Managed Call Recording
with Call Cabinet Atmos

Analytics User Guide

Telesystem®

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1. OVERVIEW

This manual is intended for customers using Telesystem call recording Atmos Voice Analytics Dashboard applications in their speech analytics strategy. This manual covers the definition of an Atmos Voice Analytics Dashboard application, default application templates, the creation and customization of applications, and the calculation of application scores.

Please note that Analytics and the access to the Dashboard in this guide are licensed features that must be enabled by Telesystem. If you have any questions or requests, please contact your Telesystem account manager.

1.1. WHAT IS ATMOS VOICE ANALYTICS DASHBOARD APPLICATION?

Atmos Voice Analytics Dashboard applications are just one of the many ways that you can analyze your voice data for insights about agent performance, customer experience, and call center operations in Atmos Voice Analytics Dashboard. Atmos Voice Analytics Dashboard applications help you automatically and reliably classify your voice data, allowing you to drill down to particular types of calls for more efficient evaluation of call content. Built using collections of both text- and metadata-based search queries, Atmos Voice Analytics Dashboard applications are an easy and intuitive way for anyone—not just data scientists—to develop sophisticated tools for in-depth voice analytics.

These applications can be used for any kind of voice-based analysis, including agent performance evaluation, compliance monitoring, call driver analysis, and tracking call center performance metrics such as first call resolution. This document outlines everything you need to know about leveraging the power, flexibility, and efficiency of applications in Atmos Voice Analytics Dashboard.

1.2. WHAT YOU'LL NEED TO GET STARTED

One or more of the following:
- **Create/Edit** access to the organization under which you are creating your Atmos Voice Analytics Dashboard applications
- **Create/Edit** access to the company under which the organization in which you are creating your Atmos Voice Analytics Dashboard applications is located

Every organization has a unique URL and credentials to access the system. When those logins are created and approved, an email is automatically generated to those users with the login information from no-reply@callcabinet.com.

This guide assumes that you already have obtained access to your own organization with your unique credentials and are logged into Analytics.

2. TEMPLATED APPLICATIONS

Upon logging in, you may notice your Atmos Voice Analytics Dashboard may come pre-designed with several ready-made *application* templates to jumpstart your call analysis. Each of these templated applications is designed to offer valuable insights as-is or be customized to address your company's unique needs for analysis of particular products, services, compliance scripts, or business processes.

Select any one of the applications along the top bar to dig into the data, manage the existing applications, or even create your own unique application (see section 3).

As you select an existing application from the top bar, you can adjust the view by using the controls above the graphs.
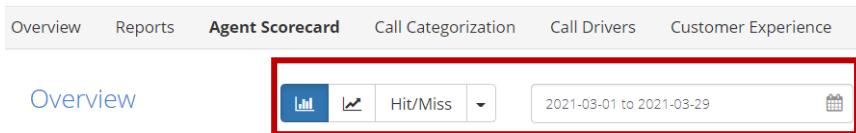
- • **Graph** view type switches between showing data in line or bar graph formats
- • **Scoring** type queries data in Hit/Miss or Coverage fashion (see section 5.4 for an explanation of these scoring types)
- • **Date** range which modifies the start and end date for the accumulated data

Some of the most commonly used templates are explained in the sections that follow. These can be used as they are or modified in any number of ways that fit your business.

2.1. AGENT SCORECARD

The Atmos Voice Analytics Dashboard *Agent Scorecard* application increases the efficiency of agent evaluation process by automatically detecting the presence or absence of phrases that correspond to QA form requirements. Application results can be used to get an overall view of your agents' performance, pinpoint performance categories that require improved training, and compare scores for individual agents. The *Agent Scorecard* uses six top-level categories to evaluate agent performance: Communication Skills, Compliance, Effectiveness, Politeness, Professionalism, and Sales. Application scores are accessible for individual call transcripts as well, enabling supervisors to quickly check off objective requirements on agent evaluation forms.

2.2. CALL DRIVER ANALYSIS

The Atmos Voice Analytics Dashboard *Call Drivers* application is the perfect springboard for developing industry-specific call driver analysis. The *Call Drivers* application automatically categorizes calls according to call type and the customer's ultimate objective. The *Call Drivers* application can be used to identify which types of calls your agents struggle with the most, cause the highest call volumes, and more.

2.3. CUSTOMER EXPERIENCE

Atmos Voice Analytics Dashboard comes equipped with a templated *Customer Experience* application that covers all aspects of both positive and negative call center experiences, including customer sentiment, customer effort, and churn detection.

2.3.1. CUSTOMER SENTIMENT

The Atmos Voice Analytics Dashboard *Customer Experience* application enhances your analysis of positive and negative customer experiences by leveraging CallCabinet's advanced emotional intelligence capabilities. This emotional intelligence combines both linguistic- and acoustic-based information about the speaker's emotional state (such as word choice and tone of voice) which is then used to assign each call a score of Positive, Negative, Worsening, or Improving emotion. All of these scores are searchable, and can be added to any Atmos Voice Analytics Dashboard application as filters to help you drill down into your calls for deeper insights into your customers' state of mind.

2.3.2. CUSTOMER EFFORT

The *Customer Experience* application lets you see how well your agents resolve customer complaints by automatically detecting repeat calls, transfers, and escalations. This information can then be used to identify areas for improvement in agent training, business processes, and self-service systems that will reduce customer effort and prevent churn. This application can be used hand-in-hand with the *Call Drivers* application in order to identify the relationship between particular call drivers and unresolved calls.

2.3.3. CHURN DETECTION

The *Customer Experience* application identifies negative customer experiences that could increase churn rate and detects calls where the customer is actively trying to cancel their account. Churn attempts are further categorized by the customer's reason for cancelling as well as the rebuttal strategies that the agent has employed in order to save the account. All of this enables you to identify common reasons for churning, reach out to unhappy customers before they churn, and identify which save strategies are most effective.

3. CREATING CUSTOM APPLICATIONS

The next few sections review everything you need to know about creating custom applications and customizing templated applications in Atmos Voice Analytics Dashboard. The mechanics of the Application Editor are reviewed first, followed by a description of best practices for building an application.

3.1. THE APPLICATION EDITOR

The Atmos Voice Analytics Dashboard Application Editor allows users with Create/Edit permissions in the company or organization that an application is associated with to customize that application. The Application Editor can be accessed from the Application Dashboard page by selecting the light blue edit Application Config icon shown in Figure 3.1, "*Accessing the Application Config icon from the Dashboar*d", or from the Applications section of the **Settings** page by selecting the Application Config icon from the application list shown in Figure 3.2, "Accessing the Application Config icon from the Applications list".

Figure 3.1. Accessing the Application Config icon from the Dashboard

Figure 3.2. Accessing the Application Config icon from the Applications list

The Application Editor is then viewed in a pop-up window which you can use to make changes to any of that scorecard's categories, phrases, and filters. Figure 3.3, "Parts of the Application Editor" and Figure 3.4, "Application Editor controls" outline the basic elements of and the actions that can be performed within the Application Editor.

A.2.10. NOTE
Any changes to the Application Config will affect the application scores for all users.

3.1.1. PARTS OF THE APPLICATION EDITOR

Figure 3.3. Parts of the Application Editor

- **Upper-level Categories:** any category that contains lower-level categories. All categories are made up of call filters and lower-level categories that contain include phrases, exclude phrases, and metadata filters. Each level of an application can have up to 10 categories.
- **Lower-level Categories:** further hone in on data using the sub-category beneath the upper-level categories. Like the upper-level categories, these have default call filters, phrases, and filters to assist with building the application.
- **Leaf-level Categories:** application categories that have no lower-level categories of their own. Leaf-level categories are responsible for generating Count Scores.
- **Call filters:** call filters are intended to remove calls from further analysis. They are an intermediate step between each level of categories. Any calls that include at least 1 include category phrase, include no category exclude phrases, and meet the category metadata filter requirements will pass through to the next level for further filtering and, eventually, leaf-level scoring. Any calls that do not meet the previously-listed criteria will receive no score for that category. For example, if you are evaluating call drivers for a particular set of products, you may want to specify those product names as category filters to ensure that you only view calls where customers are talking about those particular products.
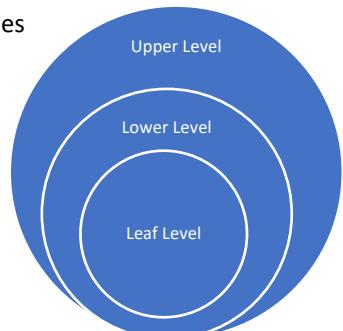
- **Metadata filters:** metadata filters allow you to narrow down the results of your application scoring. Metadata filters can be assigned for any of the metadata filters available as part of ad-hoc Dashboard search (Gender, Emotion, Call Duration, Call Silence Time, Voice Clarity, Overtalk, and Diarization) and for any custom metadata values that you specify for a particular folder. For example, if you are evaluating agent productivity, you may wish to pinpoint calls with high percentages of silence time in order to locate those calls where the client has been placed on a long hold.

- **Include phrase list:** the include phrase list contains phrases that you want to include in your analysis. If a call contains at least 1 include phrase, it will be counted as meeting the requirements for that category.

- **Exclude phrase list:** the exclude phrase list contains phrases that you want to exclude from your analysis. Exclude phrases are particularly useful for eliminating false positives. For example, if you want to view calls where the customer says "happy", you can add "not happy" as an exclude phrases to ensure that calls containing "not happy" are not counted for that category. Refer to Section 5.3.1, "Count Scoring with Exclude Phrases" to learn more about exclude phrase scoring.

A.2.10. NOTE
You can also exclude custom metadata filters but not default metadata.

- **See lower-level categories:** the left and right arrows at the top of the Application Editor can be used to navigate between different levels of the application hierarchy. Applications can have up to five levels by default.

3.1.2. APPLICATION EDITOR ACTIONS
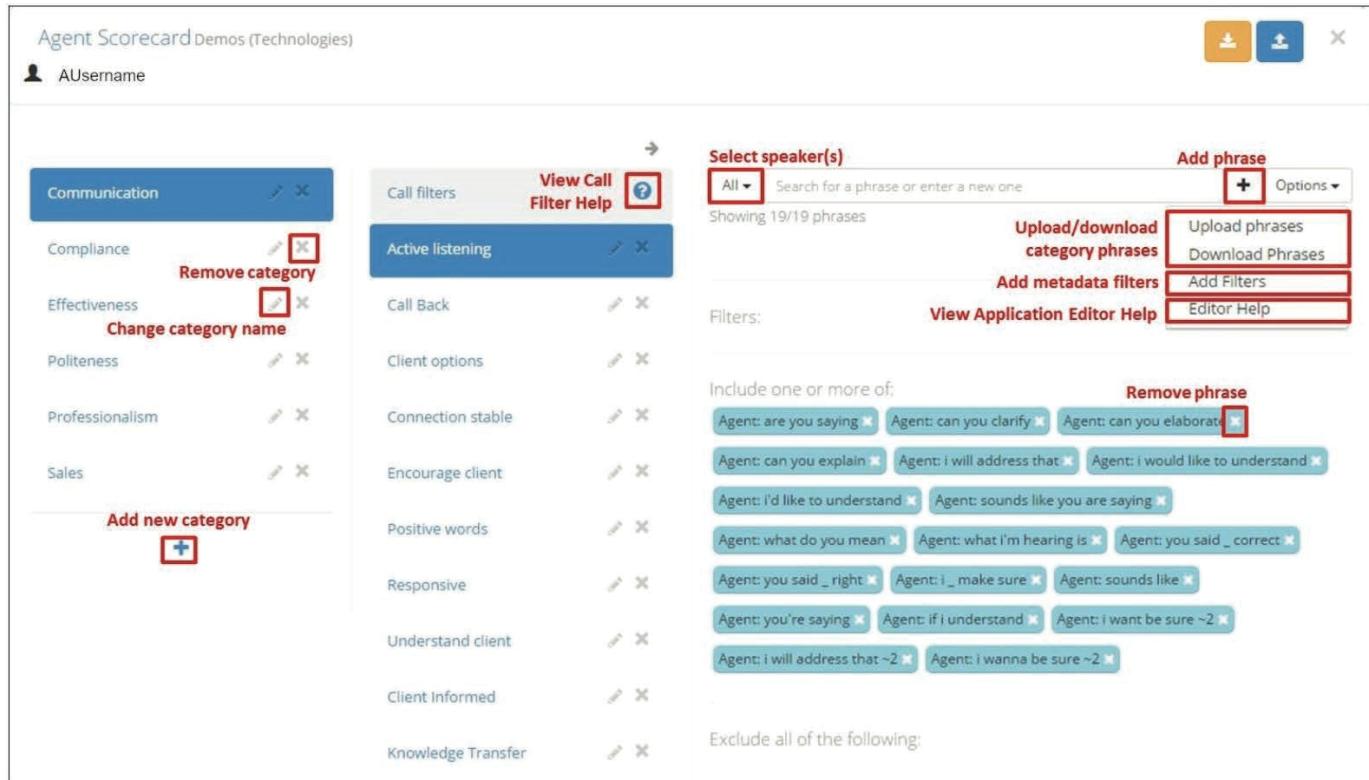
Figure 3.4. Application Editor controls

The following list shows the changes that you can make to an application using the Application Editor.
All changes made to an application are saved immediately.

- **Remove category:** to remove a category, simply click on the "X" next to that category and confirm your choice by clicking "OK" in the window that appears. **Each app must have at least one category.**
- **Change category name:** to change the name of a category, simply click on the Edit icon next to that category, type in the new name in the window that appears, and confirm your changes. Category names cannot contain special characters, only A-Z and 0-9.
- **Add new category:** to add a new category, click the blue "+" underneath the list of categories, type in the name in the window that appears, and confirm your change. Each level of an application can contain up to 10 categories.
- **View Call Filter Help:** if you have questions about how to use Call Filters or about how call filters affect application scoring, click the (?) for more information.
- **Select speaker(s):** when adding a new phrase, you can select the side of the conversation to which the search phrase should apply. You can select just the Agent side, just the Client side, or both sides (All). *For example, you may wish to evaluate agent politeness by searching for Agent phrases such as "may I" and for Client phrases such as "you've been so nice".*

- **Add new phrase:** to add a new search phrase, type it into the search bar at the top and click the "+" button to the right or press the Enter or Return key on your keyboard. By default, the new phrase will be added to the **Include phrase list**. To add a phrase to the **Exclude phrase list**, prefix it with a "-" (minus). **Phrases have a 250 character limit.**

- **Remove phrase:** to remove a search phrase, simply locate the phrase you wish to remove from the list and click on the "x" on the right-hand side of the search phrase tag.

- **Upload/download category phrases:** to upload phrases to or download phrases from a category or Call Filters Section, select the appropriate option from the Options dropdown menu Upload lists must be a plain .txt file with one phrase on each line. Downloaded phrases follow this same format. Agent/Client metadata filters are not included in the downloaded phrase list.

The following is an example text file. Additional lines between speaker sections are not required.

```
.
ALL:
cancel

CLIENT:
        my account
        expensive

AGENT:
        your account
        downgrade
-purchase
```

Once the .txt file upload is finished you will see a notification listing the total number of uploaded phrases, the number of duplicate phrases (app phrases uploaded via text file that already exist in the config will not be added), and the number of invalid phrases.

- **Add metadata filters:** to add metadata filters, simply select the "Add filters" option from the Options dropdown, select the type of filter you wish to add, configure the filter settings, and click "Add." See Section 3.1.3, "Available Metadata Filters" for more information.

3.1.3. AVAILABLE METADATA FILTERS

Atmos Voice Analytics Dashboard applications can be configured to use both built-in and custom metadata filters. Find all available metadata filters on the Filter drop-down menu. Built-in metadata filters are listed at the top of the menu. Custom metadata filters are listed below the built-in metadata filters.

3.1.3.1. BUILT-IN METADATA FILTERS

Add built-in metadata filters to define which files should be included for analysis. Atmos Voice Analytics Dashboard includes the following built-in metadata for each file:

- • **Gender:** filters results based on Agent or Client gender: All, Male, Female.

- • **Emotion:** filters results based on Agent, Client, or Overall emotion: Positive, Negative, Improving, or Worsening. Positive calls remain positive or neutral throughout the call. Negative calls remain neutral or negative throughout the call. Improving calls begin negative and progress to positive by the end of the call. Worsening calls begin positive but decline to negative by the end of the call.
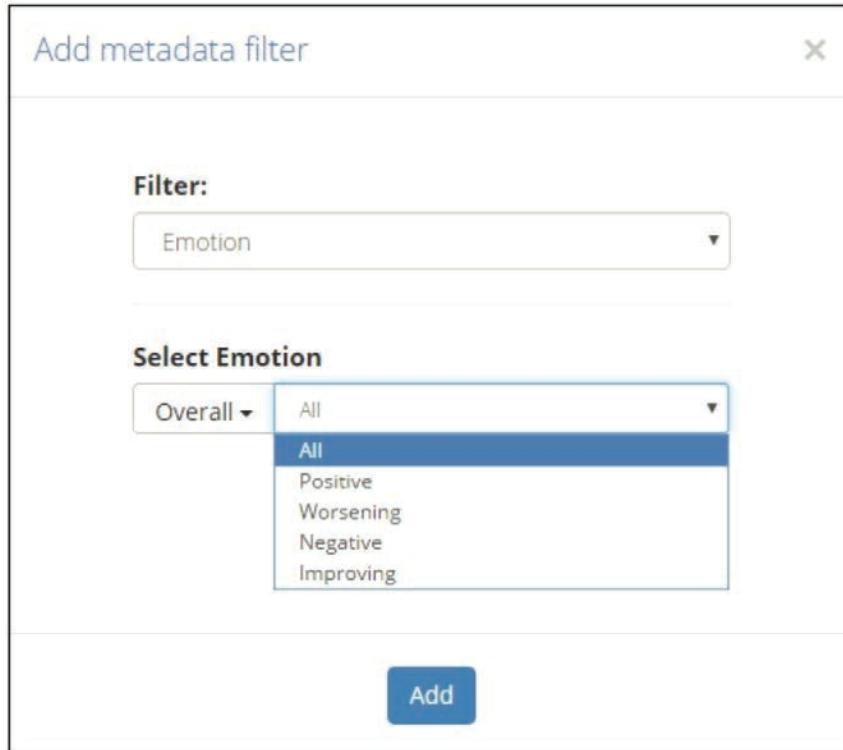
Figure 3.5. Emotion Filter Options

- • **Call Duration:** filters results to include only calls within a call duration range.

- • **Call Silence Time:** filters results based on the percentage of non-speech duration. Calls with 100% silence contain the most silence. A percentage range may be defined using a slider.

- **Voice Clarity:** filters results based on how clear the Agent or Client sounds on the recording. Speakers with 100% clarity would be the clearest. Low clarity indicates hard to understand speech, possibly due to poor phone signal, background noise, or speaker accent or enunciation. A percentage range may be defined using a slider.
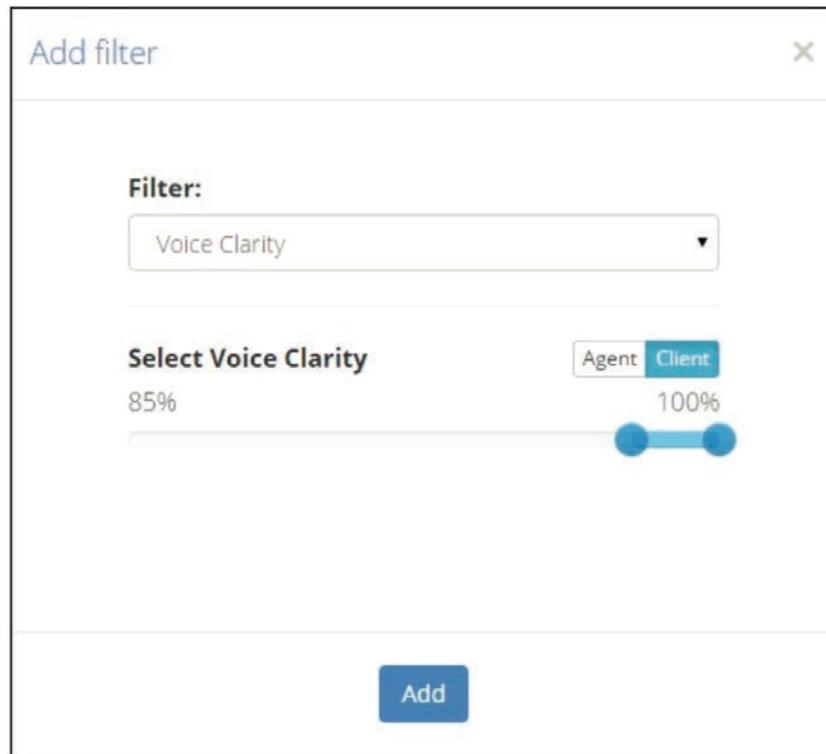
Figure 3.6. Voice Clarity Filter Options

- **Overtalk**: filters results based on the percentage of turns that an Agent talks over the Client. Overtalk of 100% indicates that the Agent spoke over the Client throughout the entire call. A percentage range may be defined using a slider.
- **Diarization:** filters results based on how well Mono (one channel) audio was separated into multiple speakers for analysis using a process called "diarization". Diarization of 100% indicates the highest quality speaker separation.

A.2.10. IMPORTANT

Only one filter may be added for each metadata type. Agent and Client filters are considered to be different metadata types.

3.1.3.2. CUSTOM METADATA FILTERS

Custom metadata filters can only be added to an application category if custom metadata field names have been configured for at least one of the folders linked to the given application.
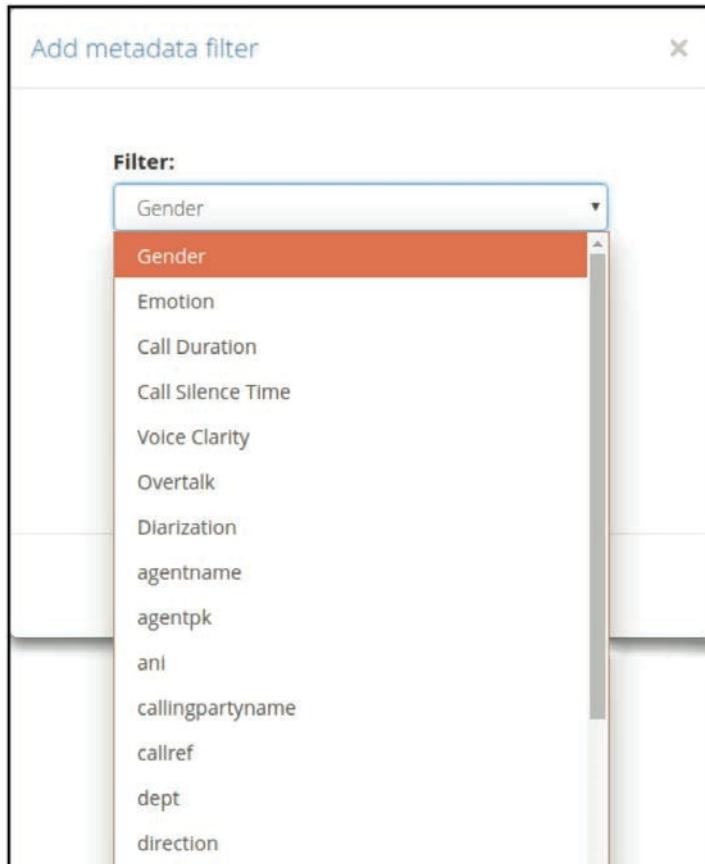
Figure 3.7. Available Metadata Filter Options

Available custom metadata fields can be found in the **Filter** dropdown menu, beneath the built-in filters, as shown in Figure 3.7, "Available Metadata Filter Options".

To add a custom metadata filter, select a custom metadata field from the Filter dropdown menu. The dialogue shown in Figure 3.8, "Custom Metadata Filter Options" displays. Enter the value for the custom metadata field by which to filter, and click **Add**.

Custom metadata filters display in the **Metadata filters** section, similarly to built-in metadata filters, as shown in Figure 3.3, "Parts of the Application Editor".
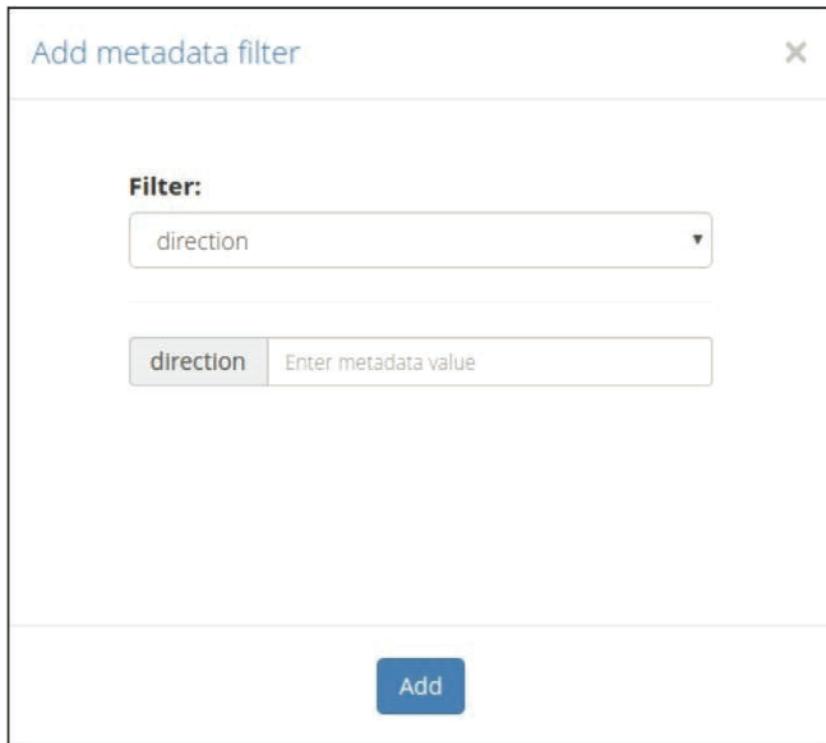
Figure 3.8. Custom Metadata Filter Options

Unlike built-in metadata filters, custom metadata filters may be used to exclude files that match a designated value. To add an exclude custom metadata filter, prefix the entered value with a dash (-) before adding.

Exclude filters display as a yellow tag in the **Metadata filters** section.

A.2.10. IMPORTANT
Only **one** filter may be added for each custom metadata type. However, in order to filter by multiple criteria, custom metadata values may use a special character (|) to represent OR.
A.2.10. For example, for a custom field "direction", a value of "inbound | outbound" could be used to match files that have either of those metadata values.

3.1.4. ADDITIONAL FEATURES OF CUSTOM APPLICATIONS

Custom applications that are created from scratch can be edited the same way as templated applications in the Application Editor. Additionally, the entire set of categories, phrases, and filters (also known as the config file) can be downloaded for custom applications and used for offline editing. New or modified config files can then be re-uploaded to the Application Editor so that your changes can take effect.

This upload/download capability is useful for creating duplicate versions of an existing application in a different organization, keeping track of different versions of applications, and tweaking an application for different departments or use cases.

Figure 3.9, "Upload/Download a Custom Application Config" indicates the location of the upload/download controls.

Note that **the upload config option overwrites the entire set of categories, phrases, and filters**, not just a single section of the app. Uploading config files from Version 2 and older of Atmos Voice Analytics is not supported in Version 3 and subsequent releases.
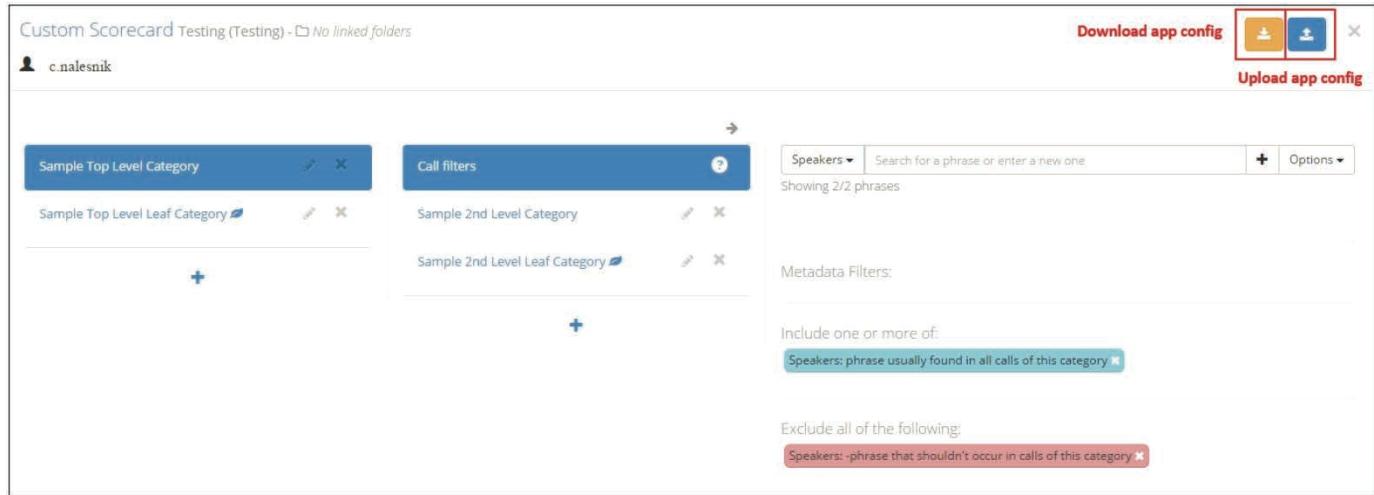
Figure 3.9. Upload/Download a Custom Application Config

Figure 3.10, "JSON Application Config Template" shows an example template to create a custom application config in a JSON.

```json
{
    "Sample Top Level Category": {
        "phrases": {
            "+": {
                "all": [
                    "phrase usually found in all calls of this category"
                ]
            },
            "-": {
                "all": [
                    "phrase that shouldn't occur in calls of this category"
                ]
            }
        },
        "subcategories": {
            "Sample 2nd Level Category": {
                "phrases": {
                    "+": {
                        "all": [
                            "call must have one of these phrases to be scored 2",
                            "call must have one of these phrases to be scored"
                        ]
                    },
                    "-": {
                        "all": [
                            "call must not include this phrase to be scored"
                        ]
                    }
                },
                "subcategories": {}
            },
            "Sample 2nd Level Leaf Category": {
                "phrases": {
                    "+": {},
                    "-": {}
                },
                "subcategories": {}
            }
        }
    }
}
```

Figure 3.10. JSON Application Config Template

A.2.10. NOTE

All categories must contain "phrases" and "subcategories" sections, even if they are empty, otherwise there will be a formatting error.

3.2. SPECIAL SEARCH CHARACTERS

Application search phrases can be used in conjunction with a number of special search characters, or "wildcards". Permitted search characters and their functions are listed in Table 3.1, "Special Characters Permitted in Application Search Phrases", along with example use cases. Note that **only one special search character may be used per search phrase**. Special characters cannot be combined in a single search phrase.

In addition to the special search characters listed in Table 3.1, "Special Characters Permitted in Application Search Phrases", other special characters are permitted in application phrases, but treated as regular plain text characters. For example, the search tag "#*" can be used to find instances of purified (redacted) numbers in a transcript. These supported characters are: #, @, !, and $.

Table 3.1 Special Characters Permitted in Application Search Phrases

Character	Function	Example	Meaning
- (minus)	Exclude	-not happy	In Call Filters: excludes the entire call if it contains this phrase. In other categories: excludes matches for these phrases from the Count Score can be combined with any other character See Section 5.3.1, "Count Scoring with Exclude Phrases" for more information
&	AND	phone & tablet	Files containing both "phone" and "tablet"
|	OR	phone | tablet	Files containing either "phone" or "tablet"
*	Wildcard for 0+ characters	help*	Will return results for help, helping, helpful, etc.
?	Single character wildcard	th???	Will return results for "there", "thank", "those"
~n	Search for phrases appearing up to n words apart	cancel account ~4	Files containing "cancel" and "account" within the same speaker turn no more than 4 words apart. E.g. "cancel your, the account", "cancel my daughter's membership account", etc.
~t	Search for phrases appearing within the same speaker turn	cancel account ~t	Files in which "cancel" and "account" appear in the same speaker turn
^	Search for phrases found at the beginning of a speaker turn	^ helpful	Files containing "helpful" at the beginning of a speaker turn
$	Search for phrases found at the end of a speaker turn	upset $	Files containing "upset" at the end of a speaker turn

3.3. BUILDING YOUR APPLICATION

The first step to building a custom application is determining the basic structure of your application. If you don't already have some ideas for call categorization to serve as the foundation for your application, pre-defined schemas of call center departments, agent performance guidelines or QA forms, common issues, standard solutions, etc. are the perfect starting point for identifying your application categories.

The second step of building your application is to populate each category with the search phrases and filters you want to use. Tape disclosures, disclaimers, reviews of the terms and conditions, and other customer service scripts can be quickly converted into sets of search phrases for semi-automated compliance monitoring. For situations where agent scripts are less regulated, the best way to populate your applications is to manually listen to a sample of calls and select phrases that match each category.

For information about how filters and phrases affect application scores, see Chapter 5, Application Scoring the Application Scoring section.

The use of call filters and metadata filters should be handled with care. Both types of filters are extremely powerful and can help you pare down your dataset to a handful of calls that are especially relevant to your interests. However, these filters can also result in a dataset that is incomplete, so be sure to compare scores of applications with filters to applications without filters when testing your application (described in Chapter 4, Revising Applications).

When building your applications, you should also keep in mind that a category or call filters section that contains only exclude phrases will slow down the application scoring process, so handle your exclude phrases with care. See Section 5.3.1, "Count Scoring with Exclude Phrases" for more information.

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4. REVISING APPLICATIONS

The following sections provide information about testing and revising your applications to resolve problems detected during testing or simply to expand their capabilities.

4.1. TESTING YOUR APPLICATIONS

Building an application is an iterative process. You may already have ideas about which phrases to search for, but these may not be all-inclusive, and may not always match the category you expect them to. For this reason, it is necessary to test your applications by reviewing the search results generated by your app, revising search phrases, and re-processing the changes. The recommended way to test your application is to look for both false negatives and false positives.

False negatives are calls that should have matched a particular category, but don't contain any of the phrases currently used in the application. Looking at these calls will help you find phrases that you need to add to your application.

False positives are calls that matched a particular application phrase, but the context of the phrase didn't actually match the intended category. Looking at these calls will help you identify application phrases that might be too general. You may want to add exclude phrases to eliminate incorrect matches, or make your current phrases more specific.

The easiest way to test for false positives and false negatives is to use the application metrics filters on the Dashboard, shown in Figure 4.1, "Dashboard Application Metrics Filters". These filters allow you to search matches for each category as well as search for calls that do not match a category at all.

You can also test application search phrases before adding them to your application by using the ad-hoc search capabilities. This allows you to experiment with different variations of special search characters, different metadata filter settings, and get a general idea of the kinds of calls that are linked to a particular search phrase.
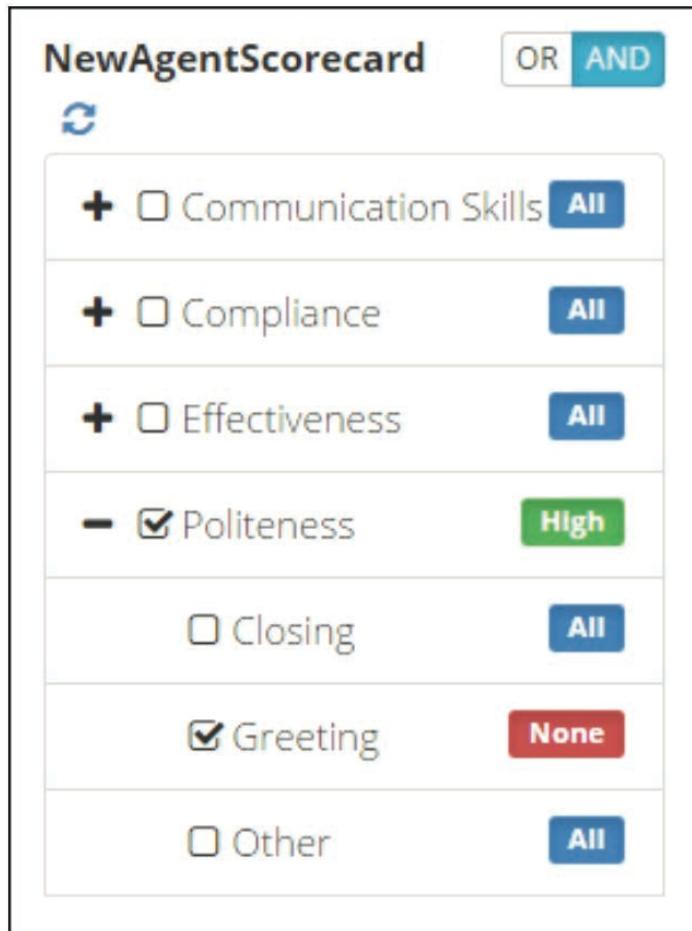
Figure 4.1. Dashboard Application Metrics Filters

A.2.10. NOTE

Some ad-hoc search capabilities are not enabled in the Application Editor, and some application searches are not enabled in ad-hoc search. See Section 3.2, "Special Search Characters" for information about which search capabilities are enabled in the Application Editor.

4.2. REPROCESSING APPLICATIONS

The reprocess button will only appear active (green) when the application has undergone a change that could result in new scores such as a config modification or if a folder containing old data has been added to the application. You can always tell if dashboard application scores reflect the most recent version of the application depending on whether or not the reprocess button is active.

Figure 4.2. Reprocessing an Application

In the reprocessing window, you'll be able to select whether you want to recalculate application results for all of the application's folders, or just a few. The folder dropdown will by default list all folders containing data that has not been reprocessed against the current application config. If you wish to reprocess data for a folder that doesn't appear in the dropdown, you can click the "View all" hyperlink listed in the "Note" section and choose any of the folders within that organization to reprocess. You can also choose to reprocess all of the data in the selected folders, or just the data that was uploaded after a certain date. Reprocessing all data can be time-consuming, so select this option with care.

Figure 4.3. Application Jobs Queue

Once you are satisfied with your selection, click the "Queue Jobs" button and you will be taken to the Application Jobs Queue window, shown in Figure 4.3, "Application Jobs Queue", where you will be able to monitor the progress of your application reprocessing. Once the reprocessing is complete for a folder, the status column for that application and folder will read "Complete" and you can navigate to the dashboard to view your new results.

Note that while an application is being reprocessed, the previous scores will be removed from the dashboard. Once reprocessing is complete, the new application scores will be visible on the Dashboard.

5. APPLICATION SCORING

Application scores can be found in several places in Atmos Voice Analytics Dashboard including the Dashboard Application Overview and Daily Chart graphs, the Summary and Agents Views (and CSV Exports), the File Details page, and the JSON transcript.

There are three kinds of scores:
- **Count Scores** are based on the number of matches that occur in each leaf-level category.
- **Coverage Scores** apply to upper-level categories only and are equal to the average number of lower-level categories that contain matches
- **Hit/Miss Scores** apply to upper-level categories only and are binary. These scores indicate whether or not at least one lower-level category contained at least one match.

5.1. VIEWING APPLICATION SCORES

As discussed in subsequent sections, Atmos Voice Analytics Dashboard enables you to view application scoring information from a number of different locations.

5.1.1. USING THE APPLICATION DASHBOARD

Application scores can be viewed and analyzed in several different ways from the application dashboard. The first is with the Dashboard graphs, as seen in Figure 5.1, "Application Dashboard Graphs". These graphs allow you to quickly visualize your application results and compare category results across a 31 day span.

The Application Overview graph displays Coverage and Hit/Miss scores for top-level categories by day, while the Application Daily Chart shows the percentage of calls with Hit/Miss Scores greater than 0%.

Clicking on a data point on the left-side graph updates the daily chart on the right to allow you a closer look at scores for lower-level categories. Likewise, clicking on a data point on the daily chart updates the search results for that category and, if that category contains its own lower-level categories, also updates the chart to show the scores for those categories.

A.2.10. NOTE
Leaf-level category names are prefixed with an asterisk (*).
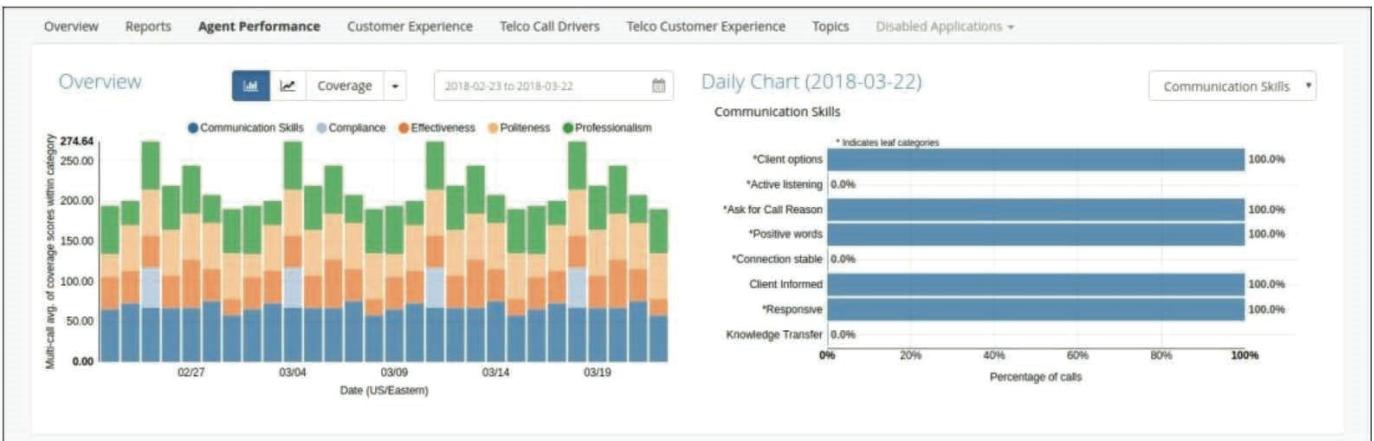
Figure 5.1. Application Dashboard Graphs

5.1.2. USING THE FILES VIEW

In addition to narrowing your search results using the Dashboard graphs, you can also conduct searches using the Dashboard application metrics filters and the other Files View search functions. Additionally, you can use Boolean OR/AND searches to find calls that meet more than one category or that meet at least one of a subset of categories. These combined search capabilities give you the power to breakdown and analyze your data any way you want for deeper insights into your customer interactions. Figure 5.2, "Application Files View" shows the results of a search done using these capabilities.
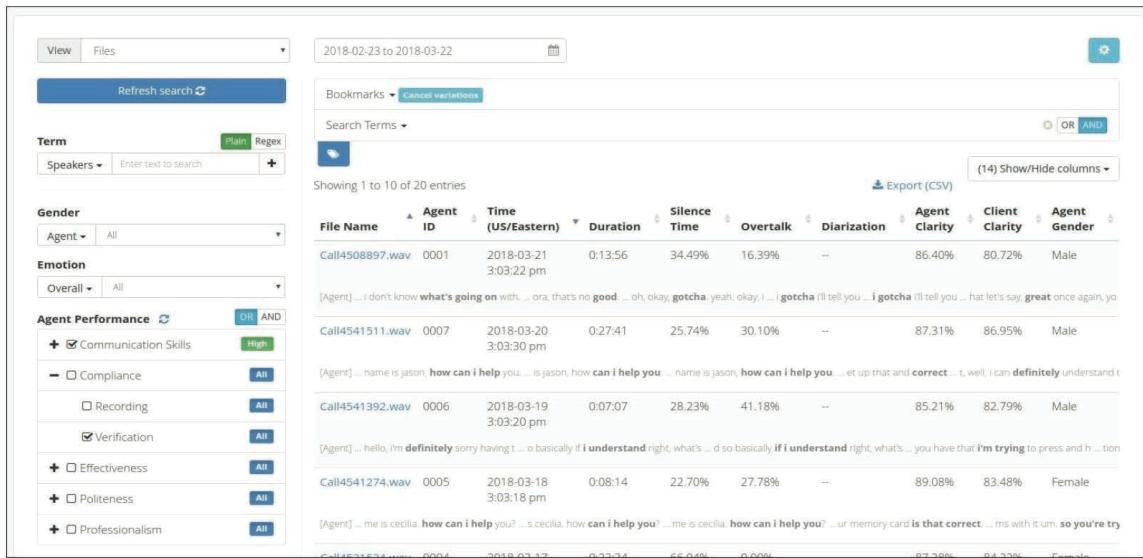
Figure 5.2. Application Files View
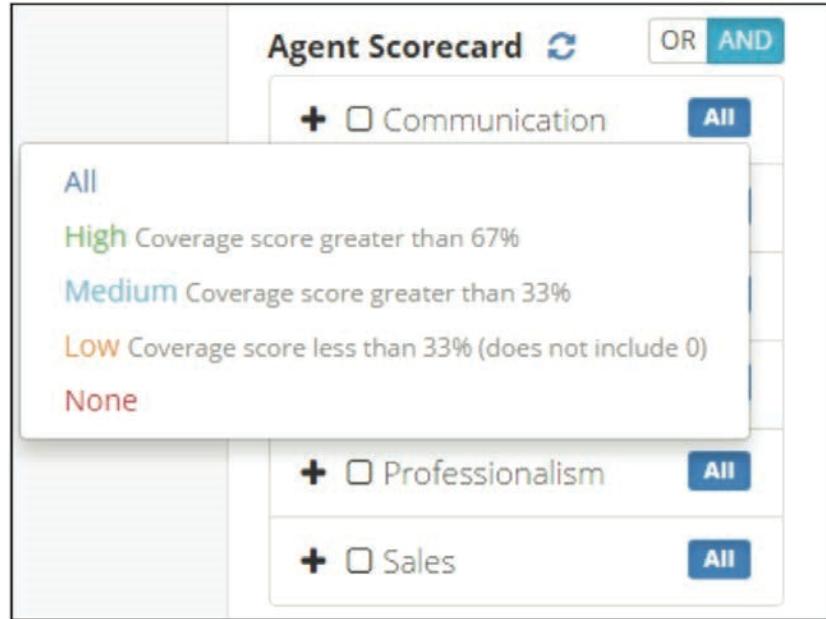
Figure 5.3. Application Category Score Filters

The Files View is similar to the Files View of the Dashboard. There is an additional search filter section for category scores (Figure 5.3, "Application Category Score Filters"). Each filter is enabled when the checkbox is selected. When multiple check boxes are selected, the search query does an OR/AND Boolean function to find the intersection of the metrics. You can select which type of Boolean search is performed by using the OR/AND toggle shown at the top of (Figure 5.3, "Application Category Score Filters"). For each category, you can choose to filter by all or some of its lower-level categories or by certain ranges of scores.

- **All:** Display all calls with coverage scores greater than 0%
- **High:** Displays all calls with coverage scores greater than 67%.
- **Medium:** Displays all calls with coverage scores greater than 33%.
- **Low:** Displays all calls with coverage scores less than 33% and does not include scores of 0.
- **None:** Display all calls f with coverage scores of 0%, or unscored.

When in the Files View, clicking a file name displays a File Details page that enables you to play the audio file, see the transcript, download an MP3, JSON, or Text version of the transcription, and select from multiple tabs.

Tab names and what they are used for are the following:
- **File Details** - view CallCabinet and custom metadata that was extracted from the input file
- **Application Scores** - view information about whether the file has been processed by available applications and (if so), the category scores for each application. Figure 5.4, "Application Scores Tab for an Unprocessed File" shows the Application Scores tab for an audio file that has not been processed by available applications.

Figure 5.5, "Application Scores Tab for a Processed File" shows the Application Scores tab for an audio file that has been processed by available applications, in this case showing the scores for the Agent Scorecard application.

- **Tags** - view, add or remove tags that are associated with the file

Figure 5.4. Application Scores Tab for an Unprocessed File

Figure 5.5. Application Scores Tab for a Processed File

5.1.3. USING THE AGENTS VIEW

The Agents View, shown in Figure 5.6, "Application Agents View", enables you to compare application results from each day on an agent-by-agent basis. The Agents View can display either Coverage or Hit/Miss scores for each top-level category as well as an Overall Score that averages the scores for all top-level categories.

Figure 5.6. Application Agents View

These scores are displayed by Agent for top-level categories so you can identify your top-performing agents as well as agents who may need additional training. The Agents View also enables you to search for a particular agent in order to evaluate their progress specifically. This can be useful for conducting reviews of new agents or for monitoring agents whose compliance scores have been historically low.

By default, the Agents View is sorted by Agent ID, but can also be sorted by any column by clicking on the header for the column by which you want to sort. This makes it easy to examine agent performance in various ways. For example, in applications based on the Agent Scorecard template, you can click twice on the header for the **Overall** column to sort the view from lowest to highest.

You can then select the **Agent ID** entry for the poorest-performing agent to explore audio or transcripts of the individual calls for that agent. In applications that are based on other templates, such as the Customer Experience template, positive and negative experience are called out as explicit categories that you can sort by.

The Agents view also provides ways to refine the data that you are displaying. The Agent view's Search box enables you to search for a particular agent in order to specifically evaluate their progress.

To see the calls for a specific agent by date range, users can either:

- Click the Agent ID to display all of the calls for that agent. You can then drill down to do an individual examination of agent performance on specific dates.

- Use the date picker at the center of the screen shown in Figure 5.6 to refine the calls that are displayed on the Agents View screen. Clicking the Agent ID then displays all of the calls for that agent during the selected time period.

As you move the cursor over any cell in the table, a pop-up displays that identifies the number of calls from which the displayed percentage is derived. This can help you determine the significance of that percentage. For example, 50% derived from 1 out of 2 calls has a different meaning than 50% derived from 50 out of 100 calls. The first can be an aberration; the second seems to indicate a pattern. Clicking on any of the values in the table displays a File Details page that is populated with the files used to compile that value.

The Blue toolbar shown in the Agents view provides multiple ways of refining the data that is displayed in the Agents view. From left to right:

- **LEVEL 1** - this drop-down enables you to select a complete **(All)** selection of top-level entries to display or identify a specific aspect of a call to use as a top-level (**LEVEL 1**) category. Supported **LEVEL 1** categories are the same as the columns that are displayed when you first explore the Agents view.
- Once you have selected a specific top-level (**LEVEL 1**) category, you can also select a **LEVEL 2** category. A leading asterisk (*) next to a category name in the select list indicates a leaf-level category, meaning that you cannot drill down any further into associated data for the item.
- Clicking a **LEVEL 2** item that is not a leaf-level category (and is therefore not preceded by an asterisk) displays a **LEVEL 3** drop-down category. A leading asterisk (*) next to a category name in the select list indicates a leaf-level category, meaning that you cannot drill down any further into associated data for the item. The application templates that are included with Atmos Voice Analytics Dashboard only go up to three levels, but user-created applications can have up to five levels leaf-level items.

- **DATA** - enables you to specify the primary way by which the data shown in the table is calculated and organized. Possible values are:
- **Hit/Miss Score** - based on whether matches were found in a category's lower-level categories. Matches are based on the categories and category hierarchies that were defined in the application that produced this agent view.
- **Avg call duration** - based on the average call duration, which is the time period between answering and terminating the call
- **Avg call silence** - based on the average amount of silence that occurred during a call
- **Coverage Score** -based on the average score of all lower-level categories within the current highest level category. Matches are based on the categories and category hierarchies that were defined in the application that produced this agent view.

Finally, the Agents View allows you to export scores for all agents as a CSV file that includes both top-level and lower-level category scores so that you can conduct more in-depth analysis of agent performance. Controls are shown in Figure 5.7, "Agents View: Export and Score Display Controls".

Agent ID	Overall	Communication Skills	Compliance	Effectiveness	Politeness	Professionalism
001	80.00	80.00	40.00	40.00	80.00	80.00
004	100.00	100.00	100.00	25.00	100.00	75.00
006	100.00	100.00	66.67	66.67	100.00	100.00
007	100.00	100. (6 hit/6 calls)	100.00	100.00	100.00	100.00
009	100.00	100.00	71.43	28.57	85.71	42.86
010	100.00	100.00	100.00	100.00	100.00	100.00
011	100.00	100.00	100.00	50.00	100.00	100.00
012	100.00	66.67	100.00	33.33	100.00	0.00
013	100.00	100.00	100.00	50.00	100.00	100.00
015	100.00	100.00	25.00	75.00	100.00	100.00
Overall (Avg.)	96.35	94.71	78.49	72.64	95.99	87.50

View: Agents | 2016-09-01 to 2016-09-30
LEVEL 1: All | DATA: Hit/Miss Score
Show 10 entries | Export Table as CSV | Search Agent ID
Showing 1 to 10 of 137 entries | Previous 1 2 3 4 5 ... 14 Next

Figure 5.7. Agents View: Export and Score Display Controls

After reviewing or refining the agents, number of agents, time period, categories, and levels for which you want to see results, you can click **Export Table as CSV** to export current data in Comma-Separated Values format. Exported data includes both top-level and lower-level category scores (if you have drilled down into a category) so that you can conduct more in-depth analysis of agent performance in other tools where CSV is a supported input format.

5.1.4. USING THE SUMMARY VIEW

The application Summary View allows you to compare application scores day by day and to identify changes in call distribution such as an increase in calls about Billing, a decrease in callback rates, or improvements in Agent Performance. As with the Agents View, the Summary View gives you the option to view Coverage or Hit/Miss Scores for top-level categories. The dropdown to switch between score types is shown in Figure 5.8, "Summary View: Export and Score Display Controls".

Date	Communication Skills	Compliance	Effectiveness	Politeness	Professionalism
2016-12-28	31.67	50.00	20.00	42.86	40.00
2016-12-29	45.83	50.00	20.00	28.57	0.00
2017-01-11	58.33	50.00	40.00	28.57	0.00
2017-01-25	77.50	50.00	0.00	57.14	5.00
Overall	53.33	50.00	20.00	39.28	11.25

Figure 5.8. Summary View: Export and Score Display Controls

5.1.5. VIEWING TRANSCRIPT SCORES

Application scores can also be viewed for individual transcripts. To view the scores for a particular application on the File Details page, simply click on "View Scores" next to the application name as shown in Figure 5.9, "Application Scores on the File Details Page". The File Details Page displays Coverage Scores for all upper-level categories and Count Scores for leaf-level categories.
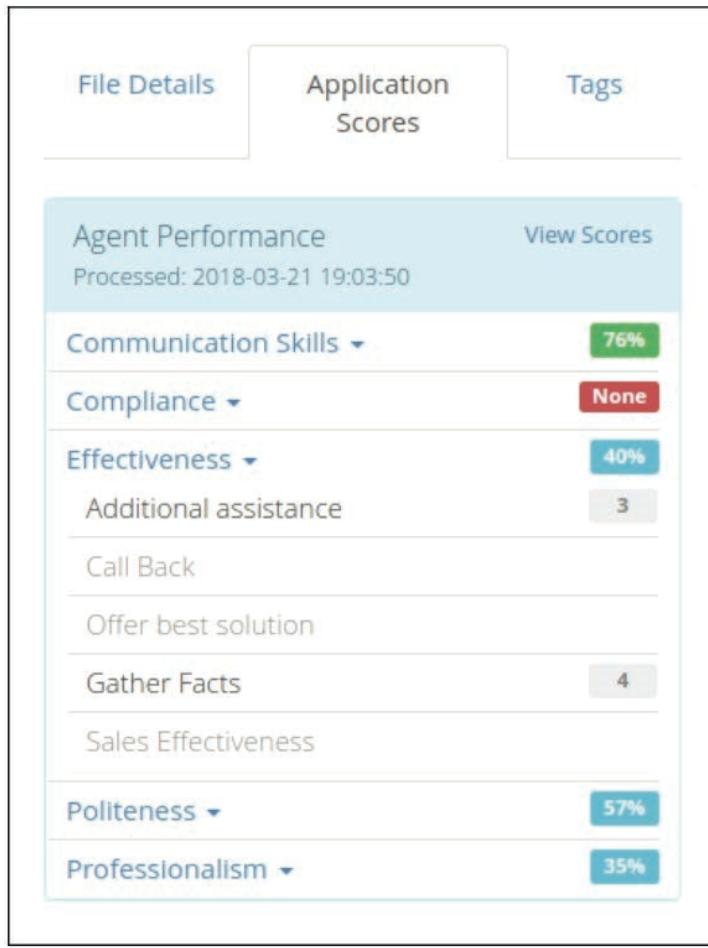
Figure 5.9. Application Scores on the File Details Page

Each top-level category can be expanded to see the breakdown of lower-level category scores. These scores are updated each time the application is reprocessed. This allows you to get a quick snapshot of call content, agent performance, call resolution, and more. Atmos Voice Analytics Dashboard applications can also be used to partially automate the process of manual agent evaluation by selecting a call to sample and viewing the distribution of scores for each category.

Application scores are also included automatically in the JSON transcript for each call under the "scorecard" object. JSON transcripts contain Coverage and Count Scores for the entire application.

JSON files that are exported from the File Details page always contain the most recent scores. JSON files that are exported in bulk from the Folders page or via POST may only contain the application scores from the first time that the file was transcribed, unless the update JSON was selected during application reprocessing.

5.2. CALL FILTERING

Call filtering is the primary way in which application scores are calculated.

All upper-level categories have a first-level Call Filters section, located at the top of the list of its lower-level categories. The phrases and metadata filters in the Call Filters section determine which calls will pass on to the next level for further filtering or for leaf-level scoring. Calls that meet all of the following requirements will pass to the next level; all other calls will be discarded and will not be analyzed further:
- The call falls within the range of the metadata filter(s) provided
- The call contains at least one include phrase
- The call contains none of the exclude phrases

Figure 5.10. Location of Call Filters Section

This call filtering process repeats for every category in the application hierarchy. Once these calls get to the leaf-level category, they are filtered one last time through any metadata filters that have been added at the leaf-level. Only calls that meet the filtering requirements for all the upper-level categories and the leaf-level metadata filters will be matched against include/exclude phrases and receive Count Scores.

A.2.10. NOTE
Unlike calls that match exclude phrases in upper-level categories, calls that contain exclude phrases at the leaf-level category level are not immediately excluded from the analysis. Leaf-level category exclude phrases are used to rule out false positives, and only cancel out individual phrases, rather than entire calls. See Section 5.3.1, "Count Scoring with Exclude Phrases" for more information.

5.3. LEAF-LEVEL CATEGORY SCORING

Leaf-level categories are categories at the lowest level of an application. Leaf-level category scores are called **Count Scores**. For leaf-level categories that contain include phrases, the count score will be equal to the total number of matched phrases in the transcript minus the number of exclude phrases that matched. Leaf-level categories with no include phrases will be given a count score of 1.

Once calculated, Count Scores are stored in the Atmos Voice Analytics Dashboard database and are converted into binary Match/No Match values each time Coverage scores need to be calculated for upper-level categories:
   • Leaf-level categories that contain no matches (and therefore have Count Scores of 0) maintain a Match/No Match value of 0 when calculating upper-level category scores.
   • Leaf-level categories that contain at least one match (and therefore have Count Scores greater than 0) are given a Match/No Match value of 1 when calculating upper-level category scores.

A.2.10. NOTE
These Match/No Match values are temporary and are only used in score calculations for upper-level categories.

5.3.1. COUNT SCORING WITH EXCLUDE PHRASES

Exclude phrases in leaf-level categories work differently than exclude phrases in Category Filters sections. Exclude phrases added to Call Filters sections act as filters for entire calls, but exclude phrases in leaf-level categories simply cancel out matches for include phrases.

When searching for application matches in leaf-level categories, Atmos Voice Analytics Dashboard searches first for all include phrases, and takes note of which speaker turns contained the match, and how many matches were contained in each of those turns. Atmos Voice Analytics Dashboard then searches those saved speaker turns for the exclude phrases and subtracts the number of exclude phrases from the number of include phrases. This result is then entered as the Count Score.

Because any exclude phrase can cancel out an include phrase, regardless of whether the words they use are related, it's important to use exclude phrases with care. We recommend that you design your exclude phrases to eliminate very specific false positive that might be generated by a more general include phrase (e.g. "-thank you for calling" vs. "+thank you").

5.4. COVERAGE AND HIT/MISS SCORES

Two different types of scores are given to an application's upper-level categories: Coverage and Hit/Miss. Each type of score is explained in more detail below, and detailed examples are provided in Appendix A, Scoring Examples.

5.4.1. COVERAGE SCORES

The Coverage Score is based on the average score of all lower-level categories contained within the upper-level category. For example, if an upper-level category contains four leaf-level categories and three of them contain at least one match, but the fourth contains no matches, the Coverage Score is equal to the average of these scores, i.e. (1+1+1+0) / 4, or 75%. This Coverage score is then stored in the Atmos Voice Analytics Dashboard database and is used to calculate Hit/Miss scores.

Coverage Scores are useful for analyses where every lower-level category matters and ought to be matched, such as agent compliance evaluation. For example, if you have a category for Gathering Customer Data that contains lower-level categories for Account Number, Phone Number, and Birthdate and your agents need to collect all of this information, you'd want to know how many of these three categories were met. Examples for how this scoring works for individual calls versus daily or monthly collections of calls are available in Appendix A, Scoring Examples .

5.4.2. HIT/MISS SCORES

The Hit/Miss score is based on whether any matches were found in a category's lower-level categories and is calculated using the Coverage Score. If at least one phrase matches for one lower-level category, the Coverage Score will be greater than 0%, and the Hit/Miss score is therefore 100%. If none of the lower-level categories match, the Coverage Score will be 0%, and the Hit/Miss score will therefore also be 0%. This is very similar to the binary Match/No Match values that are assigned to leaf-level categories during the calculation of Coverage Scores. Hit/Miss scores are not stored in the Atmos Voice Analytics Dashboard database.

Hit/Miss scores are useful for analyses where a call only needs to match one leaf-level category, such as call driver analysis. If you have a category for Billing calls that contains one leaf-level category for Payments and one for Questions, you don't need to know *how many* leaf-level categories a call matched, just that it did match, because customers don't always call with multiple issues.

5.5. SUMMARY OF APPLICATION SCORES

Table 5.1, "Application Score Types" summarizes score types and their locations in Atmos Voice Analytics Dashboard.

Table 5.1. Application Score Types

Score Type	Description	Location(s)
Count Score	For leaf-level categories of single calls only. Equal to the number of phrase matches that occurred in a leaf-level category. Converted into a temporary Match/No Match value before being used to calculate Coverage Scores.	File Details page JSON transcript file
Match/No Match Value	This value is not a formal application score, but is simply a binary version of the Count Score. It is therefore not stored in the Atmos Voice Analytics Dashboard database or displayed anywhere.	N/A
Coverage Score	For upper-level categories only. Equal to the average of leaf-level Match/No Match values or of lower-level coverage scores.	Application Overview Graph Application Daily Charts (percent of calls with Hit/Miss Scores greater than 0) Summary View (top-level categories only) & CSV Export Agents View & CSV Export File Details page JSON transcript file
Hit/Miss score	For upper-level categories only. If at least one lower-level category contains a match (in other words, if the Coverage Score is greater than 0), the upper-level category receives a score of 100%. If none of the lower-level categories contain a match, the upper-level category receives a score of 0%.	Application Overview Graph Application Daily Charts (percent of calls with Hit/Miss Scores greater than 0) Summary View (top-level categories only) & CSV Export Agents View & CSV Export File Details page JSON transcript file

A. SCORING EXAMPLES

This section walks through the structure of an application that is used to do single-call and multi-call scoring.

A.1. SINGLE-CALL SCORING

Let's say we have an Agent Scorecard application with one category for Politeness and three 2nd-level categories for Opening, Closing, and Other. The Opening 2nd-level category has two additional 3rd-level categories for Hello and Other Greeting, but the Closing and Other categories do not have any 3rd-level categories.

Table A.1, "Application Category Structure" illustrates the structure of the application and the phrases contained within each leaf-level category. While upper-level categories may also contain phrases, these phrases are treated as filters and are therefore not involved in call scoring.

Table A.1. Application Category Structure

Top-level Category	2nd-level Category	3rd-level Category (leaf-level)	Agent Phrase(s)
Politeness	Opening		Hello
		Hello	Hi there
		Other Greeting	How are you doing
			How can I help you
	Closing		Have a good day
			Bye
	Other		Please
			Thank you

Now let's say we have a call transcript named Call 1 that contains the following number of matches for each phrase:

Table A.2. Call 1 Phrase Matches

2nd-level Category	3rd-level Category (leaf-level)	Phrases	Call 1 Phrase Matches
Opening	Hello	Hello	0
		Hi there	0
	Other Greeting	How are you doing	1
		How can I help you	1
Closing		Have a good day	0
		Bye	1
Other		Please	0
		Thank you	0

A.1.1. LEAF-LEVEL SCORING

Since our Hello and Other Greeting 3rd-level categories and our Closing and Other 2nd-level categories don't have any lower-level categories of their own, they will be scored as leaf-level categories.

First, let's calculate the Count Scores for the 3rd-level categories. Remember that this score is equal to the total number of matches within the leaf-level category.

Table A.3. Call 1: 3rd-level Category Count Scores

2nd-level Category	3rd-level Category (leaf-level)	Matches per Phrase	Count Score
Opening	Hello	0	0
		0	
	Other Greeting	1	2
		1	

Next, let's calculate the leaf-level scores for our 2nd-level categories, Closing and Other. As before, the Count Scores are equal to the total number of matches within the leaf-level category.

Table A.4. Call 1: 2nd-level Category Count Scores

2nd-level Category (leaf-level)	Matches per Phrase	Count Score
Closing	0	1
	1	
Other	0	0

A.1.2. UPPER-LEVEL CATEGORY SCORING

Using the Count Scores for the two 3rd-level categories, we can now calculate the Coverage and Hit/Miss scores for the 2nd-level Opening category, as explained in the net few sections.

A.1.2.1. THE OPENING CATEGORY

Using the Count Scores for the two 3rd-level categories, we can now calculate the Coverage and Hit/Miss scores for the 2nd-level Opening category, as explained in the net few sections.

Coverage Score: As mentioned previously, the Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Hello leaf-level category contains no matches, it gets a temporary Match/No Match value of 0, but the Other Greeting leaf-level category has 2 matches, so it gets a temporary Match/No Match value of 1. Call 1's Opening Coverage Score is an average of those two values, and is therefore equal to (0+1) / 2, or 50%.

Hit/Miss Score: As mentioned previously, if the Coverage Score is greater than 0% (meaning that at least one phrase matches for one leaf-level category), the category receives a Hit/Miss score of 100%. Since our Opening Coverage Score is 50% and is therefore greater than 0%, Call 1's Opening Hit/Miss score is 100%.

A.1.2.2. THE CLOSING AND OTHER CATEGORIES

Next we need to calculate the Coverage and Hit/Miss scores for the 2nd-level Closing and Other categories.
Since these categories are leaf-level categories, their Coverage Scores will be the same as their Hit/Miss scores. The Count Scores will again need to be converted into temporary Match/No Match values before being converted into a Coverage Score. A Match/No Match value of 1 is equal to a score of 100%, while a Match/No Match value of 0 is equal to 0%.

Since the Closing Count Score was 1, it receives a temporary Match/No Match value of 1, and therefore receives a score of 100% for both the Coverage and Hit/Miss score. Since the Other Count Score was 0, it receives a temporary Match/No Match value of 0 and receives a score of 0% for both scores. Table A.5, "Category Scores Summary" shows a summary of Call 1's Coverage and Hit/Miss scores for all of the lower-level Politeness categories.

Table A.5. Category Scores Summary

Top-level Category	2nd-level Category	3rd-level Category Coverage Score	3rd-level Category Hit/Miss Score
Politeness	Opening	50%	100%
	Closing	100%	100%
	Other	0%	0%

A.1.3. TOP-LEVEL CATEGORY SCORING

Now that we have all of the Coverage and Hit/Miss scores for the lower-level Politeness categories, we can calculate Call 1's Coverage and Hit/Miss scores for the entire Politeness branch.

Coverage Score: The Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Opening category has a score of 50, the Closing category has a score of 100 and the Other category has a score of 0, Call 1's Politeness Coverage Score is (50+100+0) / 3, or 50%.

Hit/Miss score: As mentioned previously, if the Coverage Score is greater than 0%, this means that at least one phrase matches for one leaf-level category, and the category receives a Hit/Miss score of 100%. Since our Politeness Coverage Score is 50% and is therefore greater than 0, Call 1's Politeness Hit/Miss score is 100%.

Table A.6, "Top-level Category Scores" summarizes all of Call 1's scores for the entire Politeness branch.

Table A.6. Top-level Category Scores

Top-level Category	2nd-level Category	3rd-level Category	Count Score	Coverage Score	Hit/Miss Score
Politeness				50%	100%
	Opening	Hello	1	50%	100%
		Other greeting	0		
	Closing		1	100%	100%
	Other		0	0%	0%

A.2. MULTI-CALL SCORING

Using the same example Agent Scorecard application as in Section A.1.3, "Top-level Category Scoring", we'll calculate the Category Scores for multiple calls. As before, the Hello and Other Greeting 3rd-level categories and the Closing and Other 2nd-level categories will be treated as leaf-level categories.

Table A.7. Multi Category Scores

Top-level Category	2nd-level Category	3rd-level Category (leaf-level)	Phrase(s)
Politeness	Opening	Hello	Hello
			Hi There
		Other Greeting	How Are You Doing?
			How Can I Help You?

Table A.8. Score for Other Categories

Top-level Category	2nd-level Category (leaf-level)	3rd-level Category	Phrase(s)
Politeness	Closing	N/A	Have a good day
			Bye
	Other	N/A	Please
			Thank you

Let's say our call center received three calls last Monday: Call 1 (which is the same as the call we scored in the previous section) Call 2, and Call 3. In multi-call scoring, the scores for individual calls are calculated first, then averaged together.

A.2.1. CALL 1

Since we already calculated the scores for Call 1, Table A.9, "Initial Politeness Score for Call 1" shows copying these into the Multi-Call Politeness Category scores.

Table A.9. Initial Politeness Score for Call 1

Category	Category Coverage Score	Category Hit/Miss Score
Politeness	50%	100%

A.2.2. CALL 2

Using the same process that we did for Call 1 in the Single-Call Scoring section, we'll calculate the scores for Calls 2 and 3. Call 2 contained the following number of matches per phrase:

Table A.10. Call 2 Phrase Matches

2nd-level Category	3rd-level Category (leaf-level)	Agent Phrases	Call 2 Phrase Matches
Opening	Hello	Hello	1
		Hi there	0
	Other Greeting	How are you doing	0
		How can I help you	0
Closing		Have good day	1
		Bye	0
Other		Please	0
		Thank you	0

A.2.3. LEAF-LEVEL CATEGORY SCORING

As before, Call 2's Count Scores for all leaf-level categories are equal to the total number of matches for each category.

Table A.11. Call 2 Leaf-Level Count Scores

2nd-level Category	3rd-level Category (leaf-level)	Call 2 Phrase Matches	Count Score
Opening	Hello	1	1
		0	
	Other Greeting	0	0
		0	
2nd-level Category (leaf-level)		**Call 2 Phrase Matches**	**Count Score**
Closing		1	1
		0	0
Other		0	

A.2.4. UPPER-LEVEL CATEGORY SCORING

A.2.4.1. THE OPENING CATEGORY

Using the Count Scores for the two 3rd-level Opening categories, we can now calculate temporary Match/No Match values and use them to calculate the Coverage and Hit/Miss scores for Call 2's Opening category.

Coverage Score: The Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Hello category has a Count Score of 1, its temporary Match/No Match value is 1. Since the Other Greeting category has a Count Score of 0, it receives a temporary Match/No Match value of 0. Call 2's Opening Coverage Score is therefore (1+0) / 2, or 50%.

Hit/Miss score: If the Coverage Score is greater than 0%, this means that at least one phrase matches for one category, and the category receives a Hit/Miss score of 100%. Since our Opening Coverage Score is 50% and is therefore greater than 0, Call 2's Opening Hit/Miss score is 100%. Table A.12, "Call 2 Closing and Other Category Scores" shows a summary of Call 2's Coverage and Hit/Miss scores for the entire Politeness branch.

Table A.12. Call 2 Closing and Other Category Scores

Top-level Category	2nd-level Category	2nd-level Category Score	2nd-level Hit/Miss Score
Politeness			
	Opening	50%	100%
	Closing	100%	100%
	Other	0%	0%

A.2.5. TOP-LEVEL CATEGORY SCORING

Now that we have Coverage and Hit/Miss scores for all of our lower-level categories, we can calculate Call 2's scores for the top-level Politeness category.

Coverage Score: The Coverage Score is based on the average of the Coverage Scores for all lower-level categories within the upper-level category. Since the Opening category has a Coverage Score of 50%, the Closing category has a score of 100%, and the Other category has a score of 0%, Call 2's Politeness Coverage Score is (50+100+0) / 3, or 50%.

Hit/Miss score: If the Coverage Score is greater than 0%, this means that at least one phrase matches for one category, and the category receives a Hit/Miss score of 100%. Since our Coverage Score is 50% and is therefore greater than 0, Call 2's Politeness Hit/Miss score is 100%. Table A.13, "Call 2 Top-Level Scores" shows Call 2's Coverage and Hit/Miss scores for the top-level Politeness category.

Table A.13. Call 2 Top-Level Scores

Category	Category Hit/Miss Score	Category Coverage Score
Politeness	100%	50%

A.2.6. CALL 3

Table A.14, "Call 3 Phrase Matches" shows Call 3's phrase matches.

Table A.14. Call 3 Phrase Matches

2nd-level Category	3rd-level Category (leaf-level)	Phrases	Call 3 Phrase Matches
Opening	Hello	Hello	0
		Hi there	0
	Other Greeting	How are you doing	0
		How can I help you	1
Closing		Have good day	0
		Bye	0
Other		Please	0
		Thank you	0

A.2.7. LEAF-LEVEL CATEGORY SCORING

As before, the leaf-level category Count Scores are equal to the total number of matches for each phrase.

Table A.15. Call 3 Leaf-level Count Scores

2nd-level Category	3rd-level Category (leaf-level)	Call 3 Phrase Matches	Count Score
Opening	Hello	0	0
		0	
	Other Greeting	0	1
		1	
2nd-level Category (leaf-level)		**Call 2 Phrase Matches**	**Count Score**
Closing		0	0
		0	0
Other		0	

A.2.8. UPPER-LEVEL CATEGORY SCORING

The next few sections explain how to calculate scores for upper-level categories.

A.2.8.1. THE OPENING CATEGORY

Using the Count Scores for the two 3rd-level Opening categories, we can now calculate the Coverage and Hit/Miss scores for Call 3's 2nd-level Opening category.

Coverage Score: The Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Hello category has a Count Score of 0, its temporary Match/No Match value is 0. Since the Other Greeting category has a Count Score of 1, it receives a temporary Match/No Match value of 1. Call 3's Opening Coverage Score is therefore (0+1) / 2, or 50%.

Hit/Miss score: If the Coverage Score is greater than 0%, the category receives a Hit/Miss score of 100%. Since our Opening Coverage Score is 50% and is therefore greater than 0, Call 3's Opening Hit/Miss score is 100%.
Table A.16, "Call 3 Category Scores" summarizes Call 3's Opening Coverage and Hit/Miss scores.

Table A.16. Call 3 Category Scores

Category	2nd-level Category	2nd-level Category Score	2nd-level Hit/Miss Score
Politeness	Opening	50%	100%

A.2.8.2. THE CLOSING AND OTHER CATEGORIES

Next we need to calculate the Coverage and Hit/Miss scores for the Closing and Other categories. Since these categories are leaf-level categories, their Coverage Scores will be the same as their Hit/Miss scores. The Count Scores will again need to be converted into temporary Match/No Match values before being converted into a Coverage Score.

Since the Closing Count Score was 0, it receives a temporary Match/No Match value of 0, and therefore receives a score of 0% for both the Coverage and Hit/Miss score. Since the Other Count Score was also 0, it too receives a temporary Match/No Match value of 0 and receives a score of 0% for both scores. Table A.17, "Call 3 Closing and Other Category Scores" shows a summary of Call 3's Coverage and Hit/Miss scores for the entire Politeness branch.

Table A.17. Call 3 Closing and Other Category Scores

Category	2nd-level Category	2nd-level Category Score	2nd-level Hit/Miss Score
Politeness	Opening	50%	100%
	Closing	0%	0%
	Other	0%	0%

A.2.9. TOP-LEVEL CATEGORY SCORING

Now that we have Coverage and Hit/Miss scores for all of our lower-level categories, we can calculate Call 3's scores for the top-level Politeness category.

Coverage Score: The Coverage Score is based on the average of the Coverage Scores for all lower-level categories within the upper-level category. Since the Opening category has a Coverage Score of 50%, the Closing category has a score of 0%, and the Other category has a score of 0%, Call 3's Politeness Coverage Score is (50+0+0) / 3, or 16.67%.

Hit/Miss score: If the Coverage Score is greater than 0%, the category receives a Hit/Miss score of 100%.
Since our Coverage Score is 16.67% and is therefore greater than 0, Call 3's Politeness Hit/Miss score is 100%.
Table A.18, "Call 3 Top-Level Category Scores" shows Call 3's Coverage and Hit/Miss scores for the top-level Politeness category.

Table A.18. Call 3 Top-Level Category Scores

Category	Category Coverage Score	Category Hit/Miss Score
Politeness	16.67%	100%

A.2.10. MULTI-CALL CATEGORY SCORING

Now that we know the Coverage and Hit/Miss scores for each of our calls, we can calculate the scores for all three calls. Let's review the scores that we found. Table A.19, "Overall Politeness Category Scores" summarizes the individual and multi-call Coverage and Hit/Miss scores for the Politeness Category.

Table A.19 Overall Politeness Category Score.

File Names	Politeness Coverage Score	Politeness Hit/Miss Score
Call 1	50%	100%
Call 2	50%	100%
Call 3	16.67%	100%
All Calls	**38.89%**	**100%**

Coverage Score: The Coverage Score for multiple calls is equal to the average of the individual calls' Coverage Scores. Since our calls received scores of 50%, 50%, and 16.67% respectively, the Coverage Score for all calls received last Monday is (50+50+16.67) / 3, or 38.89%.

Hit/Miss score: The Hit/Miss Score is equal to the average of the individual calls' Hit/Miss Scores. Since all three of our calls had Hit/Miss Scores of 100%, the Hit/Miss score for all calls received last Monday is equal to (100+100+100) / 3, or 100%.