



**PureConnect®**

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See **Change Log** for summary of changes.



# PureConnect AI-Powered WFM

## Technical Reference

### Abstract

This document describes the AI-powered workforce management features in PureConnect and provides overview, requirements, and configuration instructions for administrators.

For the latest version of this document, see the PureConnect Documentation Library at: <http://help.genesys.com/pureconnect>.

For copyright and trademark information, see [https://help.genesys.com/pureconnect/desktop/copyright\\_and\\_trademark\\_information.htm](https://help.genesys.com/pureconnect/desktop/copyright_and_trademark_information.htm).

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# Introduction to PureConnect AI-Powered Workforce Management

The artificial intelligence (AI)-powered workforce management features for PureConnect are hosted in Genesys Cloud. The features are available to PureConnect users in Interaction Optimizer.

Interaction Optimizer includes two AI-powered workforce management services for PureConnect:

- The Genesys Cloud AI-powered forecasting service determines contact center load based on historical data and determines the load for the selected week. For more information about AI-powered forecasting, see [Introduction to AI-Powered Workforce Management Forecasting](#).
- The Genesys Cloud AI-powered scheduling service automatically and quickly predicts the best possible staffing schedules. For more information about AI-powered forecasting, see [Introduction to AI-Powered Workforce Management Scheduling](#).

Contact your account executive to start the process to enable the AI-powered features.

## Genesys Cloud

Genesys Cloud is a cloud collaboration, communications, and customer engagement product that takes full advantage of the distributed nature of the cloud. PureConnect integrates with Genesys Cloud to provide access to the AI-powered workforce management features.

The integration between PureConnect and Genesys Cloud is seamless for users, but requires configuration by an administrator. For more information, see [Configuration Overview](#).

# Configuration

## Configuration Overview

To configure PureConnect AI-powered WFM services, an administrator needs to:

- Confirm that the requirements are met. See [Requirements](#).
- Load the WFM AI-Powered feature license. See [License Requirement](#).
- Gather the required organization information for your Genesys Cloud organization. See [Genesys Cloud Organization](#).
- Configure the integration between PureConnect and Genesys Cloud in Interaction Administrator. See [Cloud Configuration in Interaction Administrator](#).
- Restart the Interaction Optimizer service using IC System Manager.

Once the PureConnect integration with Genesys Cloud configuration is complete, IC Business Manager is ready for AI-powered forecasting and scheduling.

## Requirements

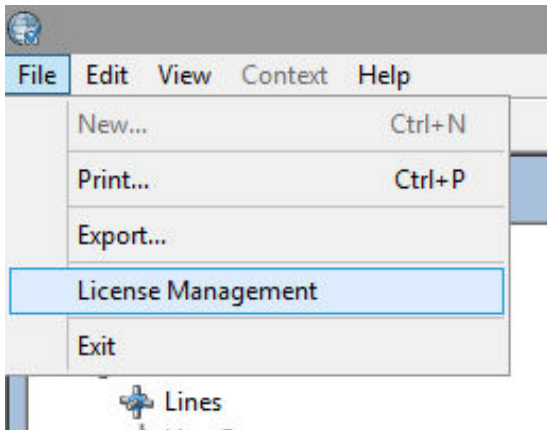
- PureConnect 2019 R2 for AI-powered forecasting.
- The WFM AI-Powered feature license. See [License Requirement](#).
- A Genesys Cloud Tier 3 organization, which is created for you during the process of enabling the AI-powered features. Contact your account executive for more information. If you have an existing Genesys Cloud organization, you may need to upgrade it to Tier 3.

# License Requirement

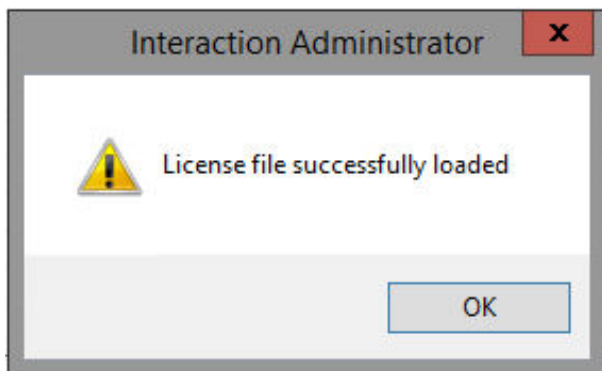
The PureConnect AI-powered WFM service requires you to load the license file provided to you by your account executive. The file contains the WFM\_AI\_POWERED feature license..

To load the license file:

1. In Interaction Administrator, open **File > License Management**.



2. Click **Load License**.
3. Browse for the license file, and then click **Open** to load the license.



For general information about licensing, see the [PureConnect Licensing Technical Reference](#).

# Genesys Cloud Organizations

The AI-powered workforce management features requires a Genesys Cloud organization. When enabling the feature for you, Genesys creates your Genesys Cloud organization. Your CIC server can integrate with only one organization.

You need to know the following information about your organization before you continue with the configuration.

- Administrator email address
- Administrator password
- Organization long name – the name used to create the Genesys Cloud organization
- Organization short name – the name generated from the organization long name in compliance with DNS restrictions (a-z, 0-9, A-Z)

**Note:**

If you are unsure of the organization short name, log in to Genesys Cloud at <https://login.mypurecloud.com> and navigate to **Admin>Account Settings>Organization Settings**. Both the organization long name and short name are listed here.

- Region

## Cloud Configuration in Interaction Administrator

The AI-powered WFM features use services that are hosted in the Genesys Cloud platform, so using these features requires the configuration of a bridge between PureConnect and Genesys Cloud.

You can configure the bridge in Interaction Administrator. For more information, see the [Genesys Cloud for PureConnect Administrator's Guide](#) or the [Interaction Administrator help](#).

**Important:**

Once you configure the bridge and successfully test the connection, restart the Interaction Optimizer service using IC System Manager.

# AI-Powered Forecasting

## Introduction to AI-Powered Workforce Management Forecasting

AI-powered workforce management forecasting in PureConnect is available in Interaction Optimizer. Interaction Optimizer includes a forecasting option to use the cloud-based AI-powered forecasting service. Interaction Optimizer sends historical data to the service and, based on that data, the service determines outliers and missing data. The service chooses the best forecasting method to use and which parameters to use within the selected method. The service supports weekly forecasting.

For information about using the forecasting method, see the [Interaction Optimizer help](#).

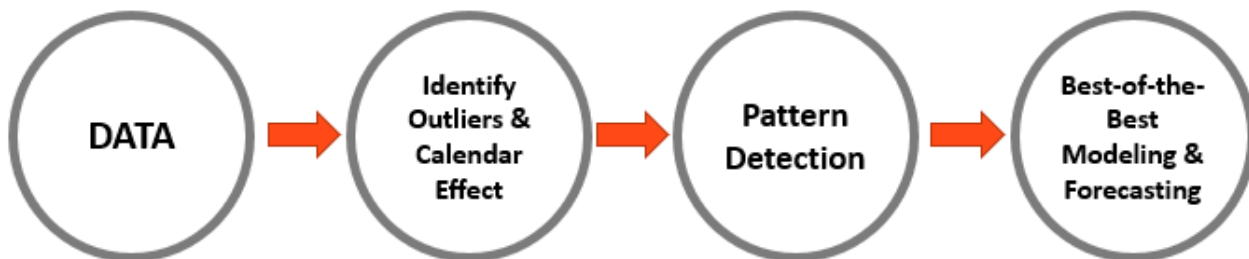
When Genesys creates your Genesys Cloud organization, it must have the Genesys Cloud `wfmAiPoweredForecasting` product key assigned, with the following permissions:

- `wfm:adhocForecast:add`
- `wfm:adhocForecast:view`

The AI-powered forecasting service provides users with an easy-button approach to an otherwise complex operation of predicting the workload and service time of agents for contact center planning.

The automated forecasting service does the following:

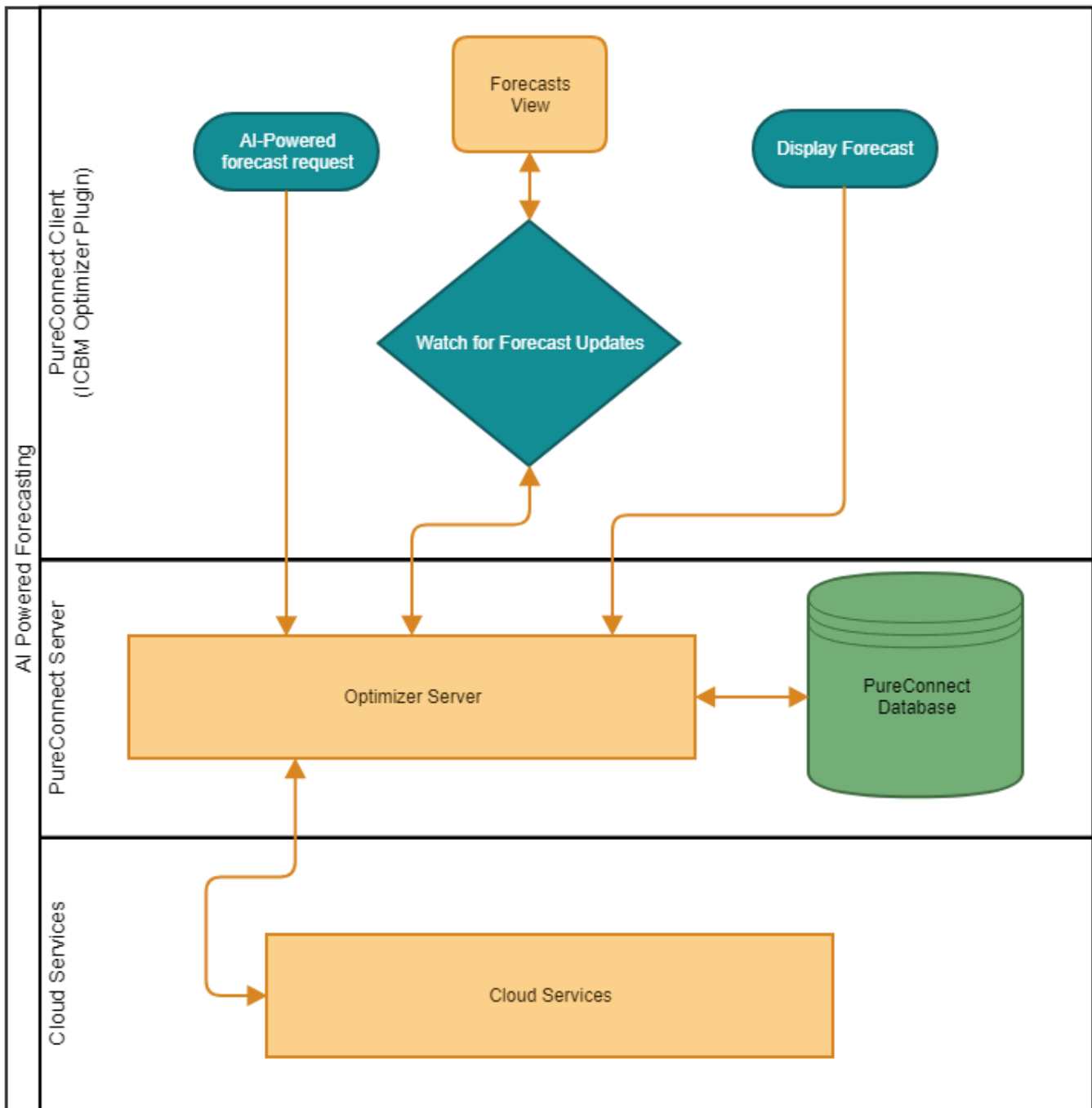
- Performs data transformation and clean-up
- Detects and deals with outliers and holiday effects
- Detects seasonality and trend patterns
- Optimizes using multi-fold cross-validation to select the best of many algorithms



Because it is cloud-based, updates to the forecasting service are automatically applied. The service is continuously evolving and growing with a continuous infusion of the most cutting edge algorithms in the library and inspired by the latest research in the field. Genesys leverages best practices in data science and in the industry.

## Data Flow

This diagram describes how forecasting data flows between the Interaction Optimizer client in IC Business Manager, the Optimizer server, the PureConnect database, and the Genesys Cloud AI-powered forecasting service.



PureConnect provides communication services to enable the integration between PureConnect and Genesys Cloud.



## Handling of Data Issues, Outliers, and Calendar Events

When creating a forecast, the AI-powered forecasting service takes into account the following:

- Missing data – such as non-responses, unavailability of information, or issues due to system failures or human errors.
- Outliers – data that falls outside of the expected data range (outliers).
- Holidays and special calendar events, seasonal variations, trends, and variations in operating hours.
- Leading and/or trailing zeroes in data.
- Other issues, such as Daylight Saving Time, time zones, leap years, and more.

The service considers all of these data issues and normalizes the data accordingly when creating forecasts.

## Database Parameters for AI-powered Forecasting

To change the values assigned to these database parameters, a database administrator can use the database scripts located on the [CIC Utilities and Downloads](#) page of the product information site.

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### AIForecastingHistoricalWeekCount

This parameter indicates the number of weeks of historical data to use when creating a forecast. To drive the best AI-powered forecast, the default is 156 weeks. To use a smaller data set, decrease this value. The minimum value is 1 and the maximum is 156.

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### AIForecastingEarliestPastDataDate

Use this parameter to set a minimum date for data extraction. This blocks the capturing of data from time periods prior to the minimum date.

For example, suppose a company changed their interaction routing on January 11th, 2019. The change in routing could cause changes to forecasting. They can set this parameter to that date so that only data for the new interaction routing method is used.

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### AIForecastingHistoryBatchSize

Use this parameter only with guidance from Customer Care. Its purpose is to fine-tune the way historical data is extracted from the database. The minimum value is 1 and the maximum value is 8.

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### AIForecastingInjectionBatchSize

Use this parameter only with guidance from Customer Care. Its purpose is to fine-tune how forecasts are written to the database. The minimum value is 250 and the maximum value is 2000.

## Troubleshooting

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### Error Strings

In the event that something goes wrong when generating AI-powered forecasts, these are the error strings you might see. These error strings are displayed when you attempt to open a failed forecast.

Error String	Description	What To Do
A failure occurred generating the AI-powered forecast. If the issue persists, contact your administrator to consult the IC Business Manager and server logs for additional details.	An unknown failure occurred during the forecasting process	Review related logs in Interaction Optimizer.
Forecast generation is still in progress and must complete before the selected forecast can be opened.	AI-powered forecasts cannot be opened until they are done processing. Wait for the completed status.	Wait for the forecast to complete processing.
An error occurred while trying to authenticate to the AI-powered forecasting cloud service. Contact your administrator to verify the Genesys Cloud configuration has been properly set up on the system.	An authentication error occurred when connecting to Genesys Cloud.	In Interaction Administrator, verify that the Genesys Cloud configuration has been completed and ensure that clicking Test Genesys Cloud Connection results in a successful connect.
A network issue occurred while communicating with the AI-powered forecasting cloud service. Try again. If the error persists, contact your administrator to review Interaction Optimizer server logs.	A network issue occurred and PureConnect could not communicate with the cloud.	<ul style="list-style-type: none"> <li>• Ensure that the network is functional and the PureConnect server(s) have access to the internet.</li> <li>• In Interaction Administrator, verify that the Genesys Cloud configuration has been completed and ensure that clicking Test Genesys Cloud Connection results in a successful connect.</li> </ul>
The AI-powered forecasting cloud service experienced an unexpected error while processing the forecast data. Contact your administrator to review logs to determine the issue with the service.	An unknown error occurred while processing the forecast request in the cloud services.	<ul style="list-style-type: none"> <li>• Review the PureConnect Interaction Optimizer logs for details.</li> <li>• Provide Customer Care with requested logs and database information so they can review the errors in the forecasting service.</li> </ul>
A database operation failed while extracting data from PureConnect. Contact your administrator to review Interaction Optimizer server logs.	An issue occurred on the PureConnect side while trying to extract history from the database.	<ul style="list-style-type: none"> <li>• Ensure that the database is operating correctly.</li> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> <li>• Provide Customer Care with requested logs and database information so they can review the errors in the forecasting service.</li> </ul>
An error occurred while generating the AI-powered forecast request. Contact your administrator to review Interaction Optimizer server logs.	An issue occurred on the PureConnect side while attempting to generate the request that would have been sent to the cloud service.	<ul style="list-style-type: none"> <li>• Ensure that the database is operating correctly.</li> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> <li>• Provide Customer Care with requested logs so they can review the errors in the forecasting service.</li> </ul>
An error occurred while parsing the AI-powered forecast. Contact your administrator to review Interaction Optimizer server logs.	A response was successfully received from the cloud service, however PureConnect is having an issue processing the received information.	<ul style="list-style-type: none"> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> <li>• Provide Customer Care with requested logs so they can review the errors in the forecasting service.</li> </ul>
A database operation failed while storing the AI-powered forecast. Contact your administrator to review Interaction Optimizer server logs.	The forecast was generated but could not be created due to a PureConnect database issue.	<ul style="list-style-type: none"> <li>• Ensure that the database is operating correctly.</li> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> </ul>

# AI-Powered Scheduling

## Introduction to AI-Powered Workforce Management Scheduling

AI-powered workforce management scheduling in PureConnect is available in Interaction Optimizer. Interaction Optimizer sends scheduling data to a Genesys Cloud service and, based on the provided data, the service does the following:

- Automatically creates advanced AI modeling by deriving customer behavior and its relationship with service performance and changes in queue workload.
- Leverages the advanced AI modeling to ensure accurate staffing requirements and performance predictions.
- Leverages mathematical optimization to ensure optimization of generated schedules.

For information about using the forecasting method, see the [Interaction Optimizer help](#).

When Genesys creates your Genesys Cloud organization, it should have the Genesys Cloud `wfmAiPoweredScheduling` product key assigned, with the following permissions:

- `wfm:adhocModel:add`
- `wfm:adhocModel:view`
- `wfm:schedulingrequest:add`
- `wfm:schedulingrequest:view`

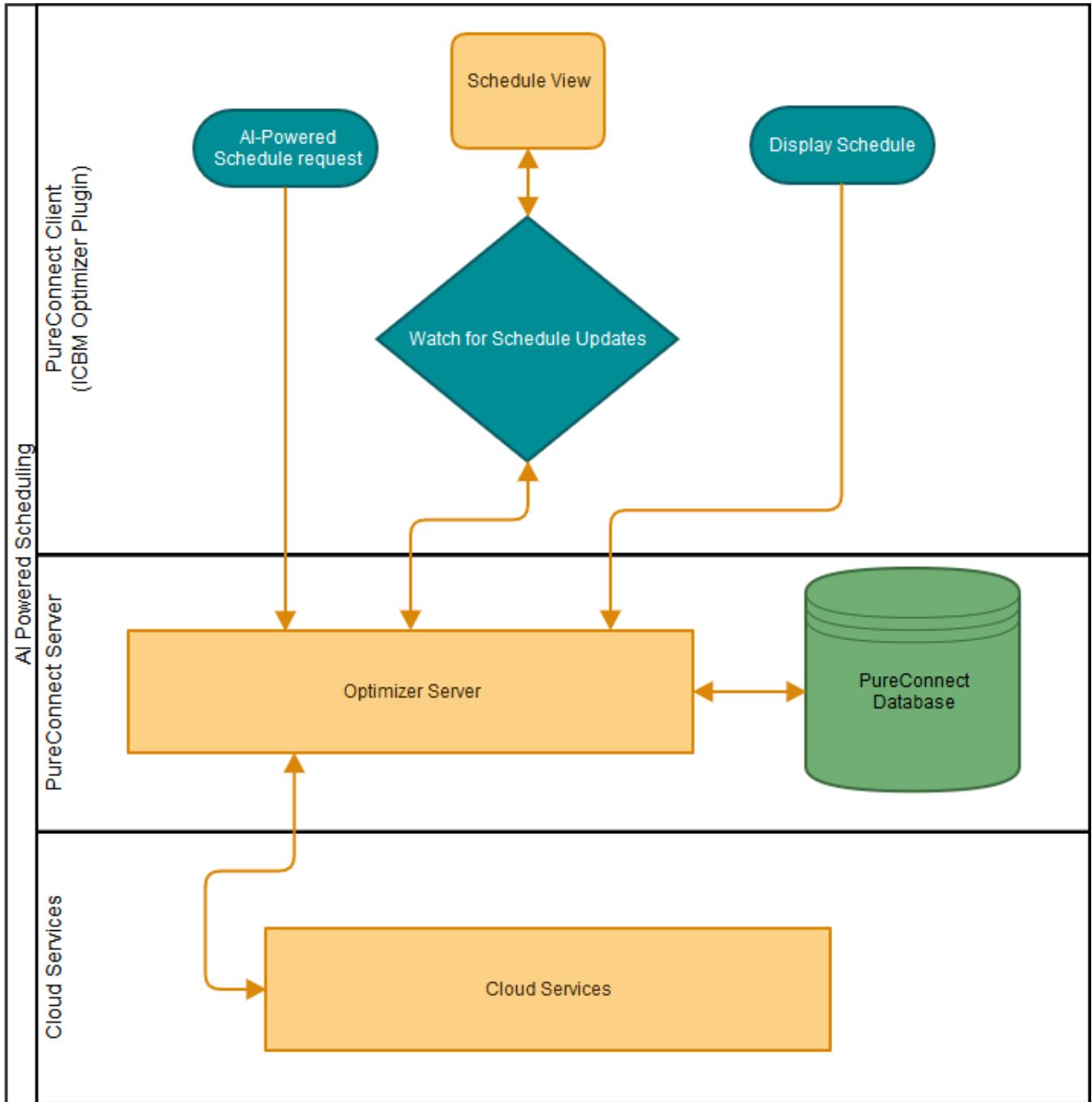
Alternatively, you can assign **All Permissions** for scheduling:

**Workforce Management>Adhoc Scheduling > All Permissions**

For more information about Genesys Cloud organizations, see [Genesys Cloud Organization](#).

# Data Flow

This diagram describes how scheduling data flows between the Interaction Optimizer client in IC Business Manager, the Optimizer server, the PureConnect database, and the Genesys Cloud AI-powered scheduling service.



## Database Parameters for AI-Powered Scheduling

To change the values assigned to these database parameters, a database administrator can use the database scripts located on the [CIC Utilities and Downloads](#) page of the product information site.

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### **AIModelExpiryInDays**

Use this parameter to set the expiration period in days for model response from the Genesys Cloud service, which is saved on the CIC server. If the model is past its expiration date, then the AI-powered scheduling service requests a new model response from Genesys Cloud. Otherwise, the service uses the saved model response. The default value is 7 days. The minimum value is 1 and the maximum value is 180.

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### **AIStatusNotFoundMaxRetryInHrs**

Use this parameter to set the maximum number of hours to retry an AI-driven request when the response from Genesys Cloud results in http status 404 (not found). The default value is 12 hours. The minimum value is 1 and the maximum value is 96.

## Troubleshooting

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### **Error Strings**

In the event that something goes wrong when generating AI-powered schedules, these are the error strings you might see. These error strings are displayed when you attempt to open a failed schedule.

Error String	Description	What To Do
A failure occurred generating the AI-powered schedule. If the issue persists, contact your administrator to consult the IC Business Manager and server logs for additional details.	An unknown failure occurred during the scheduling process	Review related logs in Interaction Optimizer.
Schedule generation is still in progress and must complete before the selected schedule can be opened.	AI-powered schedules cannot be opened until they are done processing. Wait for the completed status.	Wait for the schedule to complete processing.
An error occurred while trying to authenticate to the AI-powered scheduling cloud service. Contact your administrator to verify the Genesys Cloud configuration has been properly set up on the system.	An authentication error occurred when connecting to Genesys Cloud.	In Interaction Administrator, verify that the Genesys Cloud configuration has been completed and ensure that clicking Test Genesys Cloud Connection results in a successful connect.
A network issue occurred while communicating with the AI-powered forecasting cloud service. Try again. If the error persists, contact your administrator to review Interaction Optimizer server logs.	A network issue occurred and PureConnect could not communicate with the cloud.	<ul style="list-style-type: none"> <li>• Ensure that the network is functional and the PureConnect server(s) have access to the internet.</li> <li>• In Interaction Administrator, verify that the Genesys Cloud configuration has been completed and ensure that clicking Test Genesys Cloud Connection results in a successful connect.</li> </ul>
The AI-powered scheduling cloud service experienced an unexpected error while processing the schedule data. Contact your administrator to review logs to determine the issue with the service.	An unknown error occurred while processing the scheduling request in the cloud services.	<ul style="list-style-type: none"> <li>• Review the PureConnect Interaction Optimizer logs for details.</li> <li>• Provide Customer Care with requested logs and database information so they can review the errors in the scheduling service.</li> </ul>
A database operation failed while extracting data from PureConnect. Contact your administrator to review Interaction Optimizer server logs.	An issue occurred on the PureConnect side while trying to extract scheduling data from the database.	<ul style="list-style-type: none"> <li>• Ensure that the database is operating correctly.</li> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> <li>• Provide Customer Care with requested logs and database information so they can review the errors in the forecasting service.</li> </ul>
An error occurred while generating the AI-powered schedule request. Contact your administrator to review Interaction Optimizer server logs.	An issue occurred on the PureConnect side while attempting to generate the request that would have been sent to the cloud service.	<ul style="list-style-type: none"> <li>• Ensure that the database is operating correctly.</li> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> <li>• Provide Customer Care with requested logs so they can review the errors in the scheduling service.</li> </ul>
An error occurred while parsing the AI-powered schedule. Contact your administrator to review Interaction Optimizer server logs.	A response was successfully received from the cloud service, however PureConnect is having an issue processing the received information.	<ul style="list-style-type: none"> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> <li>• Provide Customer Care with requested logs so they can review the errors in the scheduling service.</li> </ul>
A database operation failed while storing the AI-powered schedule. Contact your administrator to review Interaction Optimizer server logs.	The schedule was generated but could not be created due to a PureConnect database issue.	<ul style="list-style-type: none"> <li>• Ensure that the database is operating correctly.</li> <li>• Review the PureConnect Interaction Optimizer logs for any details.</li> </ul>

# Change Log

The following changes have been made to the *PureConnect AI-Powered WFM Technical Reference* since its initial release.

Date	Changes
14-May-2019	Created.
24-July-2019	Added AI-Powered Scheduling
8-November-2019	Updated to use the new Genesys Cloud bridge for PureConnect
24-August-2020	Renamed PureCloud to Genesys Cloud
17-September-2020	Added scheduling parameters to TOC