

Configuration speech analysis



Administration manual for system providers and tenants

8/3/2022

Product line Neo, version 7.x

The described functions can be used with the following ASC products:

INSPIRATION^{neo}

Please note that you can always find the most up-to-date technical documentation and product updates in the partner area on our website at <https://www.asctechnologies.com>.

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1 General information

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2 Introduction

This manual describes the configuration of audio analysis in Neo.

Beside ASC solutions, third-party software (e. g. Microsoft Cognitive Services) can be configured to be used with the Neo recording system. That way, recorded conversations can be analyzed by means of different types of audio analysis (keyword spotting, transcription, and emotion detection).



Using any type of speech analysis methods requires **uncompressed** audio data.

Keyword spotting

By means of keyword spotting, you can filter for certain topics or categorize the sessions. To this end, you compile all expressions and phrases (keywords) which describe a topic in an analysis list. The defined keywords will then be searched automatically in the sessions.

Since this approach is limited to detecting individual words and phrases, sessions can be searched quickly. Since you have to define the expressions which are supposed to be searched for in advance, this approach especially serves to identify already known topics which frequently come up again.

Transcription

The transcription converts audio recordings into text which is then available for analysis.

To be able to recognize all words, dictionaries are uploaded to look up the audio data in. As each separate word must be recognized and converted into text, this approach initially requires more time than keyword analysis. But on the other hand, transcription makes the entire audio recording available as text so that any word can be found via full-text search without having to define it explicitly again.

A major advantage of full-text searches is that the search terms can be displayed in context which avoids misunderstandings, e. g. in case of ambiguities.

The texts are available for additional analyses and can be transferred to other systems to do so (e. g. to a data warehouse system). Using text analysis methods facilitates identifying previously unknown trends and incidents easily and quickly.

Emotion detection

Emotion detection serves to search for indicators of emotions in a call such as cross talk, silence or increased volume.

There are two types of emotion detection:

- *Linguistic emotion detection*

Emotions are detected based on the diction of the speaker. To be able to do so, calls are searched for keywords that typically indicate an emotion. If swearwords are used, for instance, it can be assumed that the emotion *anger* dominates the call.

- *Acoustic emotion detection*

Emotions are detected on basis of certain characteristics in the speaker's voice, e. g. the volume.

Both approaches have their advantages and disadvantages. There are speaker who continue to select their words carefully which only their voice indicates an emotion and vice versa.

Audio analysis jobs with the method emotion detection are based on acoustic emotion detection.

The functionality emotion detection must be activated by the system provider in the Servers module of the application System Configuration.

Audio analysis jobs are configured and administrated in the Audio Analysis module of the application INSPIRATION_{neo}.



Additional information about creating audio analysis jobs and about how to use them can be found in the user manual *Usage Audio Analysis module*.

The following licenses must be available in the Neo system to be able to use the functionalities described here:

Transcription

10700009	INSPIRATION _{neo} System or	1 per system
10500018	INSPIRATION _{neo} for Compliance	1 per system
10500009	INSPIRATION _{neo} Transcription Analytics	1 per analysis channel
10700014	Import & Export	1 per system

Keyword spotting

10700009	INSPIRATION _{neo} System or	1 per system
10500018	INSPIRATION _{neo} for Compliance	1 per system
10500009	INSPIRATION _{neo} Keyword Spotting Analytics	1 per analysis channel
10700014	Import & Export	1 per system

Emotion detection

10700009	INSPIRATION _{neo} System or	1 per system
10500018	INSPIRATION _{neo} for Compliance	1 per system
10500009	INSPIRATION _{neo} Emotion Detection	1 per agent

As system provider you can view these licenses in the application System Configuration in the Licensing module by clicking on the menu items *Licensing > Reports* in the toolbar.

4 Configuration

For the configuration, the following exemplary IP address is used in this manual:

1. 192.168.169.4 - Neo server



In a distributed system, we recommend to use the server for speech analysis which already has access to all recordings.

4.1 Preconditions

4.1.1 Preconditions to configure keyword spotting, transcription, and emotion detection

- The required licenses are available, see Licenses.

4.1.2 Keyword spotting ASC

This analysis method searches for keywords in transcriptions previously created by EML or Microsoft Cognitive Services.

Before starting the configuration make sure that the following information is available:

- Server name of the Neo server where keyword spotting has been configured

4.1.3 Emotion detection ASC

Before starting the configuration make sure that the following information is available:

- Server name of the Neo server where emotion detection has been configured

4.1.3.1 Configure Neo server

Emotion detection may be executed on a separate server. The audio data must be streamed from a dedicated API server in the network, though. I. e.: An API server has access to the recordings on the server where the API server is executed as well as to the storage expansions connected with this server. On top of that, the API server can stream audio data from other servers if transfer for replay has been configured.



Fig. 1: Examples for emotion detection server



An emotion detection server may only be fed by one individual API server.

4.1.4 Transcription Microsoft Cognitive Services

Before starting the configuration make sure that the following information is available:

- IP address of the Neo server
- Valid Azure account

- Azure Cognitive Services subscription
- Authentication key for Cognitive Services (to be requested from Microsoft by means of your Azure account)

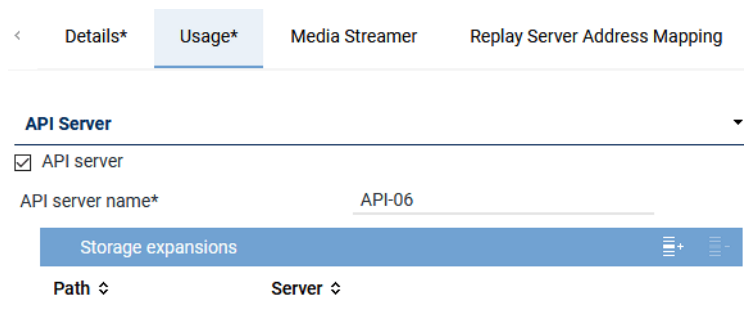
4.2 Configuration in Neo

4.2.1 Activate API server



The API server must be activated if keyword spotting and transcription is supposed to be carried out.

1. Start the application System Configuration.
2. Log in as system administrator.
3. Select the menu item *Setup > Servers*.
4. In the detail view of the server, e. g. *192.168.169.4*, click on the tab *Usage*.



Details* Usage* Media Streamer Replay Server Address Mapping

API Server

☒ API server

API server name* API-06

Storage expansions

Path	Server

Fig. 2: Group field API Server

Group field API Server

API server	Activate the check box <i>API server</i> . <input checked="" type="checkbox"/> = Function has been activated. The entry field <i>API server name</i> becomes active. <input type="checkbox"/> = Function has not been activated.
API server name	In the entry field <i>API server name</i> , enter the name with which the API server is supposed to be displayed in the system.

Tab. 1: Configure API server

1. Click on the button *Save* to apply the settings.

4.2.2 Activate replay



Replay must be activated if keyword spotting and transcription is supposed to be carried out.

1. Start the application System Configuration.
2. Log in as system administrator.
3. Select the menu item *Setup > Servers*.
4. In the detail view of the server, e. g. *192.168.169.4*, click on the tab *Usage*.

[Details*](#)
[Usage](#)
[Media Streamer](#)
[Replay Server Address Mapping](#)

API Server ▶

Audio Analysis .

Recording Control/Key Management ▶

Data Processing ▶

Replay ▼

☒ **Replay**

Replay server* _____

WebSocket port* 4040
(max. 5 characters)

API server*
⋮+ ⋮-

Name ↕	Connection Status
No records found	

Virtualization ▶

Save
Reset

Fig. 3: Group field Replay

Group field Replay

<i>Replay</i>	Activate the check box <i>Replay</i> to be able to use the replay function of the players. <input checked="" type="checkbox"/> = Function has been activated. The entry field <i>Replay server</i> becomes active. <input type="checkbox"/> = Function has not been activated.
<i>Replay server</i>	In the entry field <i>Replay server</i> , enter the name which is supposed to denote the server as the replay server in the system.

Tab. 2: Configure replay

1. Click on the button **Save** to apply the entries.

4.2.3

Activate export



Export must be activated if keyword spotting or transcription is supposed to be carried out.

1. Start the application System Configuration.
2. Log in as system administrator.
3. Select the menu item *Setup > Servers*.
4. In the detail view of the server, e. g. *192.168.169.4*, click on the tab *Usage*.

[Details*](#)
[Usage*](#)
[Media Streamer](#)
[Replay Server Address Mapping](#)

Data Processing

☒ Data storage

☐ Transfer data for replay

Target Server

Name IP Address ↕

☐ Transfer data for data storage

Target Server

Name IP Address ↕

Activate period of time ☐

from

to

Receives data from

Name Only Replay

No records found

☒ Archiving

☒ Export

☒ Import

Save Reset

Fig. 4: Activate export function

5. In the group field *Data Processing*, activate the check box *Export*.
6. Click on the button *Save* to apply the settings.



For information about the configuration of server refer to the installation manual *Configuration servers and recording architectures*.

4.3 Configure audio analysis application



The configuration must be carried out for each tenant that would like to use speech analysis.

1. Start the application System Configuration.
2. Log in as 1st-tenant-admin.
3. Select the menu item *Applications*.
4. Click on *Audio Analysis* in the main view.
 - ⇒ The following window appears:

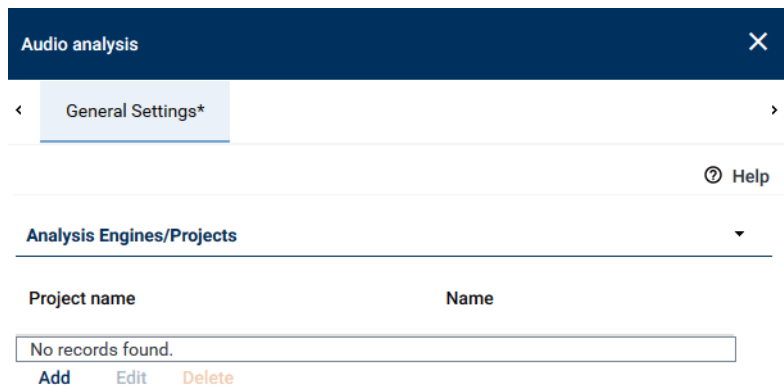


Fig. 5: Detail view audio analysis settings (example)

Add	Adds a new analysis engine or a new project. Options: <ul style="list-style-type: none"> • <i>Keyword spotting</i> • <i>Real-time keyword spotting</i> • <i>Transcription</i> • <i>Emotion detection</i>
Edit	Opens a window which allows editing the selected analysis engine or the selected project.
Delete	Deletes the selected analysis engine or the selected project.

5. Click on the button **Add**.
6. Select an option. The following options are available:
 - *Keyword spotting* > *EML*, see administration manual for system providers and tenants *Configuration speech analysis EML*.
 - *Keyword spotting* > *ASC*, see [chapter "Configure keyword spotting ASC", p. 13](#)
This analysis machine/project is configured for a keyword spotting job which searches for keywords in transcriptions created by EML or Microsoft Cognitive Services.
 - *Real-time keyword spotting* > *EML*, see administration manual for system providers and tenants *Configuration speech analysis EML*.
 - *Transcription* > *EML*, see administration manual for system providers and tenants *Configuration speech analysis EML*.
 - *Transcription* > *Microsoft Cognitive Services*, see [chapter "Configure transcription Microsoft Cognitive Services", p. 15](#).
 - *Emotion detection* > *ASC*, see [chapter "Configure emotion detection ASC", p. 13](#) as well as administration manual for system providers and tenants *Configuration speech analysis*.



For each language, its own analysis engine or its own project must be configured.



Whenever the number of available transcription analytics licenses or keyword spotting analytics licenses is adjusted, each previously created analysis engine or previously created project must be saved again so that the license number is updated in the background.



After a software update of Neo version 6.5 or higher and the subsequent installation of Solr for full-text search, each previously created analysis engine or previously created project must be saved again without changes to ensure proper language mapping in the Neo database.

4.3.1 Configure keyword spotting ASC

This analysis application searches for keywords in transcriptions created by EML or Microsoft Cognitive Services.

1. Click on the button *Edit*.
2. Configure the parameters for keyword spotting.

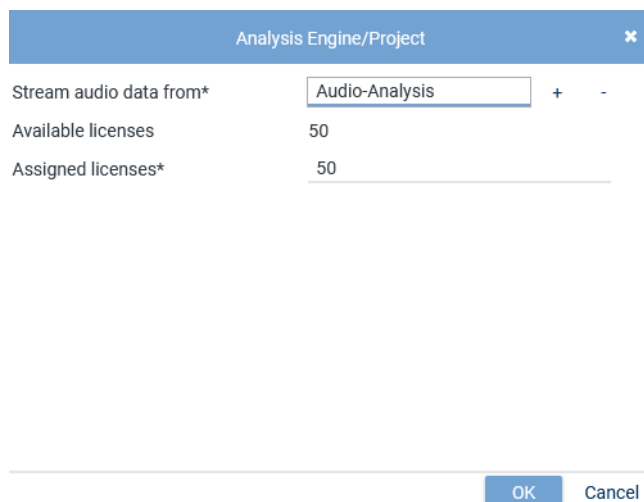


Fig. 6: Configure keyword spotting ASC (example)

<i>Stream audio data from</i>	Click on the button + to select the server from the list on which the transcription jobs are configured.
<i>Available licenses</i>	Shows the number of available licenses.
<i>Assigned licenses</i>	In the entry field, enter the number of licenses that you would like to assign.

3. Click on the button *OK*.
4. Click on the button *Save* to apply the settings.

4.3.2 Configure emotion detection ASC

Before configuring emotion detection, the system administrator must activate emotion detection in the Servers module. The further configuration is carried out by the tenant in the System Configuration in the Applications module and in the application INSPIRATION_{neo} in the Audio Analysis module (detail view > tab *Emotions*).



Additional information about creating audio analysis jobs and about how to use them can be found in the user manual *Usage Audio Analysis module*.

Activate emotion detection



Only one server can be activated for emotion detection.

1. Start the application System Configuration.
2. Log in as system administrator.
3. Select the menu item *Setup > Servers*.
4. In the detail view of the server, e. g. *192.168.169.4*, click on the tab *Usage*.

[Details*](#)
[Usage*](#)
[Media Streamer](#)
[Replay Server Address Mapping](#)

Audio Analysis

☒ Emotion detection

Stream audio data from* Audio-Analysis + -

Recording Control/Key Management

☒ Recording control/Monitoring

Recording architecture Test_Basis ▼

☐ neo key management

Data Processing

Replay

Virtualization

☐ VM support

Save **Reset**

Fig. 7: Activate emotion detection

5. In the group field *Audio Analysis*, activate the check box *Emotion detection*.
6. Click on the button **+** to select the server from the list on which the [API server](#) has been configured.
7. Configure emotion detection:

Save data in the System Configuration

1. Start the application System Configuration.
2. Log in as 1st-tenant-admin.
3. Select the menu item *Applications*.
4. Click on *Audio Analysis* in the main view.
5. Click on the button *Add*.
6. Select the option *Emotion Detection > ASC*.
7. Configure the parameters for emotion detection:

Analysis Engine/Project
✕

Emotion detection*	Audio-Analysis	+	-	
Available licenses	50			
Assigned licenses*	50			

OK
Cancel

Fig. 8: Configure emotion detection (example)

<i>Emotion detection</i>	Click on the button + to select the server from the list on which the function <i>emotion detection</i> has been activated.
<i>Available licenses</i>	Shows the number of available licenses.
<i>Assigned licenses</i>	In the entry field, enter the number of licenses that you would like to assign.

8. Click on the button *OK*.
9. Click on the button *Save* to apply the settings.

4.3.3 Configure transcription Microsoft Cognitive Services

To be able to use Microsoft Cognitive Services, you need an Azure account and a subscription for Azure Cognitive Services. You have to get those at Microsoft's directly.



For more information about an Azure account and authentication see <https://docs.microsoft.com/de-de/azure/cognitive-services/cognitive-services-apis-create-account?tabs=multiservice%2Cwindows>.

1. In your Azure account, open *Home > Resource groups > CustomersResourceGroup > Create a resource* and select a transcription plan under *Speech*.

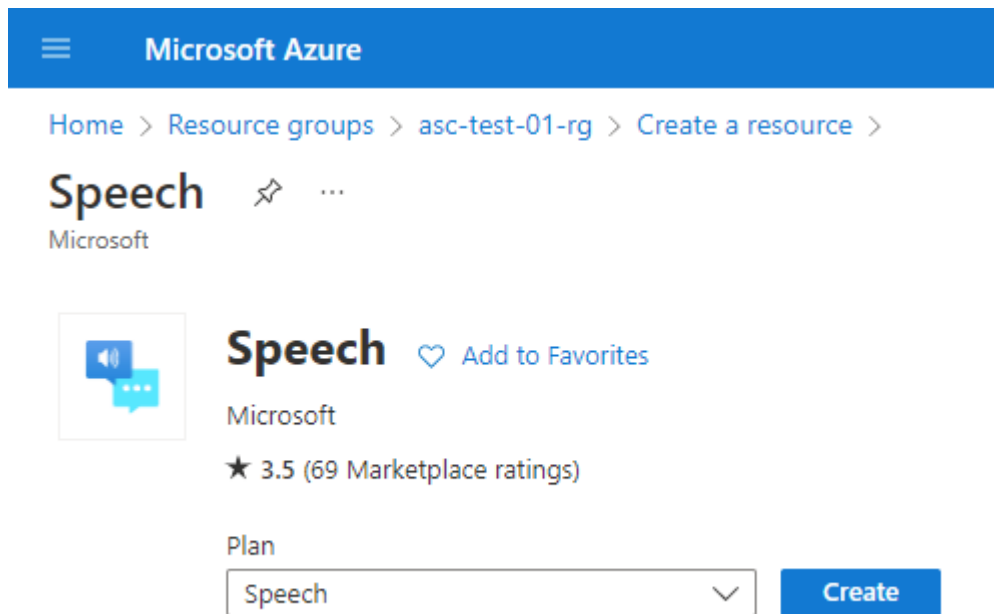


Fig. 9: Create resource

2. Complete the entry fields in the tab *Basics*.

Microsoft Azure

Search resources, services, and...

Home > Resource groups > asc-test-01-rg > Create a resource > Speech >

Create Speech Services

⚠

 Changes on this step may reset later selections you have made. Review all options prior to deployment.

Basics

Network

Identity

Tags

Review + create

Transcribe audible speech into readable, searchable text. Add real-time speech translations to your apps and services. Convert text to audio nearly in real time. Quickly build speech-enabled apps and services using the programming languages you already work with. Customize speech systems to optimize quality for specific scenarios.

[Learn more](#)

Project Details

Subscription * ⓘ

Resource group * ⓘ

asc-test-01-rg

Create new

Instance Details

Region ⓘ

Name * ⓘ

North Europe

asctest01sttd00

Pricing tier * ⓘ

[View full pricing details](#)

Free F0

Free F0

Standard S0


Review + create

< Previous

Next : Network >

Fig. 10: Configure tab Basics

3. In the tab *Network*, select the type *All networks, including internet, can access the resource*.



 Microsoft Azure

Search resources, services,...

Home > Resource groups > asc-test-01-rg > Create a resource > Speech >

Create Speech Services ...

Basics **Network** Identity Tags Review + create

 Configure network security for your cognitive service resource. 

Type *

- ☒ All networks, including the internet, can access this resource.
- ☐ Selected networks, configure network security for your cognitive service resource.
- ☐ Disabled, no networks can access this resource. You could configure private endpoint connections that will be the exclusive way to access this resource.


Review + create

< Previous

Next : Identity >

Fig. 11: Network

- In the tab *Identity*, deactivate the status by selecting the option *Off*.

 Microsoft Azure Search resources, services, and docs

Home > Resource groups > asc-test-01-rg > Create a resource > Speech >

Create Speech Services ...

Basics Network Identity Tags Review + create



System assigned managed identity

Enable system assigned identity to grant the resource access to other existing resources.

Status ⓘ ☒ Off ☐ On

User assigned managed identity

Add user assigned identities to grant the resource access to other existing resources.

 Add  Remove

Name	↑↓ resource group	↑↓ subscription	↑↓
No user assigned managed identities assigned to this resource. Select 'Add' to add more.			



Review + create

< Previous

Next : Tags >

Fig. 12: Status

5. In the tab *Tags*, you do not have to configure any settings.

 Microsoft Azure  Search resources, services

Home > Resource groups > asc-test-01-rg > Create a resource > Speech >

Create Speech Services ...

Basics Network Identity Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name ⓘ	Value ⓘ	Resource
<input type="text"/>	: <input type="text"/>	Cognitive Service


Review + create

< Previous

Next : Review + create >


Fig. 13: Tags

6. Check your entries and confirm them by clicking on the button *Create*.

 Microsoft Azure Search resources, services, and d

Home > Resource groups > asc-test-01-rg > Create a resource > Speech >

Create Speech Services ...

 Validation Passed

Basics Network Identity Tags Review + create

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Basics

Subscription	
Region	North Europe
Name	asctest01sttd00
Pricing tier	Free F0

Network

Type	All networks, including the internet, can access this resource.
------	---

Identity

Identity type	None
---------------	------

Create

< Previous

Next

[Download a template for automation](#)

Fig. 14: Create

7. Check your entries.
 - ⇒ The resource group `asctest01sttd00` has been created.

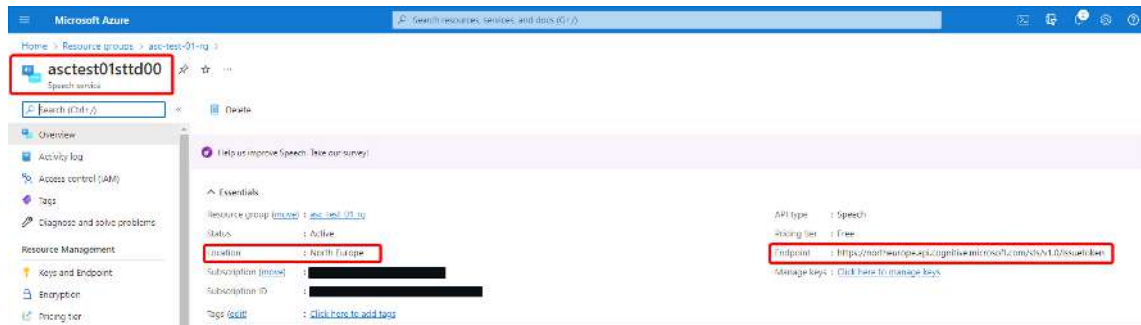


Fig. 15: Resource group

8. Under *Resource Management*, open the menu item *Keys and Endpoints*.
 9. Click on the button *Show Keys* to display and save your key to access your Cognitive Services API.
- ⇒ Handle your keys confidentially. Microsoft recommends to regenerate these keys regularly.

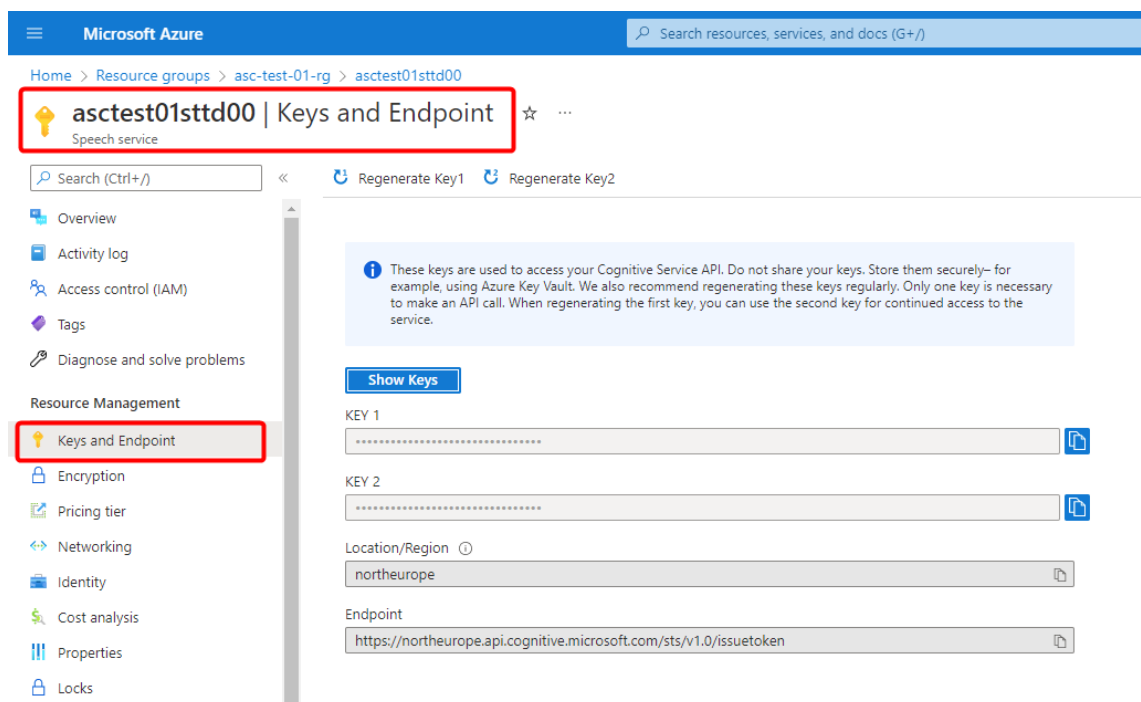


Fig. 16: Create keys

Save data in the System Configuration

1. Start the application System Configuration.
2. Log in as 1st-tenant-admin.
3. Select the menu item *Applications*.
4. Click on *Audio Analysis* in the main view.
5. Click on the button *Add*.
6. Select the option *Transcription > Microsoft Cognitive Services*.
7. Configure the parameters for transcription with Microsoft Cognitive Services:

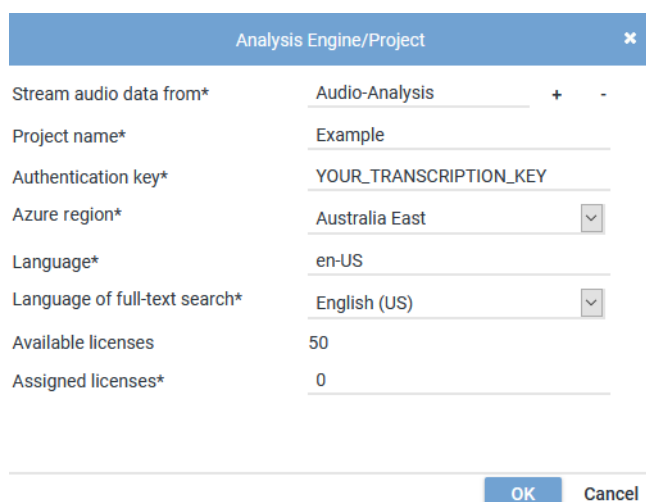


Fig. 17: Configure transcription Microsoft Cognitive Services (example)

<i>Stream audio data from</i>	Click on the button + to select the server from the list from which the audio data is supposed to be streamed.
<i>Project name</i>	In the entry field, enter the project name configured in Microsoft Cognitive Services.
<i>Authentication key</i>	In the entry field, enter the authentication key for Microsoft Cognitive Services. You will get it from Microsoft by means of your Azure account (see above).
<i>Azure region</i>	Select the Azure region from the drop-down list. NOTICE! Make sure the region matches the region of your subscription.
<i>Language</i>	Select the language of the audio.
<i>Language of full-text search</i>	Select the language for full-text search from the drop-down list.
<i>Available licenses</i>	Shows the number of available licenses.
<i>Assigned licenses</i>	In the entry field, enter the number of licenses that you would like to assign.

8. Click on the button **OK**.
9. Click on the button **Save** to apply the settings.

4.4

Export transcribed recording



These settings must be configured if you would like to export transcriptions of the transcribed recordings.

Configure drive

1. Start the application System Configuration.
2. Log in as system-admin.
3. Select the menu item *Drives*.
4. Configure a drive of your choice for the export of the transcription.
Make sure that the respective tenant has been assigned in the tab *Tenant*.
5. Use the Windows Explorer to create a target directory on the drive for the export of the transcription and share this drive with the tenant in the Windows Explorer.



For information about configuring drives refer to the administration manual for system providers *System Configuration - Configuration drives*.

Create transcription job (audio analysis job)

1. Create a transcription job (audio analysis job) in the Audio Analysis module.
2. Select the tab *Transcription*.
3. Activate the option *Export transcription*.
4. In the drop-down list *Format*, select one of the following options:
 - TXT
 - XML
5. Select the target drive that you have created previously for the export of the transcription.
6. If required, activate the option *Remove NOISE elements*. NOISE elements appear in the transcription where no known word could be recognized; removing NOISE elements increases the readability of the transcription.



For information about the Audio Analysis module refer to the user manual *INSPIRATIONneo - Audio Analysis module*.

5 Further configuration in Neo

5.1 Configure speech analysis

1. Log in to the application System Configuration as 1st-tenant-admin.
2. Open the Recording Planner module in the navigation bar and create a quality management recording plan.



The quality management recording plan is intended to record agent sessions which are supposed to be evaluated with INSPIRATION_{neo}. Without a session, audio files cannot be analyzed.



For information about the configuration of recording plans refer to the administration manual for tenants *System Configuration - Recording Planner*.

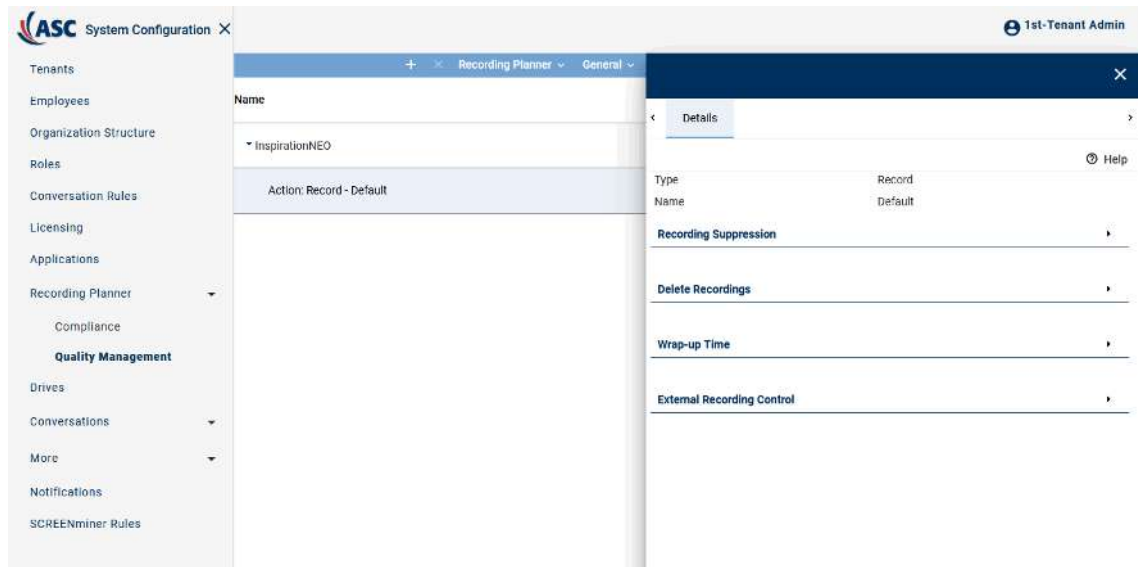


Fig. 18: Create quality management plan

5.2 Configure transcription in Neo

1. Change to the Applications module and select *Audio Analysis* in the main view.
2. In the detail view in the tab *General Settings* in the group field *Analysis Engines/Projects*, click on the button *Add*.
3. Select the menu item *Transcription > EML* or *Transcription > Microsoft Cognitive Services* and configure your project in the window *Analysis Engines/Projects*.

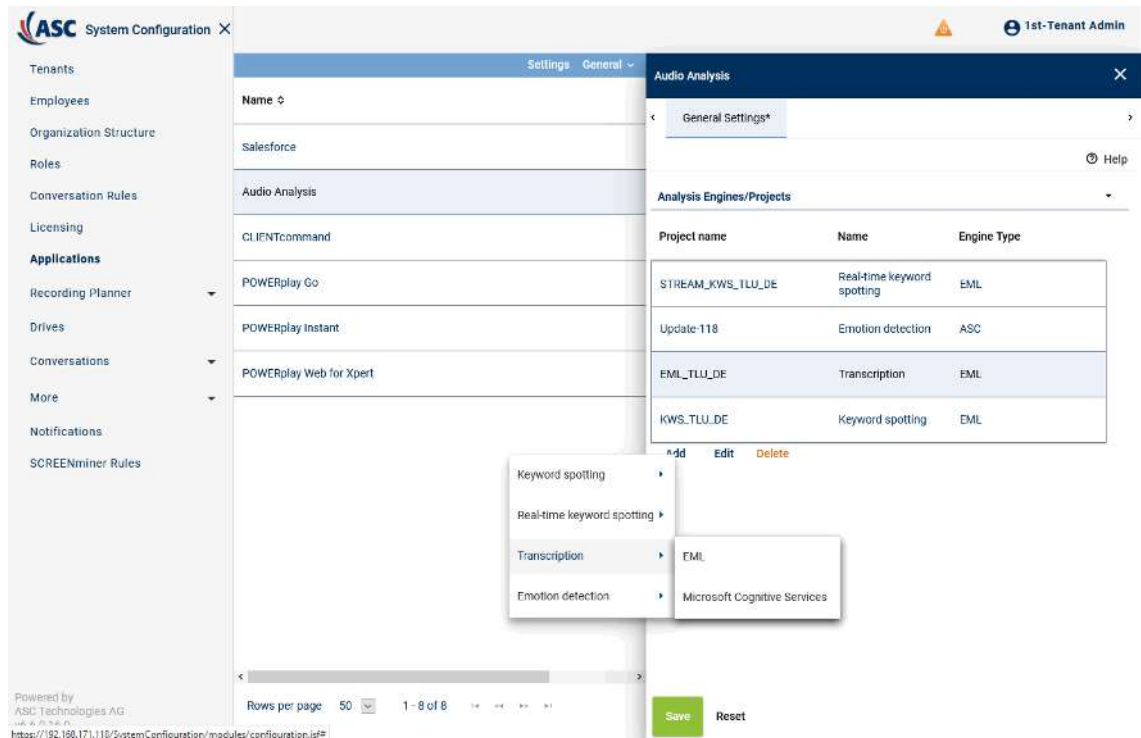


Fig. 19: Configure transcription project

Analysis Engine/Project	
Stream audio data from*	Audio-Analyses + -
Engine ID*	http://192.168.171.1:8080/eml-stt/jo
Project name*	EML_TLU_DE
Queue name*	eml-transcribe
Language of full-text search*	German
Available licenses	50
Assigned licenses*	50
<div>OK Cancel</div>	

Fig. 20: Analysis engine/Project

Engine ID	<i>http://<IP-of-the-EML-Transcription-Server>:8080/eml-stt/jobSubmit</i>
Project name	Is configured during the installation of the EML software and must be used here as well. Example: <i>KWS_TLU_DE</i>
Queue name	Is configured during the installation of the EML software and must be used here as well. Default: <i>eml-transcribe</i>
Language of full-text search	Language for the full-text search.

5.3 Configure ASC keyword spotting in Neo

1. Change to the Applications module and select *Audio Analysis* in the main view.
2. In the detail view in the tab *General Settings* in the group field *Analysis Engines/Projects*, click on the button *Add*.
3. Select the menu item *Keyword Spotting* > *ASC* and configure your project in the window *Analysis Engine/Project*.

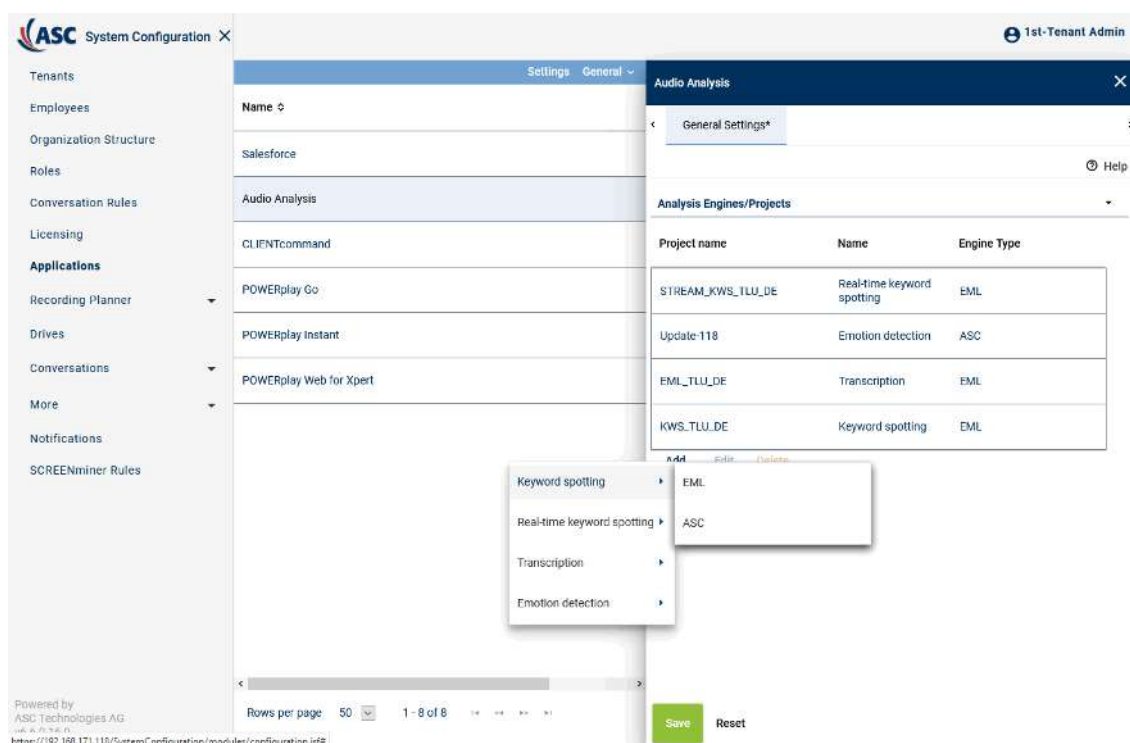


Fig. 21: Configure KWS project (example)

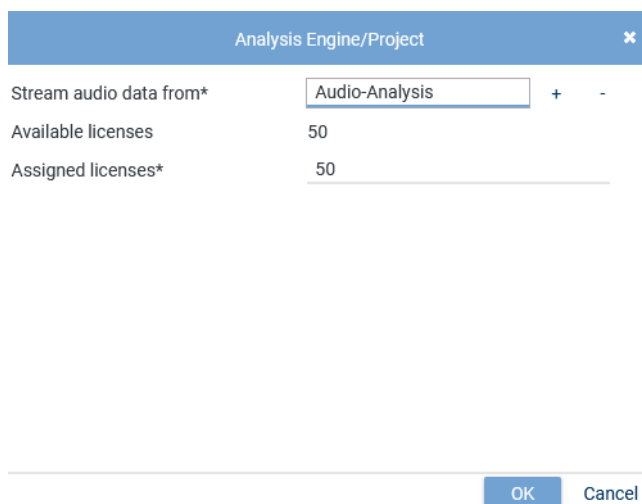
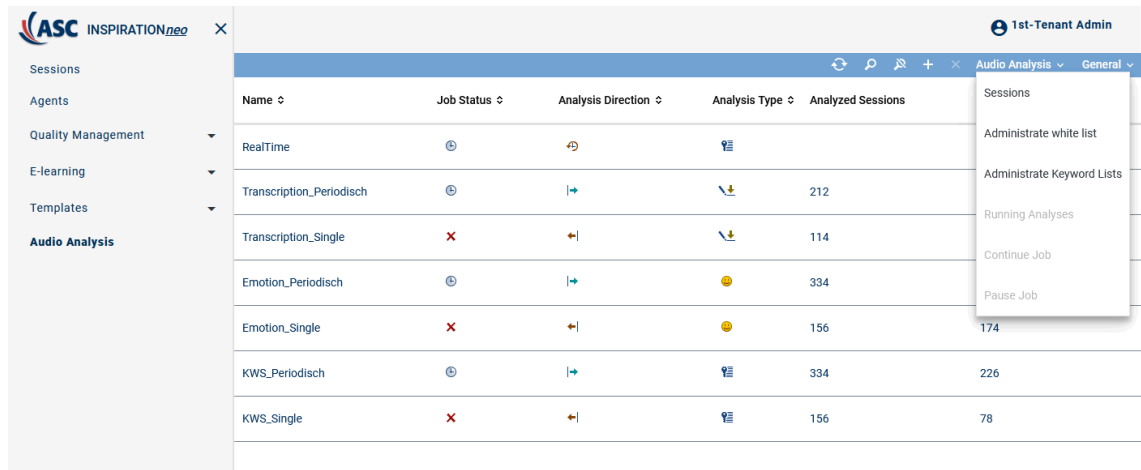


Fig. 22: Analysis engine/Project (example)

<i>Stream audio data from</i>	Click on the button + to select the server from the list from which the transcriptions of the audio data are supposed to be streamed.
<i>Available licenses</i>	Shows the number of available licenses.
<i>Assigned licenses</i>	In the entry field, enter the number of licenses that you would like to assign.

5.4 Create audio analysis configuration in INSPIRATIONneo

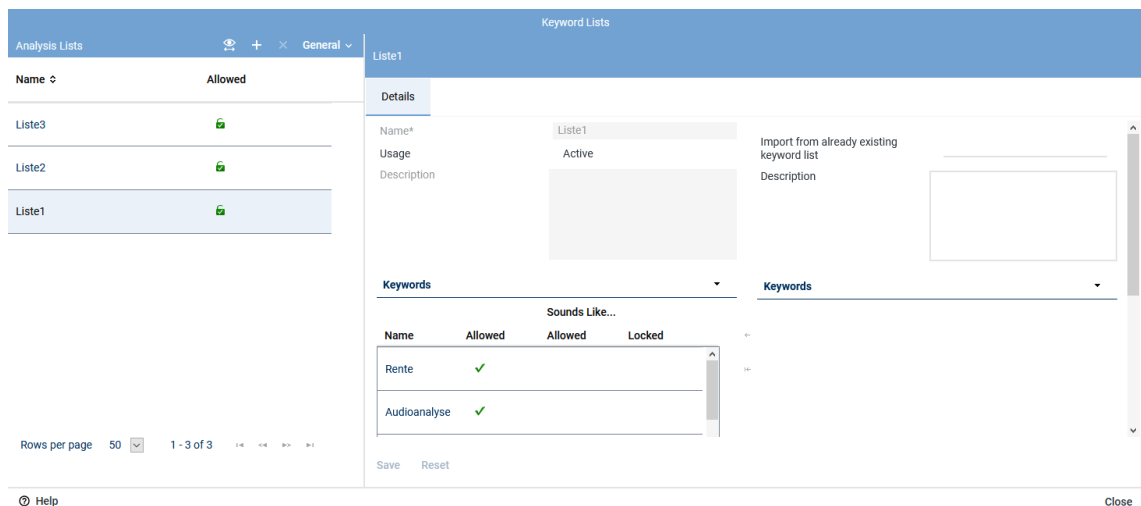
1. Log in to INSPIRATIONneo as user with access authorizations to all modules.
2. Open the Audio Analysis module in the navigation bar.
3. In the toolbar, click on *Audio Analysis* and subsequently on the menu item *Administrate Keyword Lists*.



Name	Job Status	Analysis Direction	Analysis Type	Analized Sessions
RealTime	⊕	↔	📄	
Transcription_Periodisch	⊕	↔	📄	212
Transcription_Single	✗	↔	📄	114
Emotion_Periodisch	⊕	↔	📄	334
Emotion_Single	✗	↔	📄	156
KWS_Periodisch	⊕	↔	📄	334
KWS_Single	✗	↔	📄	156

Fig. 23: Create keyword list

4. In the window *Keyword Lists* click on the + icon in the toolbar of the window on the left.



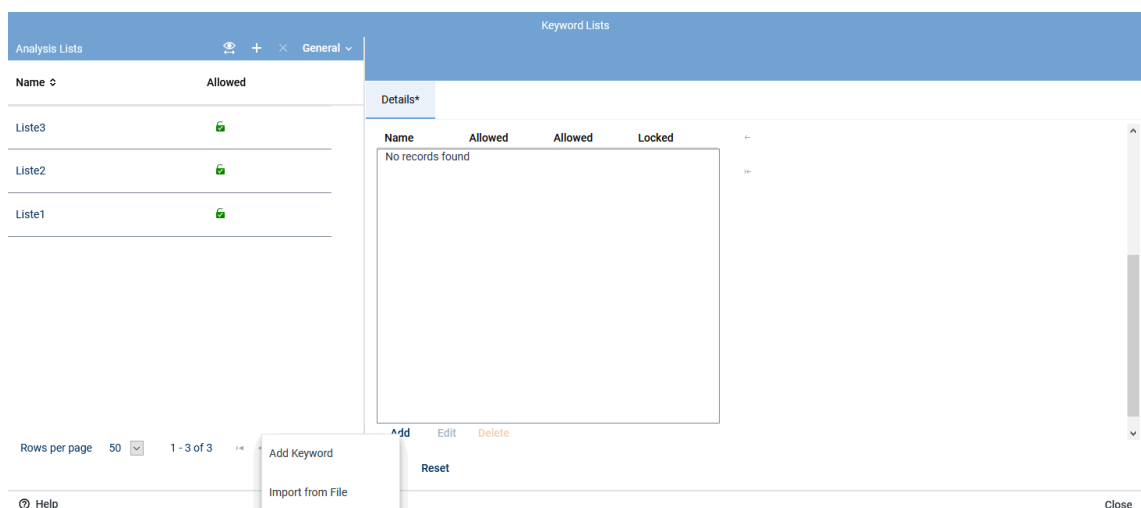
Name	Allowed
Liste3	🔒
Liste2	🔒
Liste1	🔒

Name	Usage	Description
Liste1	Active	

Name	Allowed	Locked
Rente	✓	
Audioanalyse	✓	

Fig. 24: Create keyword list

5. In the window on the right in the tab *Details*, click on the button *Add* and select one of the two options (*Add Keyword* or *Import from File*).



Name	Allowed	Locked
No records found		

Fig. 25: Create keyword list

When selecting *Import from File*, the CSV file must have two columns. The first column headline must be called *keyword*, the second *soundslike*, and they must be separated by a semicolon. The words that sound like the keyword must be listed separated by commas.

Example:

keyword;soundlike

idiot

incompetent

anger

cancel;can't sell,cancer

6. Configure the keyword according to your requirements and eventually click on the buttons **Save** and **Apply** to save your entries.

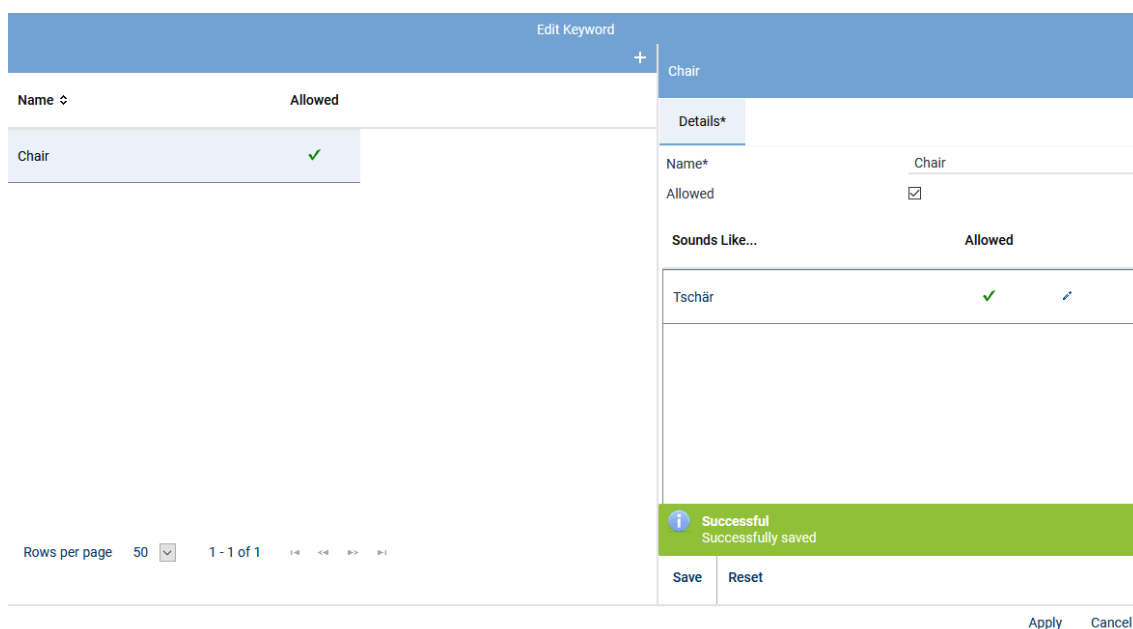


Fig. 26: Configure keyword

7. Save the configured keywords by clicking on the button **Save**.

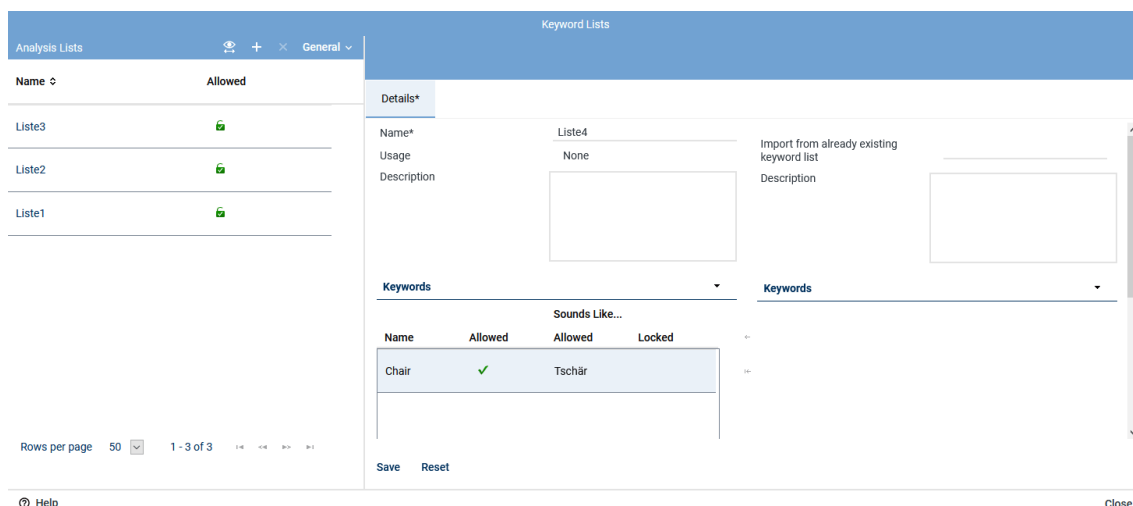
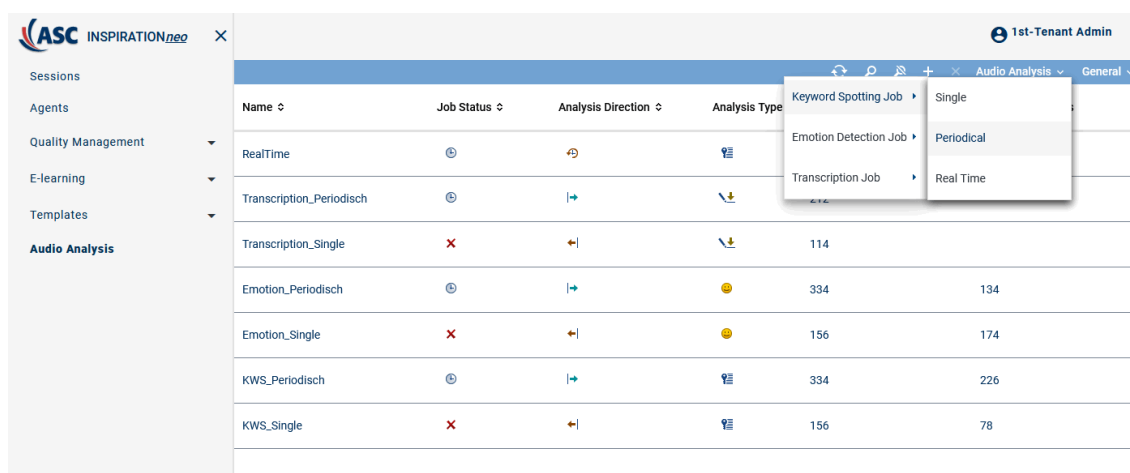


Fig. 27: Create keyword list

5.5 Create keyword spotting configuration in Neo

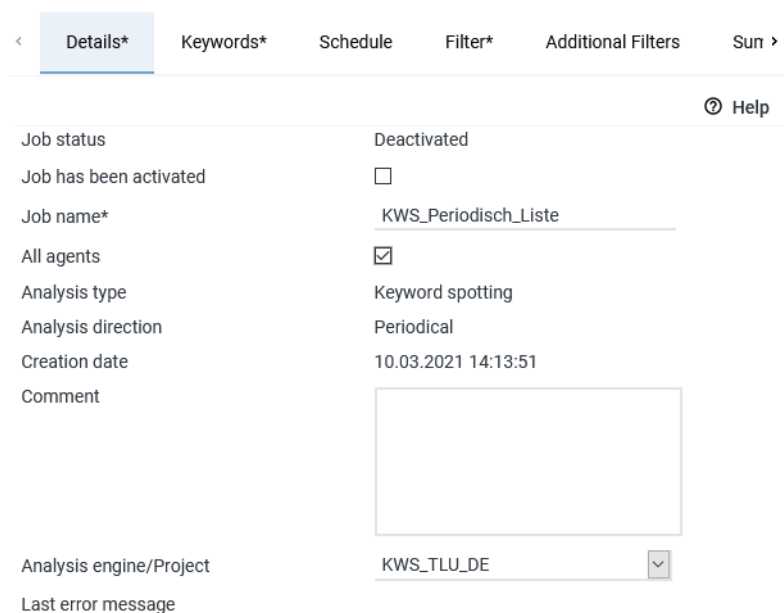
1. In the toolbar of the Audio Analysis module, click on the + icon and select the menu items **Keyword Spotting Job > Periodical**.



Name	Job Status	Analysis Direction	Analysis Type	Keyword Spotting Job	Emotion Detection Job	Transcription Job
RealTime	⊕	⊕	📄	Single		
Transcription_Periodisch	⊕	⊕	📄	Periodical		
Transcription_Single	✗	⊕	📄	Real Time		
Emotion_Periodisch	⊕	⊕	📄		334	134
Emotion_Single	✗	⊕	📄		156	174
KWS_Periodisch	⊕	⊕	📄		334	226
KWS_Single	✗	⊕	📄		156	78

Fig. 28: Create keyword spotting job

2. Configure the job in the tab *Details*.



< **Details*** Keywords* Schedule Filter* Additional Filters Sun >

Job status: Deactivated
 Job has been activated: ☐
 Job name*: KWS_Periodisch_Liste
 All agents: ☒
 Analysis type: Keyword spotting
 Analysis direction: Periodical
 Creation date: 10.03.2021 14:13:51
 Comment:
 Analysis engine/Project: KWS_TLU_DE
 Last error message:

Fig. 29: Keyword spotting job - tab Details

3. Configure the job in the tab *Keywords*.

4. In the group field *Audio Analysis Lists*, add the audio analysis list(s) that you have created previously.

< Details* **Keywords*** Schedule Filter* Additional Filters Sun >

Threshold value

Automatic categorization ☒

Analysis Lists


Name ↕	Allowed
Liste1	

Fig. 30: Keyword spotting job - tab Keywords

5. If you have **not** selected *All agents* in the tab *Details*, add employees or organization units in the tab *Filter* for which the analysis list is supposed to apply.

< Details* Keywords* Schedule **Filter*** Additional Filters Sun >

Organization Settings

Agents*

Last Name ↕	First Name ↕
Plan	Kai

Fig. 31: Keyword spotting job - tab Filter

6. In the tab *Details*, activate the check box *Job has been activated*.
7. Click on the button *Save* to save the job.
- ⇒ The job is saved and started immediately.

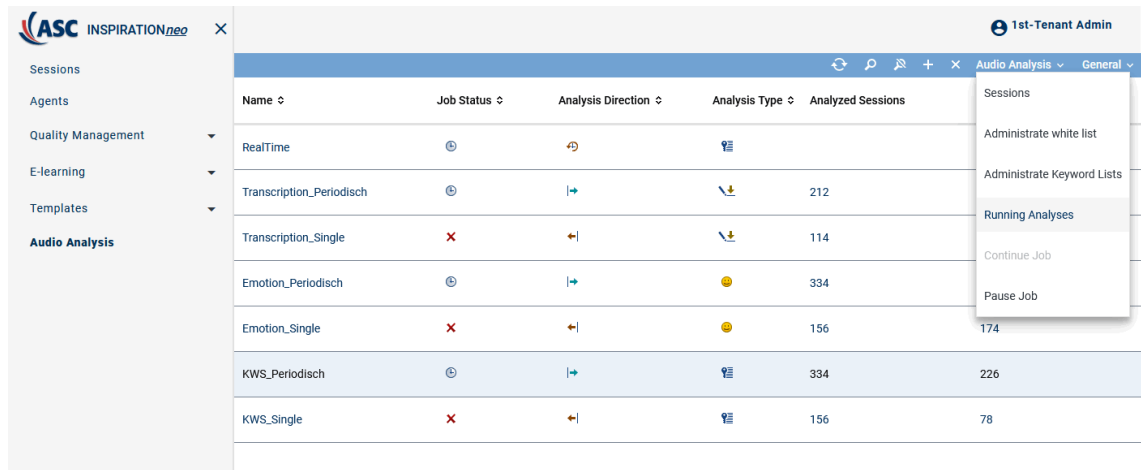
< **Details*** Keywords* Schedule Filter* Additional Filters Sun >

? Help

Job status	Deactivated
Job has been activated	<input checked="" type="checkbox"/>
Job name*	KWS_Periodisch_Liste
All agents	<input checked="" type="checkbox"/>
Analysis type	Keyword spotting
Analysis direction	Periodical
Creation date	03/10/2021 2:13:51 PM
Comment	<div></div>
Analysis engine/Project	KWS_TLU_DE
Last error message	

Fig. 32: Activate job

- Click on the menu item *Audio Analysis > Running Analyses* in the toolbar to view the running analyses.



Name	Job Status	Analysis Direction	Analysis Type	Analyzed Sessions
RealTime	Ⓢ	↻	📄	
Transcription_Periodisch	Ⓢ	→	📄	212
Transcription_Single	✗	↔	📄	114
Emotion_Periodisch	Ⓢ	→	📄	334
Emotion_Single	✗	↔	📄	156
KWS_Periodisch	Ⓢ	→	📄	334
KWS_Single	✗	↔	📄	156

Fig. 33: Start job

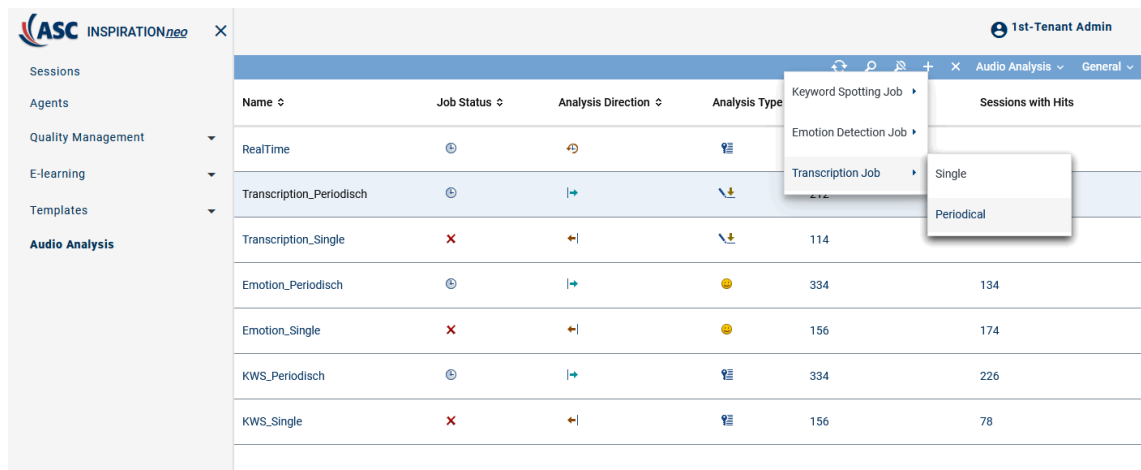


A keyword list must be deactivated before it can be edited.

5.6

Create transcription configuration in Neo

- In the toolbar of the Audio Analysis module, click on the + icon and select the menu item *Transcription Job > Periodical*.



Name	Job Status	Analysis Direction	Analysis Type	Analyzed Sessions
RealTime	Ⓢ	↻	📄	
Transcription_Periodisch	Ⓢ	→	📄	212
Transcription_Single	✗	↔	📄	114
Emotion_Periodisch	Ⓢ	→	📄	334
Emotion_Single	✗	↔	📄	156
KWS_Periodisch	Ⓢ	→	📄	334
KWS_Single	✗	↔	📄	156

Fig. 34: Create transcription job

- Configure the job in the tab *Details*.

< Details* Transcription Schedule Filter* Additional Filters S >

? Help

Job status	Deactivated
Job has been activated	<input type="checkbox"/>
Job name*	Transcription_NEO6.6.0-11.0_Period
All agents	<input checked="" type="checkbox"/>
Analysis type	Transcription
Analysis direction	Periodical
Creation date	03/10/2021 2:13:51 PM
Comment	<div></div>
Analysis engine/Project	EML_TLU_DE
Last error message	

Fig. 35: Transcription job - tab Details

- Configure the export in the tab *Transcription*, if required.

< Details* Transcription* Schedule Filter* Additional Filters ! >

Export transcription ☒

Export Settings

Format*	XML
Target drive*	EML_NEO_134 + -
Target directory	Transcription_NEO6.6.0-11.0_Period
Remove NOISE elements	<input checked="" type="checkbox"/>

Fig. 36: Transcription job - tab Transcription

- If you have **not** selected *All agents* in the tab *Details*, add employees or organization units in the tab *Filter* for which the analysis list is supposed to apply.

< Details* Transcription* Schedule Filter* Additional Filters ! >

Organization Settings

Agents*

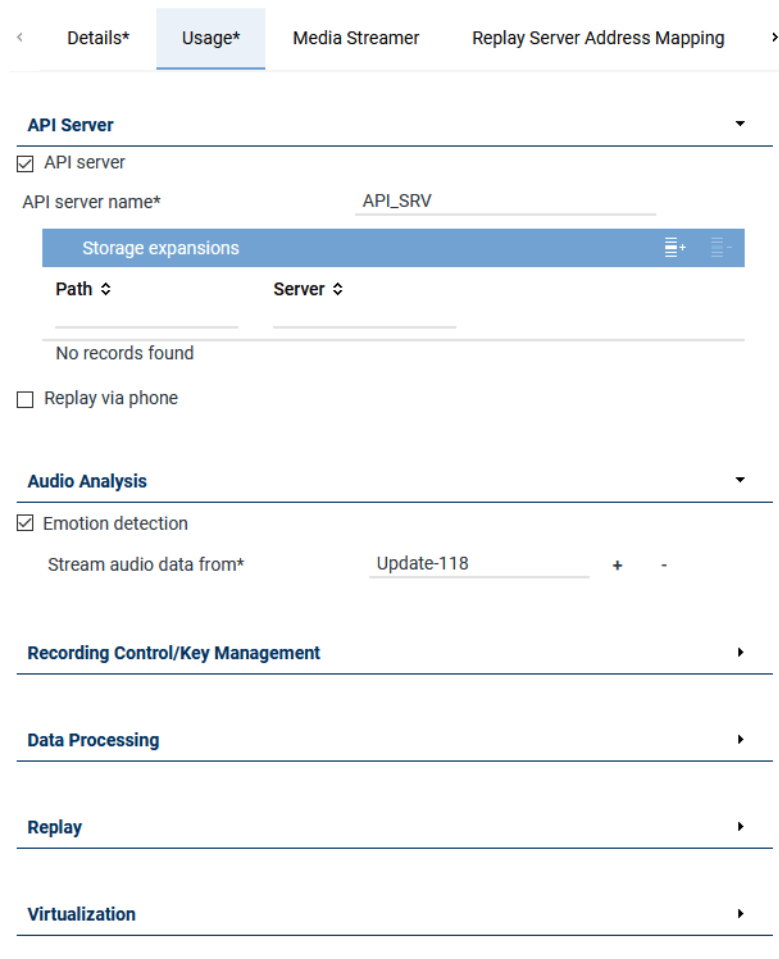
Last Name ↕	First Name ↕
Plan	Kai

Fig. 37: Transcription job - tab Filter

- In the tab *Details*, activate the check box *Job has been activated*.
- Click on the button *Save* to save the job.
 - ⇒ The job is saved and then started immediately.
- Start the job in the toolbar.

5.7 Create emotion detection in System Configuration

1. Log in to the application System Configuration as system-admin.
2. Open the Servers module in the navigation bar.
3. In the tab *Usage* in the group field *API Server*, activate the check box *API server*.
4. In the tab *Usage* in the group field *Audio Analysis*, activate the check box *Emotion detection*.



The screenshot shows the 'Usage' tab in the System Configuration interface. The 'API Server' section has the 'API server' checkbox checked, with the 'API server name' set to 'APL_SRV'. Below this is a 'Storage expansions' table with columns 'Path' and 'Server', showing 'No records found'. The 'Replay via phone' checkbox is unchecked. The 'Audio Analysis' section has the 'Emotion detection' checkbox checked, with 'Stream audio data from' set to 'Update-118'. Below this are expandable sections for 'Recording Control/Key Management', 'Data Processing', 'Replay', and 'Virtualization'.

Fig. 38: Configure emotion detection

5.8 Configure emotion detection in Neo

1. Change to the Applications module and select *Audio Analysis* in the main view.
2. In the detail view in the tab *General Settings* in the group field *Analysis Engines/Projects*, click on the button *Add*.
3. Select the menu item *Emotion Detection > ASC* and configure your project in the window *Analysis Engine/Project*.

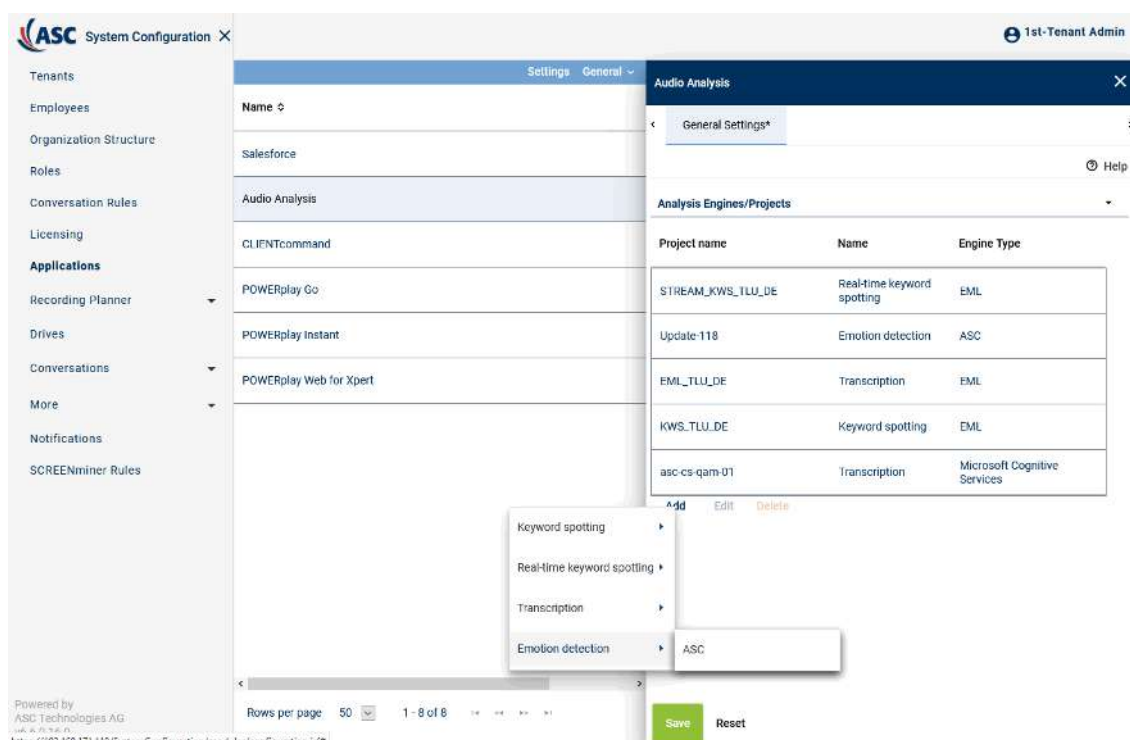


Fig. 39: Configure emotion detection (example)

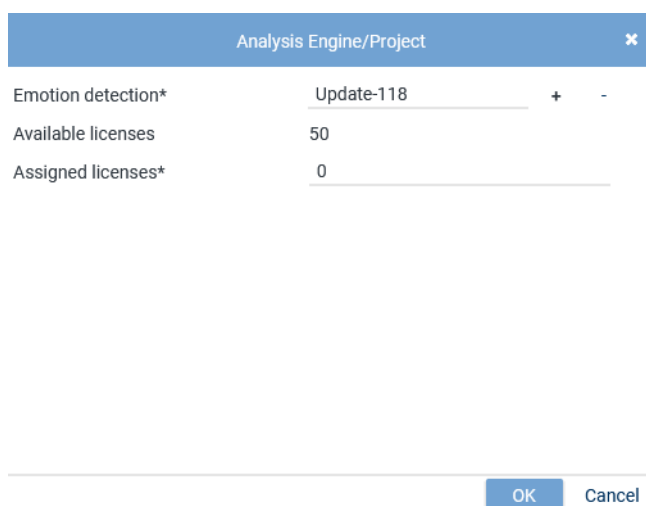
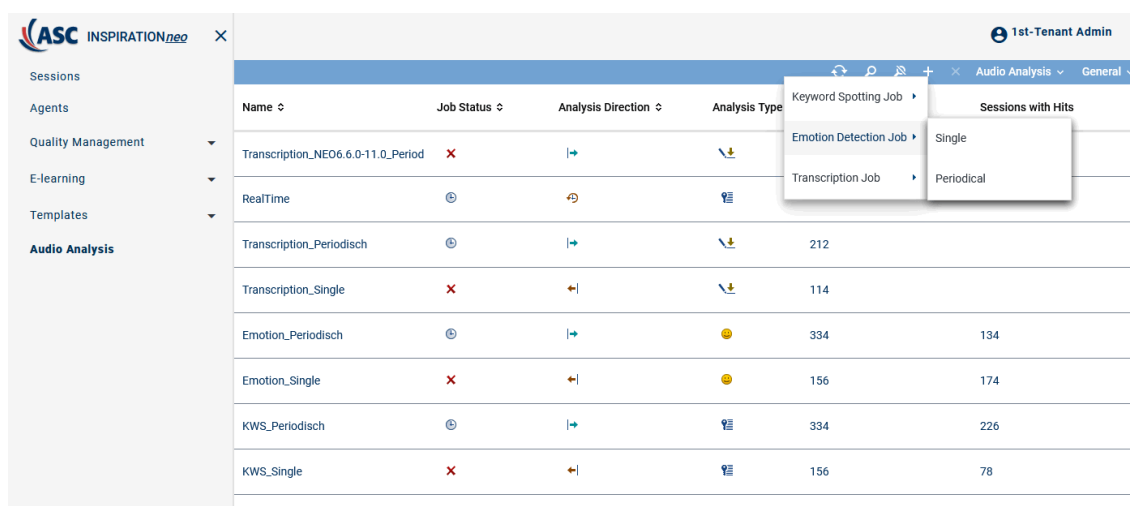


Fig. 40: Analysis engine/Project

Emotion detection Click on the button **+** to select the server from the list on which the function *emotion detection* has been activated. Example: *Update-118*

5.9 Configure emotion detection job in Neo

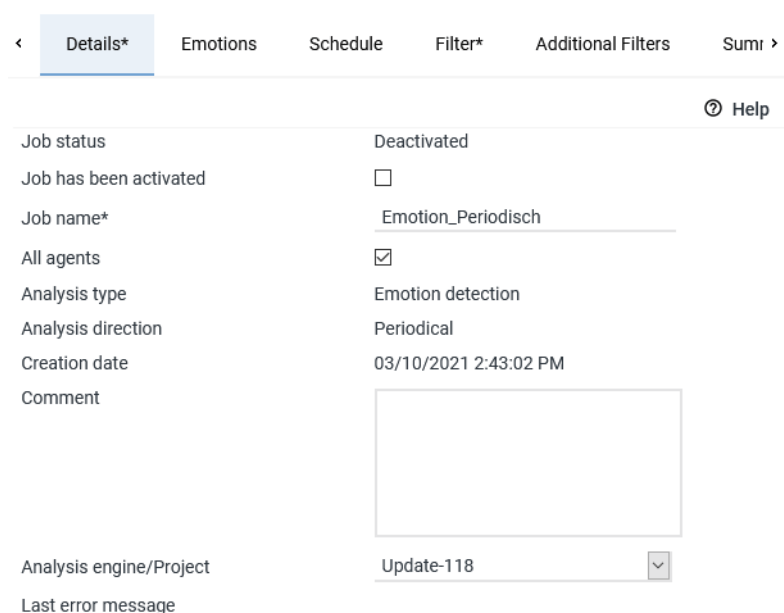
1. Log in to the application INSPIRATION_{neo}.
2. Open the Audio Analysis module in the navigation bar.
3. In the toolbar of the Audio Analysis module, click on the + icon and select the menu items *Emotion Detection Job > Periodical*.



Name	Job Status	Analysis Direction	Analysis Type	Keyword Spotting Job	Sessions with Hits
Transcription_NEO6.6.0-11.0_Period	✗	→	↓		
RealTime	⊕	↻	≡		
Transcription_Periodisch	⊕	→	↓	212	
Transcription_Single	✗	←	↓	114	
Emotion_Periodisch	⊕	→	😊	334	134
Emotion_Single	✗	←	😊	156	174
KWS_Periodisch	⊕	→	≡	334	226
KWS_Single	✗	←	≡	156	78

Fig. 41: Create emotion detection job

4. Configure the job in the tab *Details*.



Details*		Emotions	Schedule	Filter*	Additional Filters	Sumr >
Job status	Deactivated					
Job has been activated	<input type="checkbox"/>					
Job name*	Emotion_Periodisch					
All agents	<input checked="" type="checkbox"/>					
Analysis type	Emotion detection					
Analysis direction	Periodical					
Creation date	03/10/2021 2:43:02 PM					
Comment	<div></div>					
Analysis engine/Project	Update-118					
Last error message						

Fig. 42: Emotion detection job - tab Details

5. Configure the job in the tab *Emotions*.

< Details*	Emotions	Schedule	Filter*	Additional Filters	Sumr >
Smoothing factor				10	
Percentage check	<input checked="" type="checkbox"/>				
Silence	<input checked="" type="checkbox"/>				
Minimum duration				1000 ms	
Threshold value				-60 dB	
Silence percentage				90 %	
High volume	<input checked="" type="checkbox"/>				
Minimum length				1000 ms	
Threshold value				-30 dB	
High-volume percentage				80 %	
Cross talk	<input checked="" type="checkbox"/>				
Minimum duration				500 ms	
Cross talk percentage				70 %	

Fig. 43: Emotion detection job - tab Emotions

6. If you have **not** selected *All agents* in the tab *Details*, add employees or organization units in the tab *Filter* for which the analysis list is supposed to apply.

< Details*	Emotions	Schedule	Filter*	Additional Filters	Sumr >
Organization Settings					
<div>Agents*</div> <div> <div>Last Name ↕</div> <div>First Name ↕</div> </div> <div> <div>Plan</div> <div>Kai</div> </div>					

Fig. 44: Emotion detection job - tab Filter

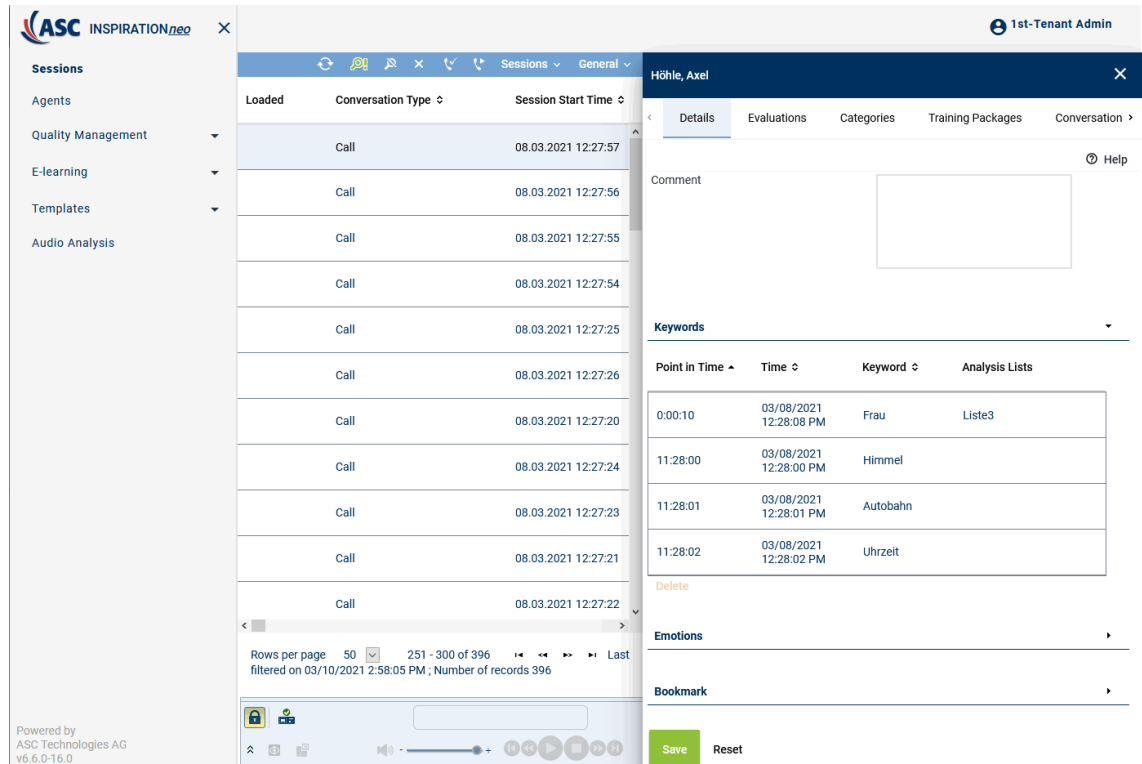
6

Check results

6.1

Check results: keyword spotting

1. Log in to INSPIRATION^{neo} as 1st-tenant-admin.
2. Confirm that recordings are displayed in the Sessions module:



ASC INSPIRATION^{neo} 1st-Tenant Admin

Sessions

Agents

Quality Management

E-learning

Templates

Audio Analysis

Loaded Conversation Type Session Start Time

Call 08.03.2021 12:27:57

Call 08.03.2021 12:27:56

Call 08.03.2021 12:27:55

Call 08.03.2021 12:27:54

Call 08.03.2021 12:27:25

Call 08.03.2021 12:27:26

Call 08.03.2021 12:27:20

Call 08.03.2021 12:27:24

Call 08.03.2021 12:27:23

Call 08.03.2021 12:27:21

Call 08.03.2021 12:27:22

Rows per page 50 251 - 300 of 396 Last filtered on 03/10/2021 2:58:05 PM ; Number of records 396

Höhle, Axel

Details Evaluations Categories Training Packages Conversation

Comment

Keywords

Point in Time	Time	Keyword	Analysis Lists
0:00:10	03/08/2021 12:28:06 PM	Frau	Liste3
11:28:00	03/08/2021 12:28:00 PM	Himmel	
11:28:01	03/08/2021 12:28:01 PM	Autobahn	
11:28:02	03/08/2021 12:28:02 PM	Uhrzeit	

Delete

Emotions

Bookmark

Save Reset

Powered by ASC Technologies AG v6.6.0-16.0

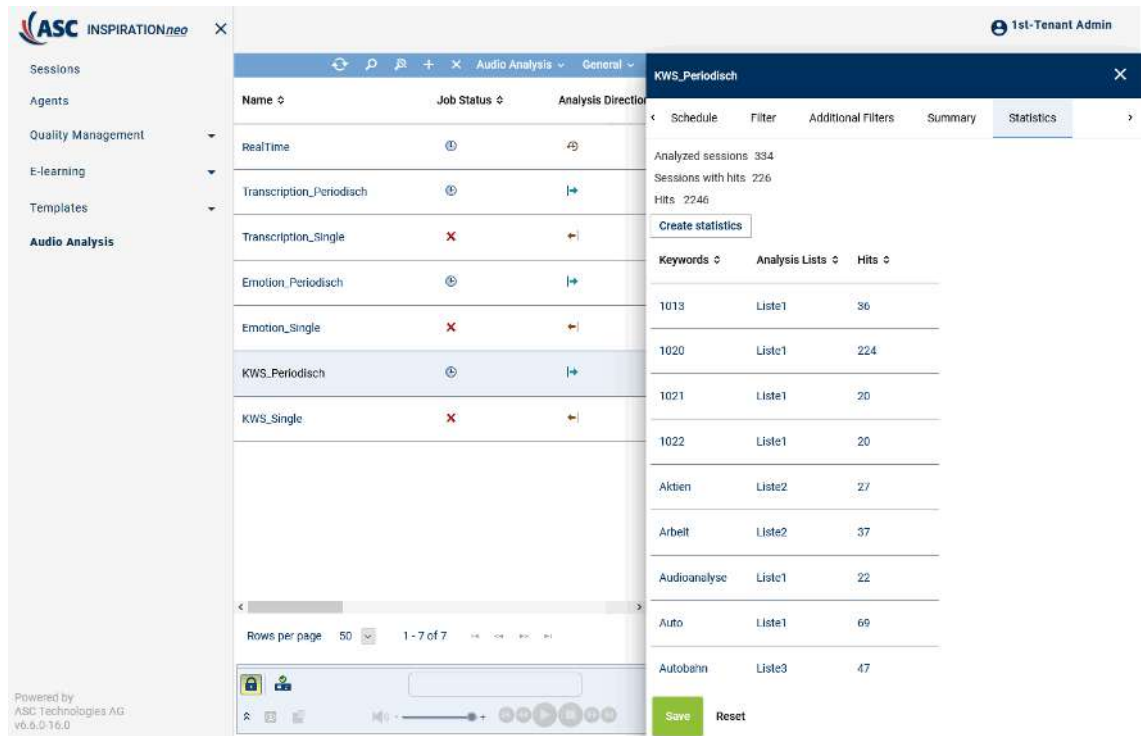
Fig. 45: Sessions module

3. When clicking on the menu item *Audio Analysis > Running Analyses* in the Audio Analysis module, a window is displayed for the analysis job which displays the progress of the running analyses.
 Status *EXPORTING* = The session is exported for analysis.
 Status *ANALYZING* = The session is being analyzed.
 Once the analysis of a session has been completed, the session disappears from the window *Running Analyses*. The analysis result can be viewed in the Sessions module.
 When the window *Running Analyses* is empty, the analysis is complete.

Running Analyses					
Task ID	Session ID	Conversation ID	Status	Recordings in Progress	Last Update
4aa810bf-7b7a-4418-8cbc-f6b2c7b62285	0ed833b6-9c65-42ba-8f0c-519d3ceb1d39	3f8989f3-d56f-47e2-ade8-fd72062a2b3	EXPORTING	[e00bc46c-319e-4abc-b583-91f3f283cac, 1d17a2d35-c0a9-4a40-9f65-72a7414f7ce9]	03/03/2020 12:54:56 PM
bc4979c4-6da5-46c5-a7d2-d355b96e6d27	b1d06739-cd6e-41ea-9a1d-b4d1b40ea94e	68326b24-062c-4308-8675-9bb8082a8980	EXPORTING	[75e1febb-8ed5-472f-a4a6-202084264ee9, 216f9547-e706-4de4-8f98-9b6d01769902]	03/03/2020 12:54:56 PM
5ddb0316-728f-4115-b689-2c4191430c02	830c942f-cae0-4554-98c0-4b7f1d0a0c4	d1d2bae1-c8fe-4d69-a094-d0bf25c1846b	EXPORTING	[d2deae95-b971-470d-be9e-1ff887c30d49, 6a931597-05bd-4e99-8374-394461466cb3]	03/03/2020 12:54:56 PM
22c5a31e-6c3d-4d39-b759-b653a26de675	f88bd15-bc55-4aeb-8790-03006c46c52c	0e234235-496e-4c37-b349-ffd1740660b6	EXPORTING	[30ca3c17-5c33-4390-8aa1-16917ec283d8, 63913286-42c8-4575-a40f-cd158f02295e]	03/03/2020 12:54:56 PM
fe2ea673-896d-4357-0b3e-b41b5af01db7	6ad19c01-0899-48fa-a91c-c5d9c42ae1b8	d516be7a-edb5-46d7-9906-bb450367f6e3	EXPORTING	[c9f4fed6-687c-48c5-8297-76994b90037c, 7748e7eb-ae45-4e61-9b58-0ab9a222f662]	03/03/2020 12:54:56 PM
9366aaa7-6b43-4225-b276-981dde929cb6	543068de-6cf8-4a4a-aca9-83d806600e45	2338c481-0284-4b29-b723-d9f64dde3284	EXPORTING	[1911a2de-co4e-48a8-b192-2dd84aa07217, e5c4f369-23cc-4c0b-b06e-5dd45ac19018]	03/03/2020 12:54:56 PM
600d3fde-e4f4-4897-aec1-3ae07f9d44ff	9267466f-59ca-47fd-a076-496c7664c8a8	bc36b2a4-c22e-4382-8862-680a51883f01	EXPORTING	[cc902798-4f22-435d-98dd-978abb5298b6, c4d0cb9e-cdad-40e0-bcdc-45d6d2706e99]	03/03/2020 12:54:56 PM
19ee49dc-6620-48ad-a056-25432f1c7725	ee2a1932-2000-45a3-a6f9-c86374bb5fc	c3c82ed8-fffa-4cd4-412d-bc757fca4adf	EXPORTING	[9f9175d6-eee8-4f89-a55d-3da045474131, 9183a3f0-c0b0-4576-be53-13f1ba3bbe65]	03/03/2020 12:54:56 PM
773bf7e6-16c7-47e0-0e90-b73fabc83e9	371d2c55-7e14-4255-ad40-f687d0cfa468	8d4a698e-2492-4b84-ac79-aa9f496b23e2	EXPORTING	[327f60f3-965e-4ab3-828f-59f530ca8879, be3087fb-1c10-4a77-ac11-9f9220c6325c]	03/03/2020 12:54:56 PM
c6f12c0f-b82c-41b6-8ab5-356c1c232a48	7a81115c-d8d4-4b62-bbca-4d5778307709	b536f85c-d613-d704-a55a-ba460113bb14	EXPORTING	[80614786-d449-4ba5-ab89-a0770c690738, 6e45b785-1ab6-449a-a08e-...	03/03/2020

Fig. 46: Running Analyses

- Confirm that analysis results are displayed in the Audio Analysis module in the tab *Statistics*:



The screenshot shows the ASC INSPIRATIONneo interface. On the left is a sidebar with navigation options: Sessions, Agents, Quality Management, E-learning, Templates, and Audio Analysis. The main area is titled 'Audio Analysis' and contains a table of analysis jobs. The 'KWS_Periodisch' job is selected, and its details are shown on the right. The 'Statistics' tab is active, displaying a summary of analyzed sessions (334), sessions with hits (226), and hits (2246). Below this, a table lists keywords and their corresponding hit counts.

Keywords	Analysis Lists	Hits
1013	Liste1	36
1020	Liste1	224
1021	Liste1	20
1022	Liste1	20
Aktien	Liste2	27
Arbeit	Liste2	37
Audioanalyse	Liste1	22
Auto	Liste1	69
Autobahn	Liste3	47

Fig. 47: Audio Analysis module Keyword spotting

- Confirm that keywords are displayed in the Sessions module in the tab *Details*:

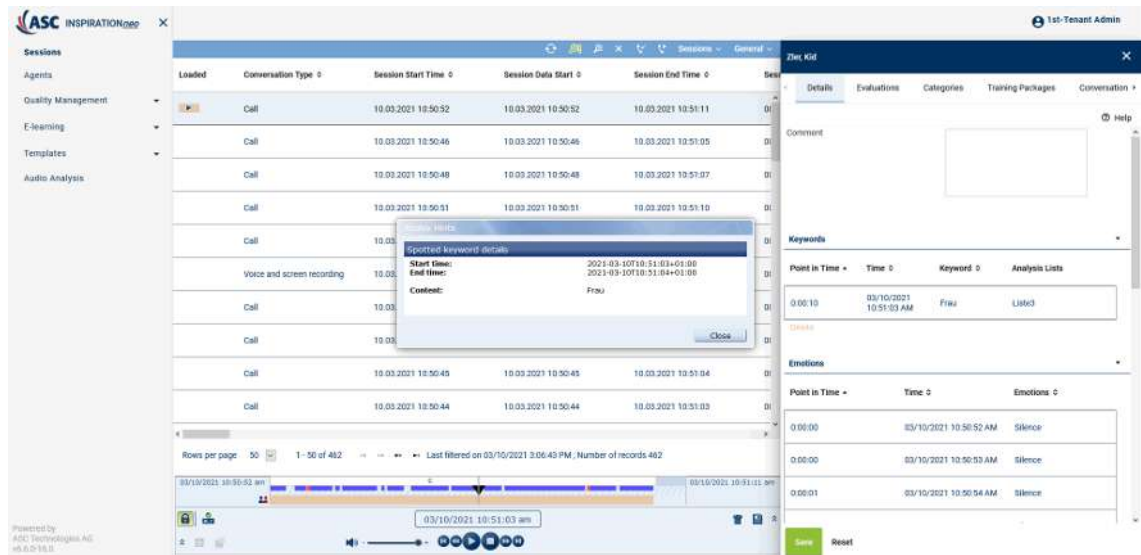


Fig. 48: Analysis results with keywords in the player

- Alternatively, you can check in **POWERplay Web** whether results are displayed. If a keyword spotting job has found keywords in the conversation, they are displayed in the loaded conversation as black triangles. The position and length of the triangles mirror the occurrence and duration of the keyword in the conversation. If the replay reaches the triangle, a replay information with the details of the spotted keyword is displayed:

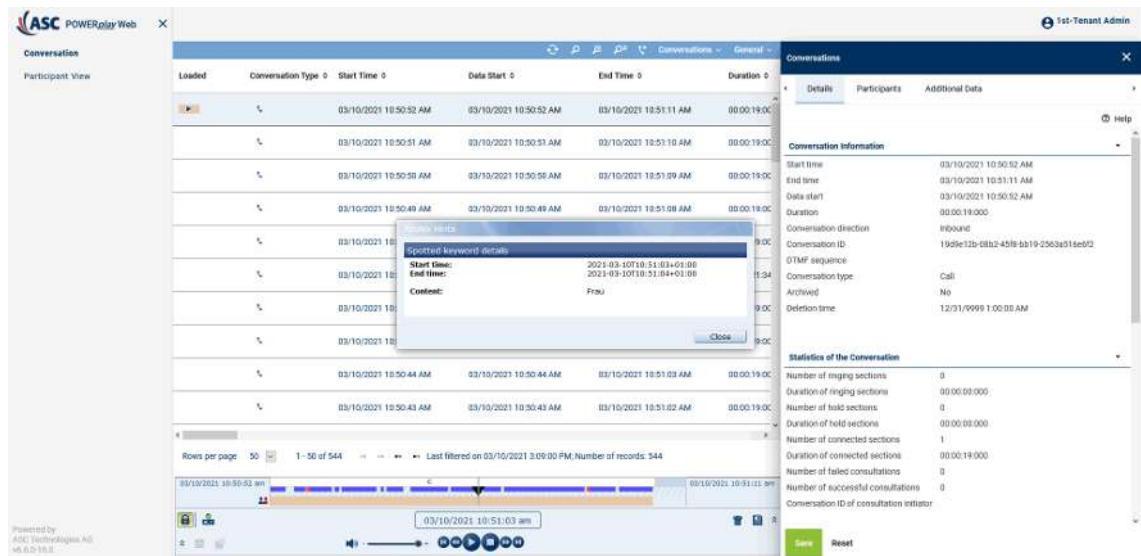


Fig. 49: Analysis results with keywords in POWERplay Web



For further information about the spotted keywords refer to the user manual **POWERplay Web**.

6.2

Check result: transcription

- Confirm that *analyzed sessions* are displayed for the job in the Audio Analysis module:

ASC INSPIRATIONneo		1st-Tenant Admin				
Sessions		Audio Analysis ▾ General ▾				
Name ▾	Job Status ▾	Analysis Direction ▾	Analysis Type ▾	Analyzed Sessions	Sessions with Hits	
RealTime	Ⓢ	↔	📄			
Transcription_Periodisch	Ⓢ	→	📄	213		
Transcription_Single	✗	→	📄	114		
Emotion_Periodisch	Ⓢ	→	📄	364	134	
Emotion_Single	✗	→	📄	156	174	
KWS_Periodisch	Ⓢ	→	📄	364	246	
KWS_Single	✗	→	📄	156	78	

Fig. 50: Audio Analysis module transcription

- Confirm that transcripts are displayed in the Sessions module by clicking on the icon *Load* in the toolbar and subsequently on the menu item *Load Transcript*.

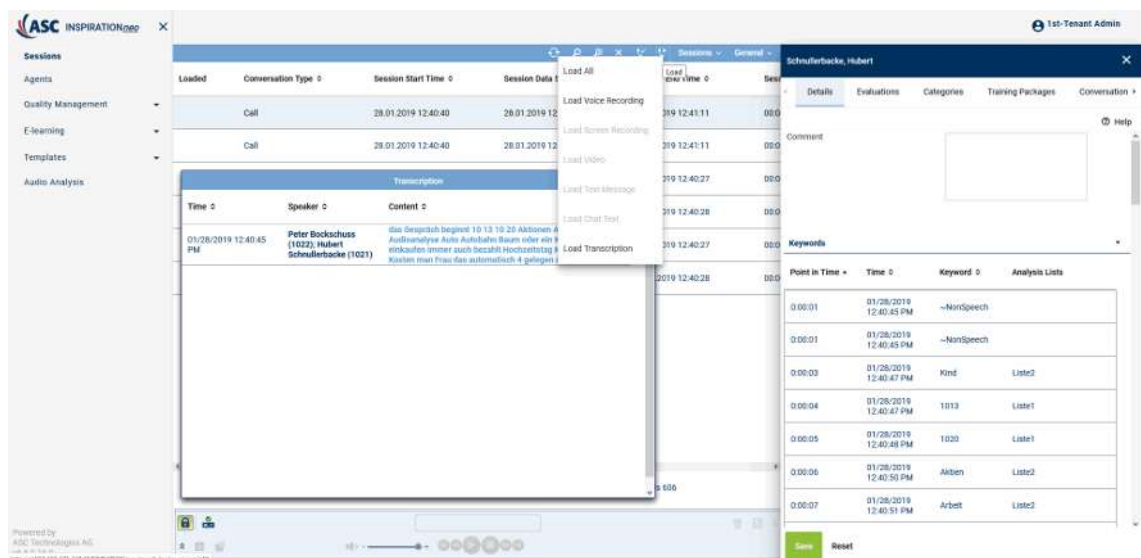
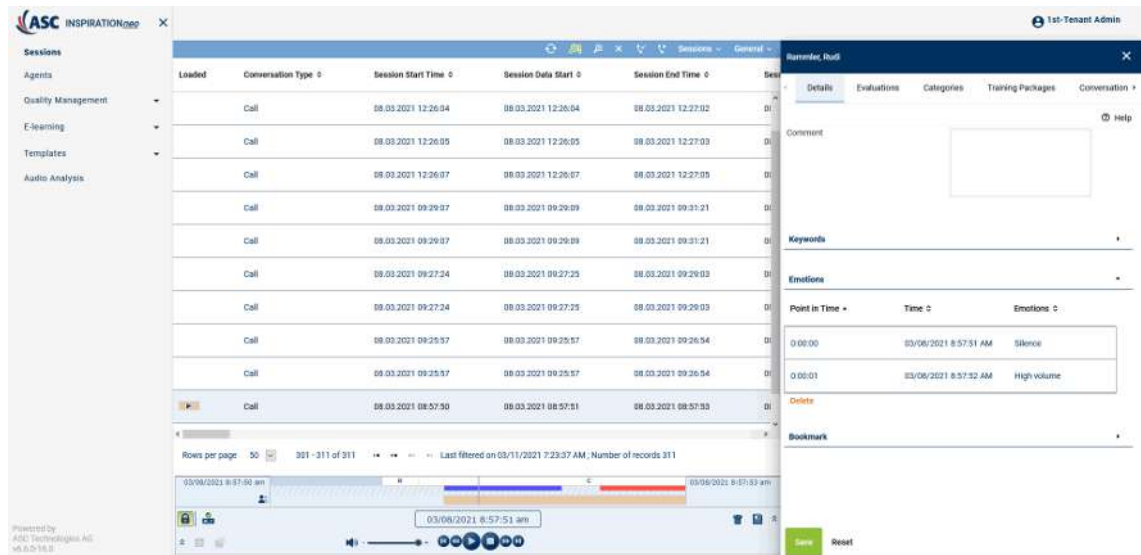


Fig. 51: Results transcription Sessions module

6.3

Check results: emotion detection

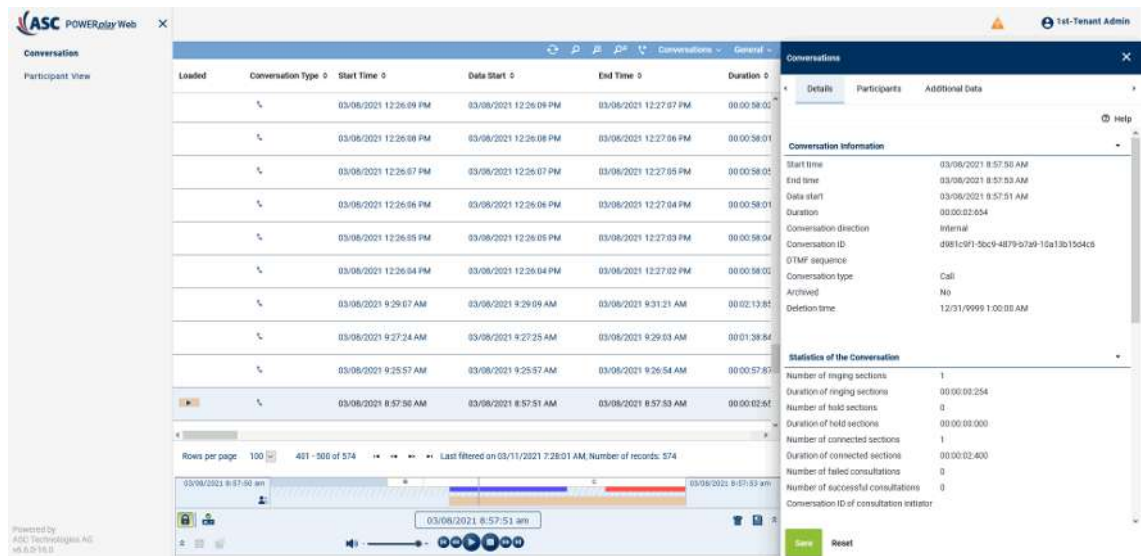
- Confirm that results are displayed in the player in the Sessions module at the bottom of the main view:



The screenshot shows the 'Results emotion Sessions module' in the ASC INSPIRATION Web interface. The interface is divided into a sidebar on the left and a main content area. The sidebar contains navigation links for Sessions, Agents, Quality Management, E-learning, Templates, and Audio Analysis. The main content area displays a table of sessions with columns for Loaded, Conversation Type, Session Start Time, Session Data Start, Session End Time, and Session Duration. A detailed view of a session is shown on the right, including a timeline of emotions detected during the conversation.

Fig. 52: Results emotion Sessions module in the player

- Alternatively, you can check in **POWERplay Web** whether results are displayed. If an emotion detection job has found emotions in the conversation, they are displayed in the loaded conversation with color markings. The position and length of the color markings mirror the occurrence and duration of the sentiment in the conversation:



The screenshot shows the 'Analysis results emotion in POWERplay Web' interface. The interface is divided into a sidebar on the left and a main content area. The sidebar contains navigation links for Conversation, Participant View, and Analysis. The main content area displays a table of conversations with columns for Loaded, Conversation Type, Start Time, Data Start, End Time, and Duration. A detailed view of a conversation is shown on the right, including a timeline of emotions detected during the conversation.

Fig. 53: Analysis results emotion in POWERplay Web



For further information about the detected emotions refer to the user manual **POWERplay Web**.

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Glossary

API server

Server on which the API service runs. (API=Application Programming Interface)