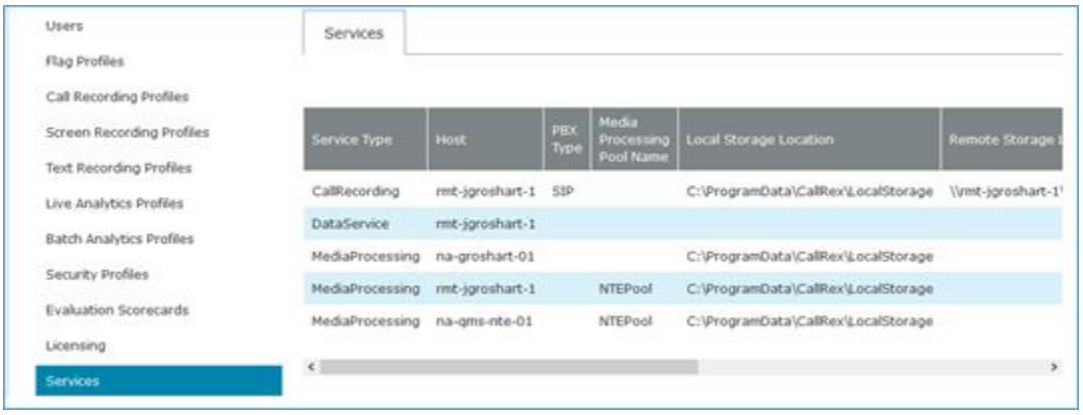

Figure 5: Services List showing Pooled MPS

The Azure Speech-to-Text settings can be configured independently for each MPS, unless the MPS is part of an MPS pool. Pooled Media Processing Services need to function and operate the same across the pool, so changing a transcription setting within any of these pooled MPS configurations will propagate the changes to the rest of the pool.

To change settings, open the **MPS Edit** tab and there will be a section called Transcription Engine Settings. First, you will want to check the Enable Transcription checkbox and select the "Azure Speech-to-Text" Transcription Engine Type.

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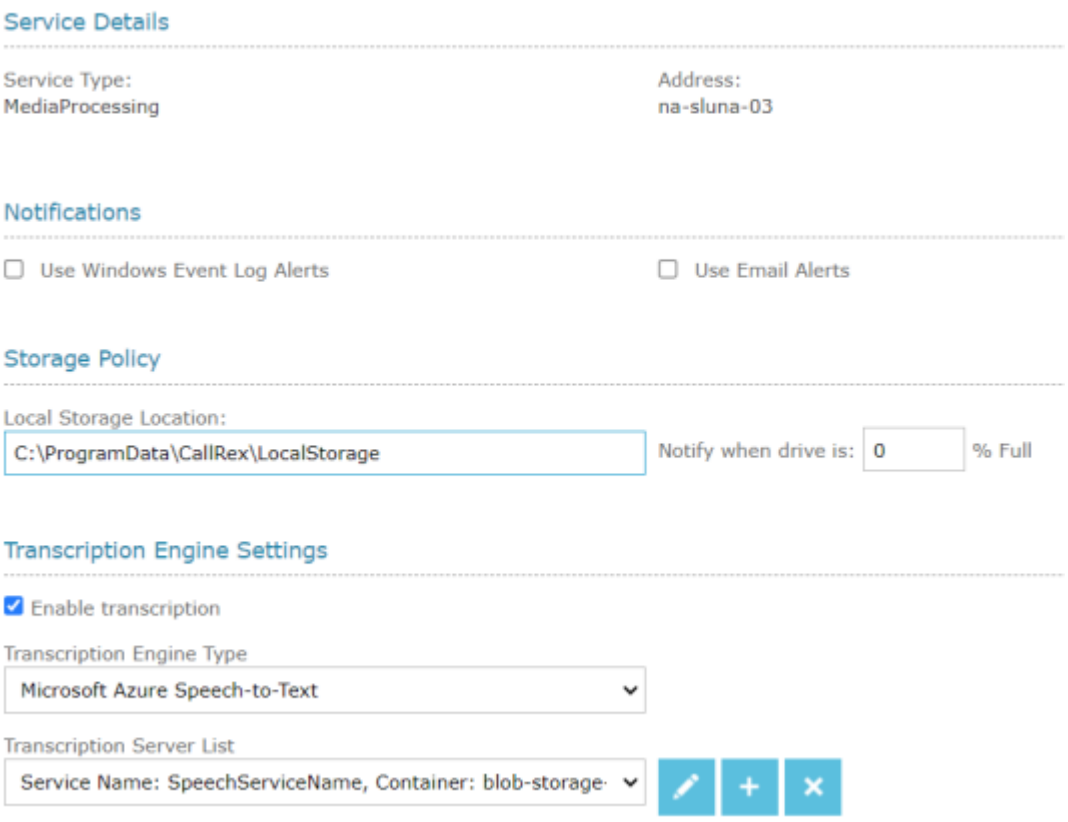

Figure 30: QMS Media Processing Service Configuration

Next to the Azure Speech-to-Text Server List, are an Edit and Add button. Clicking either of these will pop up a new window where the Azure Speech-to-Text Server details can be configured.

i. **Service Resource Location** – enter the location of the Azure Speech Service.
ii. **Speech Service Name** – enter the name of the Azure Speech Service.
iii. **Speech Service Key** – enter the service key for the Azure Speech Service.
iv. **Storage Connection String** – enter the connection string used to connect to the Azure Storage Account. This can be found in Access Keys tab for the storage account on Azure web client.
v. **Blob Storage Container** – enter the name of the Azure Blob container that will be used for uploading source audio files and holding transcription results files.
vi. **Test Connection** – click the button to test the settings entered in the above fields.

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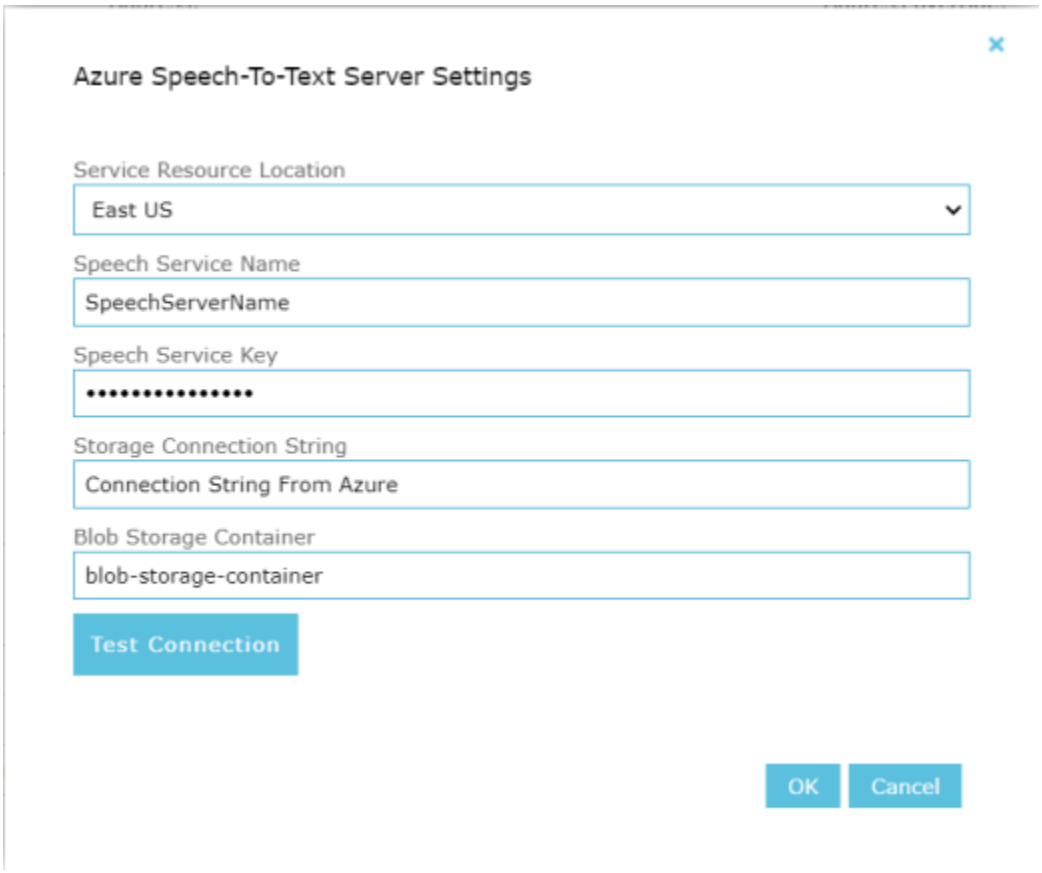

Figure 31: Azure Speech-to-Text Server Settings

Call Recording Profile Configuration

If calls should be transcribed automatically once the call completes, then transcription should be enabled within the appropriate **Call Recording Profile**. Within the Call Recording Profile, there is a Transcription Settings section. To turn on transcription for this profile check the Enable Transcription box, select a language to use, and save the profile.

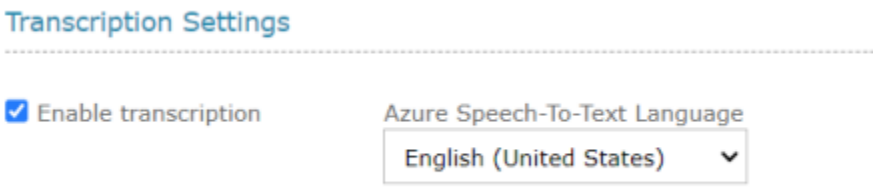

Figure 32: Call Recording Profile Transcription Settings

When transcription is enabled within a Call Recording Profile, when a call starts for a user who is in that profile, part of the evaluation of whether the call is recorded will also indicate whether the call is transcribed. If transcription is enabled, the recording is marked for transcription. Once the call completes, QMS will process the recording to create the call recording media. It will also create the .wav media needed for transcription and send the request to the Azure Speech-to-Text service.

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On Demand Configuration

There is also the capability to automatically transcribe recordings that are done On Demand without a Call Recording Profile. The options for this are found within the General settings in the client administration. The General settings tab include a section called **On Demand Transcription Settings** that allows you to Enable Transcription.

Figure 33: On Demand Transcription Settings

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Enghouse Transcription

Overview

QMS releases from 9.0 onward include integration with the Enghouse Transcription Speech-to-Text service to provide transcription services for recordings. **Recording profiles** can be configured to automatically transcribe calls once the call has completed. This can be done for On Demand recordings as well. Recordings can be transcribed later through the client interface using the **Transcribe Now** feature.

Enghouse Transcription supports many different languages and attempts to auto-detect the language being used within the call.

This document is intended to outline the general configuration and setup of transcription services within QMS. This document does not replace the other documentation that should be used to setup the Enghouse Transcription services.

QMS with Transcription Topology

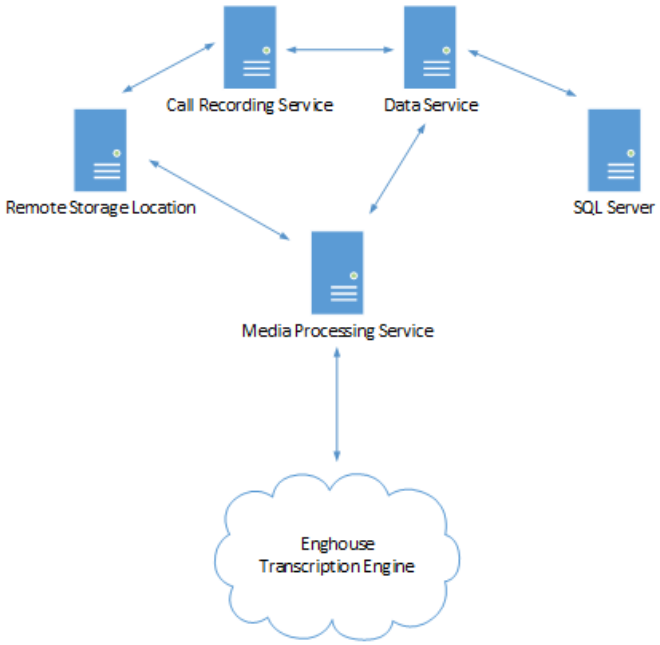

Figure 34: QMS with Enghouse Transcription Speech-to-Text Service

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A standard QMS deployment includes at least one Call Recording Service, Data Service, and Media Processing Service. Some deployments may include multiple instances of each of these services. Raw recording files are stored locally on the CR Service and is processed by the MPS once the call is complete. The MPS may store the recording locally or to a remote storage location, depending on the configuration.

If transcription is indicated for the recording, the MPS will also create a .wav and a .dat file that will be used to communicate to the Enghouse Transcripton service. The MPS sends the transcription request to the Enghouse Transcription service, along with uploading the recorded audio to the Enghouse Transcription service. The MPS polls the Enghouse Transcription service to get the results of the transcription job. MPS will continue with other processing until it receives a response from the Enghouse Transcription service that the transcription is complete.

The transcription service may take a significant amount of time to process.

Once the Enghouse Transcription service has finished the transcription the MPS will receive a response with the processed transcription data. At this time the MPS will replace the .wav and .dat files stored for the transcription with a .txt file that contains the transcription data. This data includes not only the call text, but also speaker information, timing of the phrases within the call, and accuracy or confidence data for the recognition.

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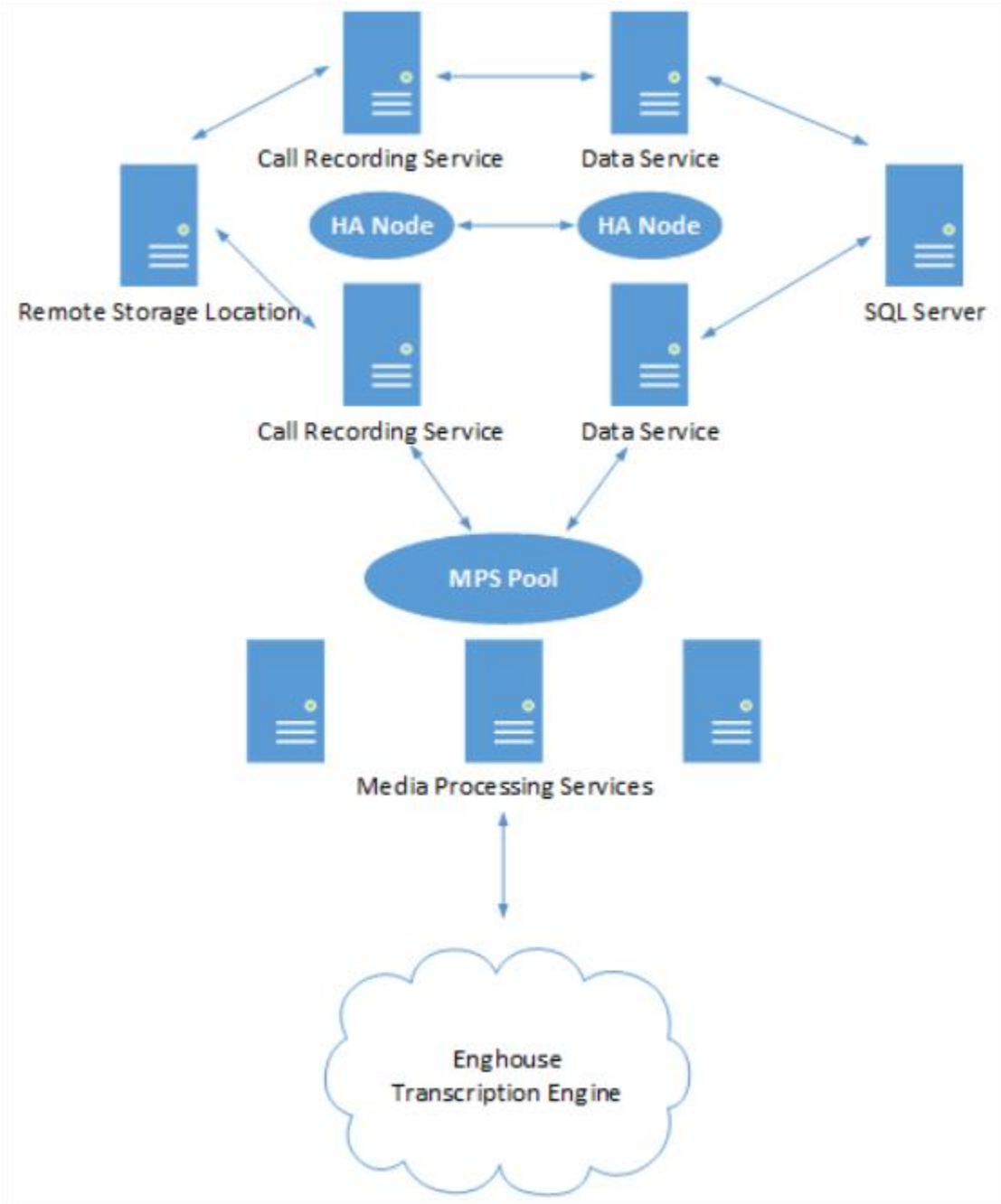

Figure 34: Highly Available QMS with Enghouse Transcription Speech-to-Text Service

The Highly Available deployment of QMS adds additional complexity. The Call Recording Service and Data Service would be setup as nodes with each service running on separate server instances. SQL also needs to be setup with Merge Replication and the data storage would need to be mirrored in some fashion to ensure no data loss. The MPS pool would service the HA deployment with two or more MPS running in conjunction.

The MPS connects and interacts with the Enghouse Transcription service in the same fashion as before.

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Media Processing Service Configuration

To setup the Enghouse Transcription service connection, navigate to the **Services** section of the client administration. All Media Processing Services that are connecting to the Enghouse Transcription service should be available in the services list.

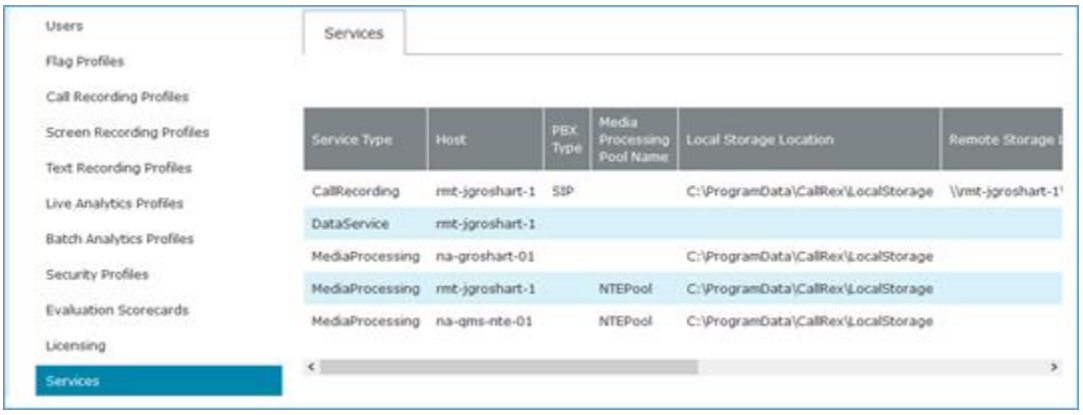

Figure 5: Services List showing Pooled MPS

The Enghouse Transcription settings can be configured independently for each MPS, unless the MPS is part of an MPS pool. Pooled Media Processing Services need to function and operate the same across the pool, so changing a transcription setting within any of these pooled MPS configurations will propagate the changes to the rest of the pool.

To change settings, open the **MPS Edit** tab and there will be a section called Transcription Engine Settings. First, you will want to check the Enable Transcription checkbox and select the "Enghouse Transcription" Transcription Engine Type.

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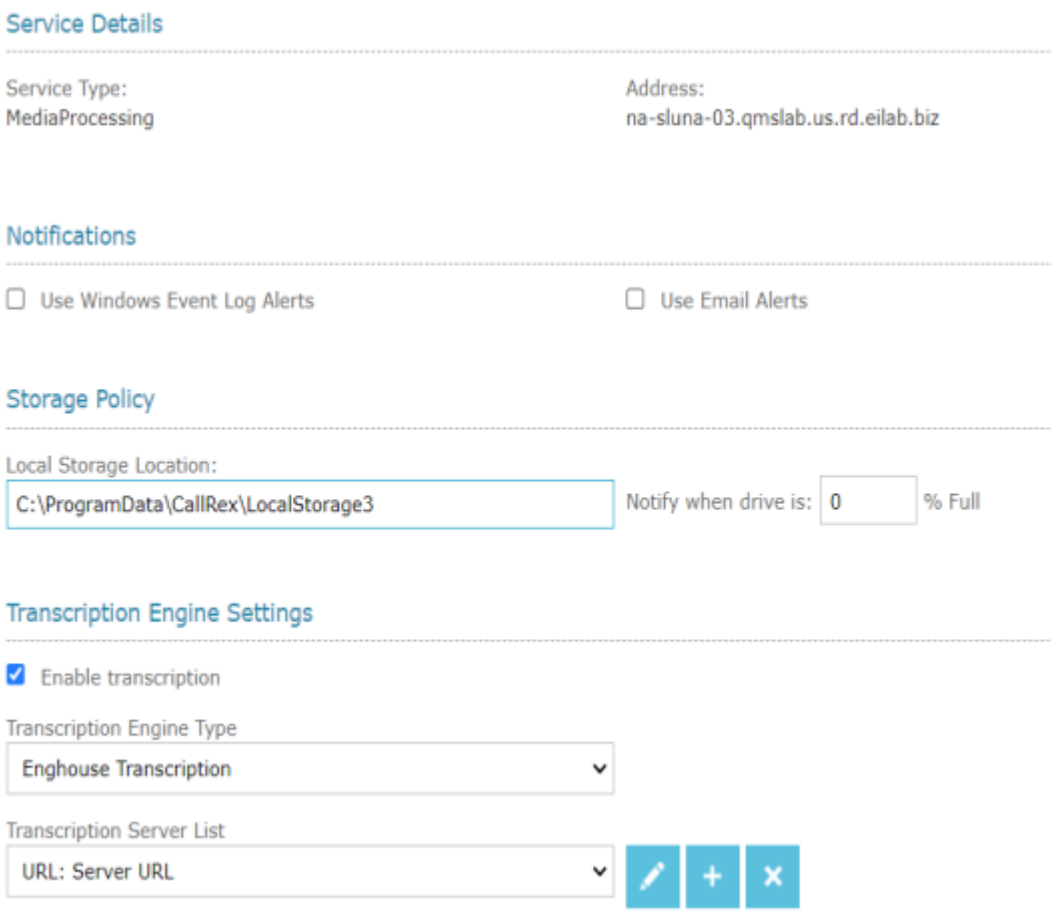

Figure 36: QMS Media Processing Service Configuration

Next to the Enghouse Transcription Server List, are an Edit and Add button. Clicking either of these will pop up a new window where the Enghouse Transcription Server details can be configured.

i. **Enghouse Transcription Server URL** – enter the URL of the Enghouse Transcription Server.

ii. **Enghouse Transcription Server API Key** – enter the API key for the Enghouse Transcription Server.

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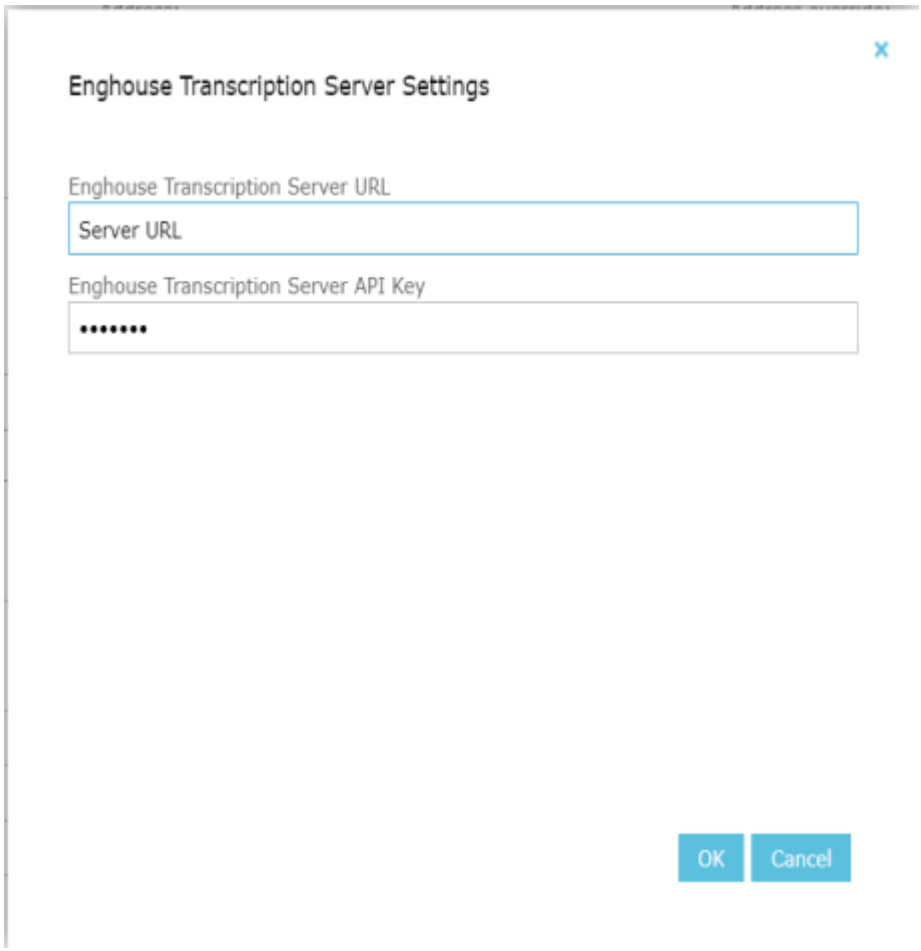

Figure 37: Enghouse Transcription Server Settings

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Call Recording Profile Configuration

If calls should be transcribed automatically once the call completes, then transcription should be enabled within the appropriate **Call Recording Profile**. Within the Call Recording Profile, there is a Transcription Settings section. To turn on transcription for this profile check the Enable Transcription box and save the profile.

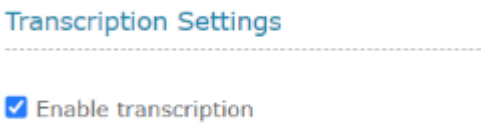

Figure 38: Call Recording Profile Transcription Settings

When transcription is enabled within a Call Recording Profile, when a call starts for a user who is in that profile, part of the evaluation of whether the call is recorded will also indicate whether the call is transcribed. If transcription is enabled, the recording is marked for transcription. Once the call completes, QMS will process the recording to create the call recording media. It will also create the .wav media needed for transcription and send the request to the Enghouse Transcription service.

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On Demand Configuration

There is also the capability to automatically transcribe recordings that are done On Demand without a Call Recording Profile. The options for this are found within the General settings in the client administration. The General settings tab include a section called **On Demand Transcription Settings** that allows you to Enable Transcription. These settings are the same as described in the **Call Recording Profile** configuration.

Figure 39: On Demand Transcription Settings

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Using Transcriptions

Searching Transcriptions

After QMS and the transcription engine are properly setup and configured, the system is ready to create transcriptions. Transcriptions that are automatically created through a call profile will not immediately appear on the search recordings page in the client. These will only be available after the transcription is complete, which will lag several minutes behind when the call is created. Once a transcription is completed, the icon will change from a normal call icon to a transcribed call icon.

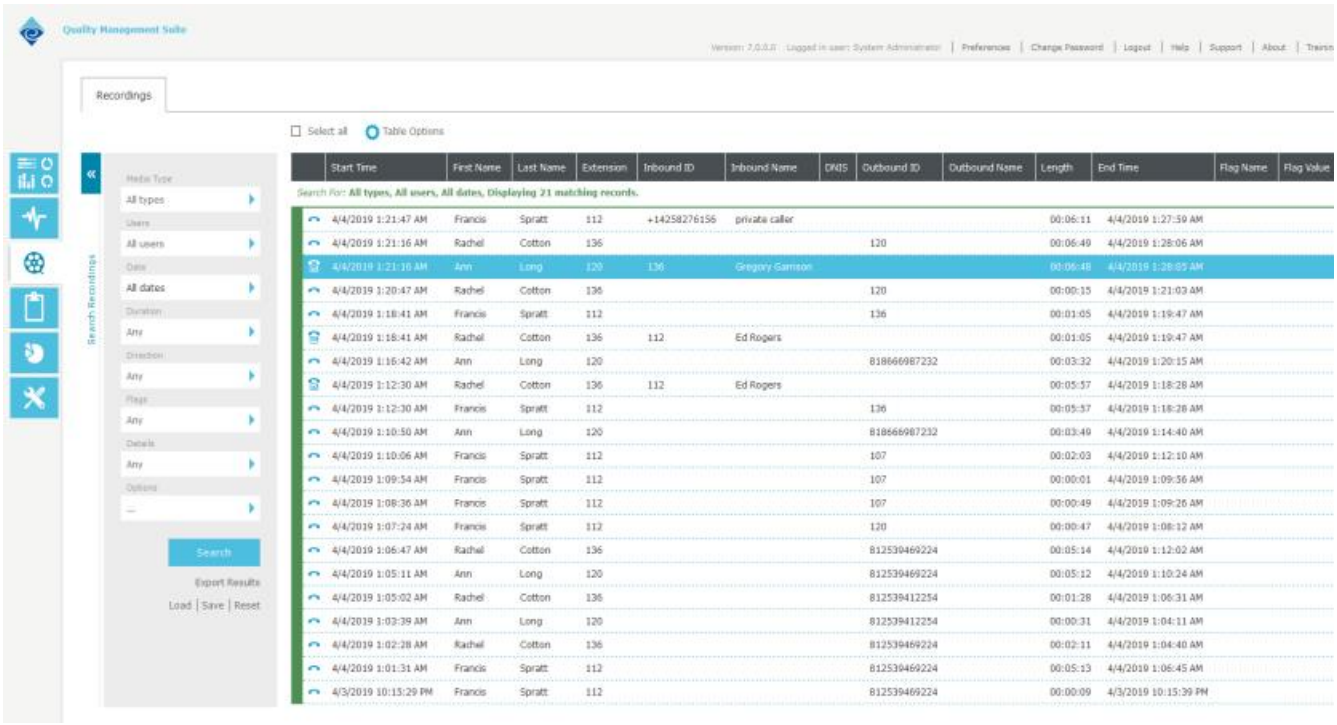

Figure 11: Recording Search with Transcribed Calls

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Viewing Transcriptions

Once the transcription is completed, opening the recording will show both the call audio and the transcribed data. The transcribed data will appear just below the call audio. The Transcription Media window will display the data that is received from the transcription engine. This will include an indication of who is speaking. In most cases, there will only be 2 speakers on a call, but for conferencing and such, there may be more than two. QMS assigns a color to each speaker to help differentiate who is talking.

The transcription engine will also segment the conversation, splitting it into phrases. The transcription engine will create a new segment when the speaker switches or if it detects a pause in the speaker. Each segment that the transcription engine provides also includes a time stamp, so the administrator can see exactly when within the call the phrase occurs. This information along with the transcribed text will appear in the Transcription Media window.

In addition, there will be a sound icon in front of each phrase segment. Clicking this icon will initiate play of the call audio at that exact point in the conversation.

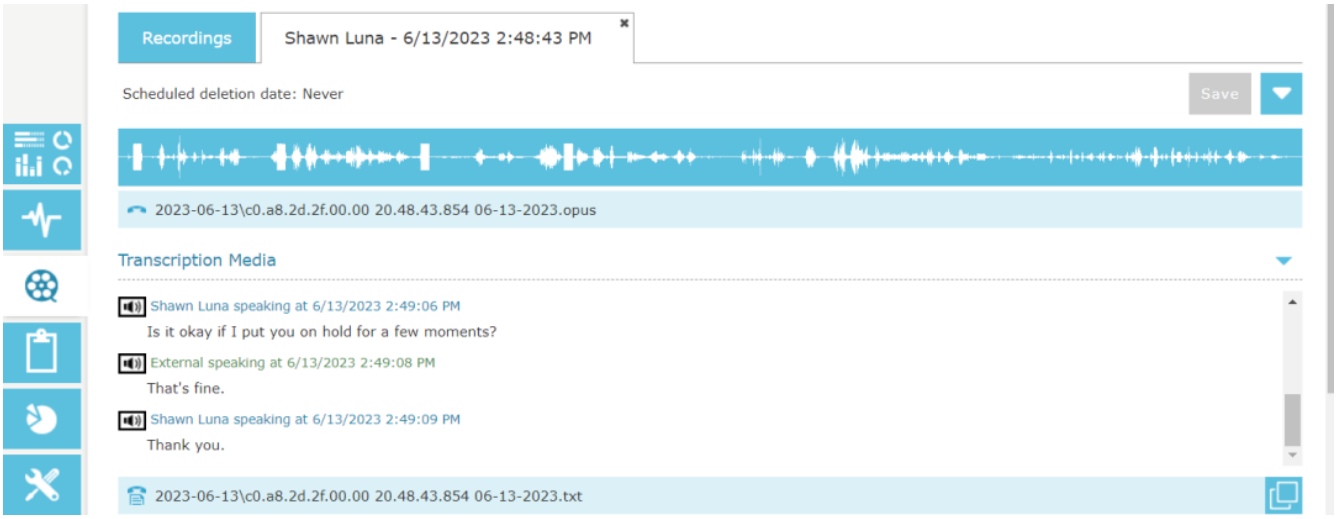

Figure 12: Recording Edit with Transcription Media

Speaker and Language Identification and Segmentation

The transcription engine provides QMS the speaker identification and the segmentation of the recording. As the conversation moves back and forth, the transcription engine will segment or split the conversation into phrases that can be transcribed and read. This segmentation does not always happen perfectly and it's possible for the transcription engine to segment the same speaker into smaller phrase chunks instead of having the entire speaker's phrase.

In addition, when multiple languages are available, the transcription engine is also doing a language identification prior to any analysis to determine what language is being spoken in the recording so that it can then analyze the recording with the correct language model.

Different languages may be segmented differently in the end transcription. We've found that Asian languages may segment the transcription into smaller chunks and even group everything spoken by one caller through the whole recording into one segment. These are issues with the transcription engine language model and there

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may be parameters to adjust within the transcription engine framework that can help with those situations. This is out of the reach of the QMS system.

Transcription Media Window

The Transcription Media window includes the exact location of transcription file. Transcription engines cannot provide 100% accuracy with the transcription data and accuracy will decrease with the faster operating mode settings, but in general, the transcription is often quite good. The transcription engine does sometimes provide an error description and this will be displayed within the Transcription Media window.

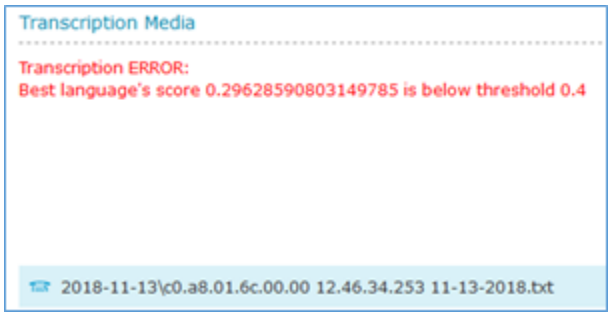

Figure 13: Transcription ERROR

In cases where there is an error or if the call has not been transcribed, QMS gives the option to initiate a transcription using the Transcribe Now feature. This is found within the Recording Edit tab and hovering over the call audio. If the administrator is licensed and the call is eligible for transcription, the Transcribe Now button will be available.

Figure 14: Transcribe Now button

After clicking Transcribe Now, QMS will initiate a transcription request. This process includes converting the .opus or .mp3 call audio back into wav format and then sending the request off to the transcription engine. Since the transcription process may take a significant amount of time, up to the length of the call, once the Transcribe Now request is initiated, you will see the following dialog, but the Transcription Media window will not be available until after the transcription is complete.

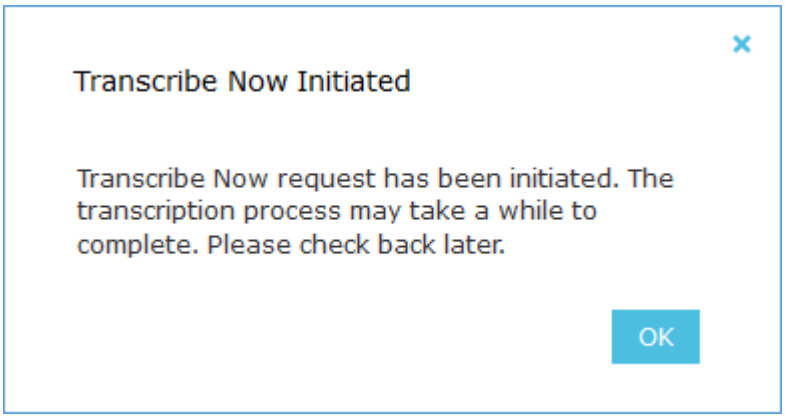

Figure 15: Transcribe Now Initiated Dialog

Also included on the Transcription Media window on the lower right is an icon with two windows that when click will pull the entire transcription out into a separate window. This allows for the administrator to see more of the transcription text at once.

Figure 16: Transcription Window

Evaluating Transcriptions

The transcription data will also be displayed and available within the Recording Evaluation tab. The Transcription Media within the evaluation operates in the same manner as described within the Recording Edit tab.

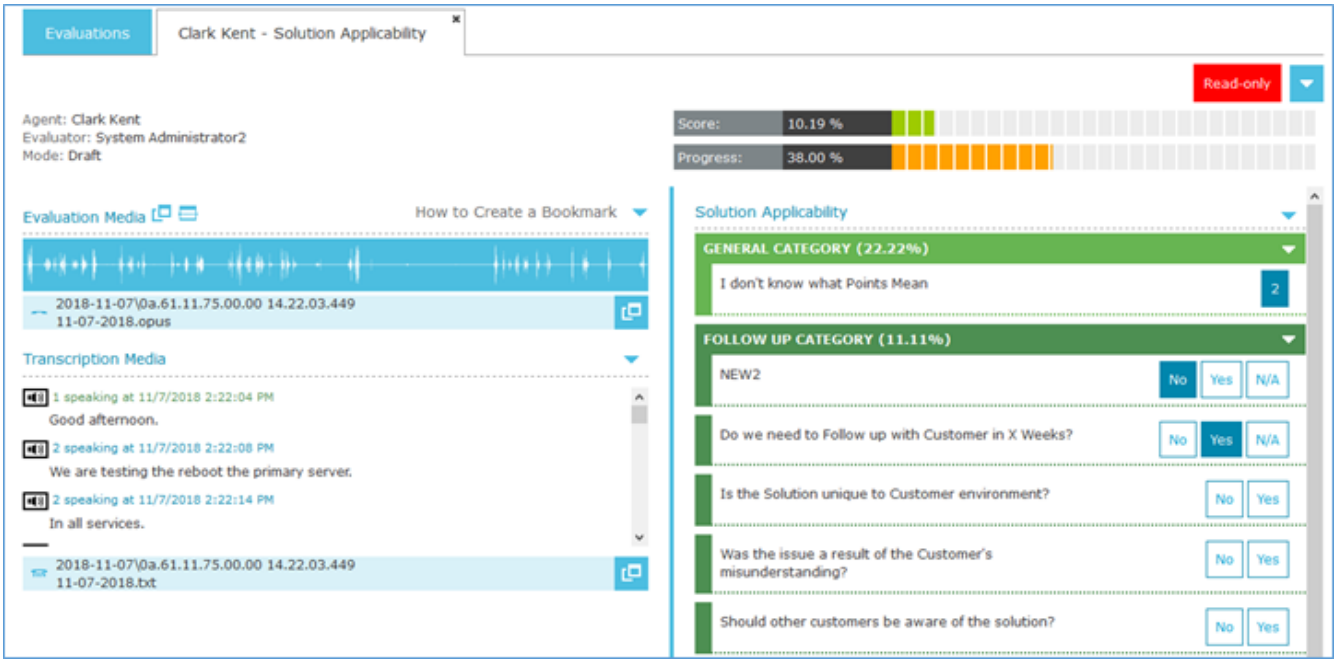

Figure 17: Transcription Media in an Evaluation

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Transcription Scenarios

The base assumption in the scenarios below is that the QMS and the transcription engine have been correctly configured per the information listed above and are properly communicating with each other.

Scenario 1 – Standard Call Profile Transcription

An agent has a transcription and call recording license is part of a Call Recording profile that has Transcription enabled. The Call Recording profile is set to record all calls, so when the call comes in, QMS immediately starts recording. The recording continues until a hang-up is detected. At this time, the MPS will begin processing the recording and convert it to an .mp3 or .opus file. In addition, it will recognize that this call should be transcribed, so it will also create a .wav and .dat file that will be sent to the transcription engine. The MPS will also connect to the transcription engine, sending the file and information about the transcription request. The transcription engine will respond that the files were received. At this time, we have not received a transcription, so the recording search will not show the transcription, but it will indicate that we are waiting for a transcription to complete. Once the transcription engine completes the transcription, the requesting MPS will be notified and it will download the transcription file. The transcription is stored with the recording file as a text file and the transcription is accessible in the Recording's edit page.

Scenario 2 – Standard OnDemand Transcription

In this case, the agent is not assigned to a call profile. Alternatively, they could be assigned to a profile that is set to record 0% or any percent where the current call is not recording. An administrator monitoring the call in the Real Time view that has On Demand recording license and permissions could start recording the agent's call. Once the call has ended or the administrator stops the recording, MPS will process the recording file. It will also check the On Demand Transcription settings on the General Settings page to determine if the call should be transcribed.

Scenario 3 – Disabled Transcription

This scenario can happen in one of two ways. The first way is that the agent is associated with a Call Recording profile that has disabled Transcription. In this case, the recording will be created and processed normally, but there will be no transcription for that recording. This can also happen if the recording was created as an OnDemand recording and transcription is disabled in the General Settings tab. In this case, also, the recording is created but no transcription. This does not, necessarily, end the transcribability of that recording however as the TranscribeNow feature could be utilized at a future time.

Scenario 4 – TranscribeNow

The TranscribeNow feature allows an after the fact transcription of any eligible recording. The administrator who is initiating the TranscribeNow must have appropriate license and permissions, but if they do and the recording is no already transcribed, then the TranscribeNow button will be accessible in the recording wav player on the edit screen. Clicking TranscribeNow does several things. First, QMS tracks down the recording and recorder that made the recording and finds MPS associated with the recorder. If the recording is ultimately not available or there is no MPS available that is configured to connect with a transcription engine, then the TranscribeNow will fail.

Assuming an MPS can be found, the recording must first be converted back to a .wav format that can be used to send to the transcription engine and it also creates the .dat file needed.

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Transcription and Retention

Transcription files will utilize the same setting that are identified for the recording. Completed transcriptions are stored as .txt files in the same locations as the recording files. If encryption is enabled, then these files will be encrypted. If a retention setting indicates to move or delete a recording file, the transcription files will also be deleted. Archived recordings will also archive transcription files.

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1. **Applicable Law; Definitions**. This End User License Agreement (“Agreement”), the definition of terms used, performance hereunder, and the interpretation of this Agreement shall be governed by and construed in accordance with the laws, other than the conflicts of laws rules, of the state of Arizona. If the Uniform Computer Information Transaction Act (“UCITA”) is enacted as part of the law of the state of Arizona, such statute will not govern any aspect of this Agreement, any license granted hereunder or any of the parties’ rights and obligations arising under this Agreement. "Confidential Information" means any non-public information or documentation provided by Supplier under this Agreement, including but not limited to Software, documentation, and information pertaining thereto. "End- User Customer" means the final licensor of Software who licenses for their use. "Agreement" means this document. "Software" means Supplier’s proprietary Software and any third party proprietary software components licensed to Customer pursuant to this Agreement. "Terms" means, collectively, the terms and conditions set forth below and on the front of this Agreement.
2. **Agreement**. This Agreement constitutes an acceptance of Customer’s offer to license Software contingent and consistent upon the Terms contained herein. Any terms or conditions proposed by Customer inconsistent with or in addition to the Terms shall be void and of no effect, unless specifically agreed to in a signed writing by an authorized Supplier representative. Payment for Software by Customer or furnishing of the Software by Supplier, in whole or in part, shall constitute a binding agreement on the Terms of this Agreement. The failure of Supplier to insist upon performance of this Agreement, to enforce any of the Terms of this Agreement or other purchase orders from Supplier, or to exercise any right or privilege granted to Supplier under this Agreement or under law, shall not be construed as a waiver and the same shall continue in full force and effect.
3. **License Grant**. Subject to Customer's compliance with the terms of this Agreement, Supplier grants to Customer a non-exclusive, non-transferable, perpetual license to install, use and execute the Software in object code form on a per-license basis consistent with the licensing scheme applicable to the type of software purchased on this Agreement at the location specified on the PSOF (“Software License”) as may be changed by Customer from time to time upon prior written notice to Supplier, such Software License limited to the site(s), number of seats, concurrent users, agents, servers, ports, devices, managed applications, and/or copies as applicable to the Software obtained, not to exceed the number of licenses set forth on PSOFs placed pursuant to this Agreement. The Software License shall become effective upon Delivery of the Software and shall remain in force unless terminated pursuant to Section 12 of this Agreement. This right does not include permission to grant sub-licenses or otherwise transfer such rights. The Customer may make one (1) copy of the Software for non-productive archival purposes only, provided that it retains or affixes the equivalent of Supplier's proprietary legend and copyrights to the copy. Additionally, the Customer may make several copies of the system documentation, excluding training manuals and materials, provided that they are for internal use only. Customer may not reverse engineer, disassemble or otherwise translate the Software provided pursuant to this Agreement. Supplier, or any third party that owns the Software License, retains exclusive title to and all rights to the Software. The Customer acknowledges that the Software and documentation are the property of Supplier and that the only right that the Customer obtains to the Software is the right of use in accordance with the terms of this Agreement. To assist Supplier in the performance of its duties under this Agreement and in the protection of its proprietary rights, Customer hereby authorizes a Supplier representative to enter Customer's premises, physically or electronically, and inspect the Software License at reasonable times with prior notice.
4. **Compliance with Laws**. Customer shall comply with all applicable laws, including, without limitation, the export control laws and regulations of the United States of America and those countries involved in transactions concerning the exporting of Software purchased under the terms and conditions or the control or regulation of the exportation of products or technical data supplied to Customer by Supplier. Customer will be responsible to pay all taxes, tariffs and duties. Customer shall comply with the United States Foreign Corrupt Practices Act and shall indemnify Supplier from Customer’s violations of

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such Act. The United Nations Convention on the International Sale of Goods (CISG) is specifically excluded and shall not apply to any transaction contemplated herein.

5. **Limited Warranty**. Supplier warrants to Customer that Software will perform in every material respect according to the published specifications for a period of thirty (30) days from Delivery. However, neither Supplier nor its third-party supplier's warrant Software will meet Customer's requirements or that the Software operation will be uninterrupted or error-free. Remedies for Software defects reported during the warranty period consist of (and are limited to), at Supplier's option, repairing, replacing or refunding the purchase price of the Software. This warranty is contingent upon the proper use and application of the Software in accordance with Supplier's instructions. The warranty does not (i) cover the Software if modified by anyone other than Supplier; (ii) apply if Software warranty support is requested as a result of accident, neglect, or operating conditions exceeding specifications; (iii) cover malfunctions caused by defects in or incompatibility to Customer's computer system or equipment; (iv) cover malfunctions caused by defects in or arising from the installation, repair, or programming of the Software other than by Supplier; and (v) apply if Customer has rejected or not used any Software corrections, updates, or modifications supplied or made available by Supplier. THE WARRANTIES HEREIN DO NOT APPLY TO THIRD-PARTY SOFTWARE FURNISHED BY SUPPLIER UNDER THIS AGREEMENT, AND SUCH PRODUCTS ARE PROVIDED ON AN "AS IS" BASIS. AS APPLICABLE, SUPPLIER AGREES TO ASSIGN ANY WARRANTY IT MAY HAVE WITH RESPECT TO THIRD-PARTY SOFTWARE TO CUSTOMER, AND CUSTOMER AGREES TO PROCEED DIRECTLY AND EXCLUSIVELY AGAINST THE THIRD-PARTY SUPPLIER AS TO ANY CLAIMS OF WARRANTY. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
6. **Limitation of Liability**. SUPPLIER'S LIABILITY FOR DAMAGES FOR ANY CAUSE WHATSOEVER, AND REGARDLESS OF THE FORM OF ACTION, SHALL BE LIMITED TO, AT SUPPLIER'S OPTION, REPAIR OR REPLACEMENT OF THE DEFECTIVE SOFTWARE. IN NO EVENT WILL SUPPLIER BE LIABLE FOR DAMAGES IN EXCESS OF the fees paid PURSUANT TO AN ORDER THAT FORMS THE BASIS OF THE CLAIM. IN NO EVENT SHALL SUPPLIER BE LIABLE OR RESPONSIBLE FOR ANY REPROCUREMENT COSTS, LOSS OF PROFITS, LOSS OF USE, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES OF ANY KIND, WHETHER IN AN ACTION OF CONTRACT OR TORT, EVEN IF ADVISED OF THE POSSIBILITY THEREOF. THIS LIMITATION OF LIABILITY AND EXCLUSION OF CERTAIN DAMAGES SHALL APPLY REGARDLESS OF THE SUCCESS OR EFFECTIVENESS OF OTHER REMEDIES. NO ACTION ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR ANY TRANSACTION HEREUNDER MAY BE BROUGHT AGAINST SUPPLIER MORE THAN TWELVE (12) MONTHS AFTER THE CAUSE OF ACTION HAS ARISEN.
7. **Relationship of the Parties**. Each party acknowledges that they are independent contractors, and that the relationship between Supplier and Customer is that of manufacturer/Customer. Neither party shall in any way represent or obligate the other party to any contract, term, or condition, nor may it represent the other party as agent, employee, franchisee, or in any other capacity. Customer is expressly prohibited from making representations to other third parties regarding Supplier or the Software and Services in excess of or contrary to representations contained in Supplier's or its third-party supplier's product specifications, brochures, newsletters, and other publications provided to Customer by Supplier. Nothing in this Agreement shall be construed to limit either party's right to independently develop or distribute products which are functionally similar to the other party's products, so long as Confidential Information of the other party is not used in such development or distribution.
8. **Assignment**. Neither this Agreement nor any rights under it may be assigned by Customer without Supplier's prior written consent. Any unauthorized assignment by Customer shall be void. Supplier may assign the Agreement, in whole or in part, upon thirty (30) days' notice to the Customer.

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9. Severability. If a court of competent jurisdiction holds any provision in this Agreement to be invalid, void, or unenforceable, the remaining provisions will yet continue in full force without being impaired or invalidated in any way

10. **Notices**. Any notices given to Supplier may be made either by facsimile, overnight courier, hand delivery, or by registered or certified mail, postage prepaid with return receipt requested. Mailed notices shall be addressed to Supplier at the address appearing below, but Supplier may change such address by written notice in accordance with this paragraph. Notices mailed, or delivered personally or by electronic means will be deemed communicated as of actual receipt or the date of transmission, as applicable.

    Enghouse Interactive

    216 Route 17 North, Suite 301

    Rochelle Park, NJ 07662, United States

11. **Confidentiality**. The parties agree to accept in confidence all Confidential Information provided to them. The parties further agree not to use or disclose any Confidential Information supplied by the other except as required to perform their obligations in accordance with this Agreement. Any disclosure of Confidential Information to agents or employees shall be made only in the normal course of business, on a need-to-know basis, within the scope and purpose of this Agreement, and under written agreements requiring such agents or employees to treat all such information as strictly confidential. The parties agree not to use, publish, reproduce, disseminate, or otherwise disclose the other's proprietary or Confidential Information, including, but not limited to customer lists, without the prior written consent of the other.

    Customer shall not develop, manufacture, maintain, or, except as contemplated under this Agreement, market products or services incorporating Supplier's Confidential Information or Software. Customer agrees to include Supplier's proprietary notice on all copies of Supplier's Confidential Information made by Customer and to maintain records of the location of these copies.

    Customer agrees that the Software, and any proprietary and/or trade secret information and data furnished to Customer by Supplier or any of its third-party suppliers will be considered Confidential Information and subject to the provisions of this Section. Supplier reserves for itself all proprietary rights in all designs, engineering details, and other data pertaining to the Software and other proprietary data arising out of work done in connection with designing, manufacturing, servicing, and testing the Software, including the sole right to manufacture and, except as provided herein, market all such items. Customer shall not reverse, translate, disassemble, or decompile the Software or any component of the Software.

12. **Entire Agreement**. This Agreement is the entire agreement of the parties regarding the subject matter hereof, and supersedes and terminates any prior agreements, understandings or representations, written or oral, except with respect to any trade indebtedness owing between the parties.

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