

Genesys Predictive Routing Staff Help

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This guide explains how to use the Genesys Predictive Routing (GPR) application to do the following tasks:

- Configure your account and users.
- Review and manage your agent profile, customer profile, and dataset data.
- Create predictors.
- Create, train, test, and update models.
- Analyze predictor and model performance.
- Monitor jobs.

NOTE: Much of the content in this Help is also relevant for people using the API.

Related pages:

-

Overview

Genesys Predictive Routing (GPR) draws on accumulated agent, customer, and interaction data, enabling you to generate models to predict outcomes. From this analysis, combined with machine learning, you can determine the best possible match between waiting interactions and available agents, and then route the interactions accordingly.

In addition, you can report on the predicted versus actual outcomes. GPR uses the actual outcome to further train the machine-learning model, improving the accuracy of predicted outcomes between similar customer profiles and agent profiles.

For basic navigation tips, see the following topics:

- How do I navigate the GPR user interface?
- How do I navigate the Help?

What do you want to do?

- Set up accounts and users.
- View imported agent, customer, and interaction data.
- Use the Feature Analysis report to identify which factors most strongly affect various KPIs. The results enable you to create more effective predictors and models.
- Use the Agent Variance report to determine scenarios where some agents are more effective than others, which opens the way for improved outcomes.

-
- Create predictors and models based on your imported data.
 - Model Quality report: Provides an analysis of how well the model is performing.
 - Monitor predictor feature coverage
 - View model accuracy graph
 - View KPI outcome graph
 - View detail data about your agents and customers.
 - Monitor jobs that you are running or have run.

Important

- The Predictive Routing interface as shown in this Help might include features or settings that do not apply to your contact center or your user role.

Looking for something else?

You might also find the following information of use:



Genesys Predictive Routing Deployment and Operations Guide enables you to plan, set up, and maintain the on-premises components in your hybrid Genesys Predictive Routing (GPR) environment.

You can find GPR Release Notes in the following places:



- Predictive Routing RN for Genesys Engage cloud
- Release Notes for all GPR on-premises components

Navigating the Predictive Routing interface

Predictive Routing has three sets of navigation links:

- At the top next to the Predictive Routing product name.
- On the left side of the window that you can open from the Gear icon.
- Icons on the right side of the **Settings > Datasets**, **Settings > Predictors**, and **Settings > Models** windows that can open an information window  or a navigation tree .

In addition to the various menus, breadcrumb links appear at the top of the window if you have drilled-down past a top-level page.

-
- The left navigation bar enables you to import your data and configure the objects required to match customers and agents. If you do not see this bar:
 - To open the **Settings** menu, click the gear wheel icon in the upper right corner.
 - The top navigation bar enables you to view and analyze already created objects.
 - The right-side navigation menu enables you to view a tree view of datasets, predictors, and models.
 - To open or close this navigation menu, click the  icon.
 - The right-side Information icon shows a pane containing information about the currently selected object in the main window.
 - To open or close this information pane, click the  icon.

For security reasons, the GPR web application logs out inactive users. This functionality works in the following way:

- If you do not perform any action in the GPR browser window for 14 minutes, an inactivity alert opens and displays a 60-second countdown timer.
- If you then perform any action, such as scrolling, moving or clicking your mouse, or entering keystrokes from your keyboard, the inactivity timer disappears and your session continues.
- If you do nothing, your session ends after the 60-second timer expires and you GPR automatically logs you out.

Important

Data uploads are considered activity. GPR does not log you out while data is uploading, even if you are otherwise inactive for more than 15 minutes.

Hidden section

Navigating this Help

The screenshot shows the Predictive Routing interface. The top navigation bar includes links for Dashboard, Predictors, Agents, Customers, Datasets, and Jobs. The left sidebar contains a menu with categories like SCHEMA, Agent Profile, Customer Profile, Datasets (highlighted), SETTINGS, Accounts, Predictors, USER PROFILE, Password, ACCOUNT, User Management, and Groups. The main content area is titled 'Datasets' and shows a table with two datasets: 'Another' and 'PR_dataset', both with a status of 'Schema synchronized'. A right-hand Help widget is open, displaying a search bar, a list of contents, and a section titled 'Schema: Importing Datasets'. Handwritten annotations highlight the 'Help icon' in the top right, the 'Search' box, and the 'Open the complete Help file' link at the bottom of the widget.

	Dataset Name	Status	Dataset ID	File Name
<input type="checkbox"/>	Another	Schema synchronized	5b27cf247c315700201dfb57	
<input type="checkbox"/>	PR_dataset	Schema synchronized	5bbe0c628bdb3e00192d406e	PR_Demo_Dataset_2500.csv

When you click the **Help** icon from the Predictive Routing interface, the Help widget opens. It is context-sensitive, which means that the most relevant page heads the list of topics.

Navigating the Help widget

- To open a Help topic in the widget, click the topic title. Links at the top of the page jump directly to specific material.
- To locate information, use the **Search** box (at the top of the widget page).
- To return to the topic list visible when you initially opened the Help widget, click **Topic List** (at the foot of the widget page).
- To open the complete Help, click **Open in a New Window** (at the foot of the widget page).

Navigating the Help

- The left-side menu lists all topics covered in the Help. It also links to the *Deployment and Operations Guide*, which provides additional documentation for Predictive Routing.
- The right-side links take you to the various sections in the current article.
- The Help page provides a **Search** box, where you can either search the current manual or all Genesys documentation.

The Settings menu

Contents

- [1 Open the Settings menu](#)

-

The topics in this section explain how to use the GPR application windows that enable you to handle accounts, to create and update users and user roles, and to set and update passwords and password requirements.

IMPORTANT: When you are initially setting up Predictive Routing, you must create the Data Loader user. Without the Data Loader SERVICE user, Data Loader cannot access the GPR Core Platform.

Related pages:

-

Open the Settings menu



To open the menu where these objects are managed, click the **Settings** gear icon, located on the right side of the top menu bar.

When you start using Genesys Predictive Routing (GPR), Genesys adds you as a user to one or more accounts and supplies you with the username and initial password. When you first log into GPR, you view the currently active account. This section of the Help explains how to configure accounts, users and roles, and passwords.

Account: User Management

- Create and update users and assign roles.

Settings: Accounts

- Manage your accounts and specify password requirements and settings.

User Profile: Password

- Reset passwords.

Configure an account

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- [1 Create an account](#)
- [2 Update your account](#)
- [3 The Password Policy tab](#)
- [4 AWS Glue Parameters tab](#)
- [5 Accessing audit trail information](#)

-

An account usually represents a business or, in multitenant environments, a tenant. This page explains how to update an account.

Related pages:

-

Create an account

The screenshot shows the 'New Account' form in the Genesys Predictive Routing interface. The top navigation bar includes 'Predictive Routing', 'Agents', 'Customers', 'Datasets', 'Predictors', and 'Jobs'. The left sidebar has a 'SCHEMA' section with 'Agent Profile', 'Customer Profile', and 'Datasets', and a 'SETTINGS' section with 'Accounts' (highlighted) and 'Predictors'. The main content area is titled 'All accounts >' and 'New Account'. It contains two input fields: 'Account Name *' with the value 'New account' and 'Genesys Engage Cloud Tenant ID *' with the value '0000'. A blue 'Create' button is at the bottom right.

To add a new account in GPR, do the following steps:

1. Click the gear icon on the right side of the top navigation bar to open the **Settings** menu.
2. Click **Accounts**.
3. Click **Add Account**.

To configure your new account, enter the following information:

1. Enter an account name and the Genesys Engage Cloud Tenant ID you received from your Genesys representative.

Configure an account

2. Click **Create**.

The new account appears in the **Accounts** list.

Update your account

Account Settings	Account/Password Policy	AWS Glue Parameters
Locked <input type="checkbox"/>		
Account Name *	<input type="text" value="Test2"/>	
API key	<input type="text" value="00000aaa000d4444fr5555jjsagw8er46767744453"/>	
Customer Features Limit ?	<input type="text" value="50"/>	
Agent Features Limit ?	<input type="text" value="50"/>	
Genesys Engage Cloud Tenant ID *	<input type="text" value="0000"/>	
Audit Log Enabled ?	<input checked="" type="checkbox"/>	
Account Notes	<div><div></div></div>	
<div><div>Update</div></div>		

To configure an account, do the following steps:

1. Click **Accounts** in the **Settings** menu. A table lists the accounts for which you are a user.
2. You can also search by name for an account.

3. To update an account, click an account name. The following tabs appear: Account Settings, Account Password Policy, and AWS Glue Parameters.

The following parameters appear on the **Accounts Settings** tab.

- **Locked**—Lock the account to prevent anyone from editing it.
- **Account Name**—The name you assigned to the account.
- **API key**—The API key required to access the Predictive Routing API.
- **Customer Features Limit and Agent Features Limit**—Configure the number of customer and agent features supported for upload to the Customer Profile and Agent Profile datasets. The default value for these fields is 50.
- **Audit Log Enabled**—Turn the audit trail on or off. Production environments typically use audit logging.
- **Genesys Engage Cloud Tenant ID**—The Genesys-provided Tenant ID for this Genesys Engage cloud account. This field is mandatory.
- **Account Notes**—Any information important to keep about this account.

The Password Policy tab

Use this tab to specify how GPR handles user passwords and login attempts. It contains the following fields:

Field name	Default Value	Valid Values
Password expires after [x] days	90	1–90 days
Password cannot be changed until after [x] hours	24	1–72 hours
Show password expiration reminder [x] days before password expiry	7	1–14 days
Password cannot be the same as the [x] previous passwords	5	5–15 previous passwords
Account is locked after [x] invalid login attempts	6	3–6 invalid login attempts
Unlock user account after [x] minutes	60	30–300 minutes
Block inactive user after [x] days	45	1–90 days
Message to show blocked users:	This user account was blocked due to too many failed login attempts. Please try again later.	Leave the default, edit the message to be displayed to blocked users, or leave the text box empty to omit a notification message.

AWS Glue Parameters tab

GPR uses AWS Glue jobs for the cloud feature-engineering pipeline.

Set the following parameters to control how this account runs Glue jobs:

- **Timeout** - The maximum execution time, in minutes. The default is 2880 minutes.
- **Maximum Capacity** (in DPUs) - Enter a value between 2-100.
- **Number of Workers** - Enter a value or click the arrows in the field to reach the desired number. The maximum number of workers is 20.
- **Worker Type** - select a value from the menu: Standard, G.1X, or G.2X

Accessing audit trail information

If you must view audit trail information, contact your Genesys representative for assistance. Genesys retains audit data for five years, then automatically deletes it.

You can request an audit record for the following activities:

- Actions (see the list below) done by any user who has access to the current account.
- Creation or deletion of objects in the system.

For each activity, the audit log stores following information:

- The user ID of the person who performed the action.
- The date and time of the action.
- The result of the operation (failure, success).
- The GPR components affected by the action.

GPR stores the specified data for the following objects:

- **Datasets**
 - create
 - append
 - delete
- **Agent Profiles and Customer Profiles**
 - create (but only if created using the Predictive Routing application; the audit trail does not record profiles created using the API)
 - append
- **Users/Accounts**
 - create/update
 - delete
- **Predictors**
 - create
 - update

- generate training data
- purge training data
- copy
- **Models**
 - create
 - delete
 - train
 - activate
 - suspend

Create and update users and roles

Contents

- [1 Add a new user](#)
- [2 Update a user](#)
- [3 Create the Data Loader user](#)
- [4 Roles](#)

-

The User Management tab enables you to add new users to an account and to configure user settings.


Related pages:

-

Add a new user

The screenshot displays the Genesys Predictive Routing web interface. The top navigation bar includes the Genesys logo and tabs for Predictive Routing, Agents, Customers, Datasets, Predictors, and Jobs. A left-hand sidebar contains a menu with categories: SCHEMA (Agent Profile, Customer Profile), SETTINGS (Accounts, Predictors), USER PROFILE (Password), and ACCOUNT (User Management, which is highlighted in blue). The main content area is titled 'All users >' and 'New User'. It features a blue button '+ Add Existing Staff User'. The form fields include: 'Name' with a text input containing 'New' and a dropdown menu showing 'User'; 'Email' with a text input containing 'newuser@company.com'; and 'Roles' with a selection area containing 'x ADMIN' and 'x REVIEWER'. A blue 'Create' button is positioned at the bottom of the form.

To add a new user to an account:

1. To open the configuration menu, click the **Settings** gear icon, located on the right side of the top menu bar: .
2. Click the **Account > User Management** tab on the navigation bar to the left of the window. A table appears showing all users added to the current account.
3. Click **New User**.

To configure the new user, do the following steps:

1. To add an ADMIN or REVIEWER-level user, or a STAFF user that is not yet configured for GPR, enter their name and email.
2. To specify the role or roles, click the X on any role name you need to remove. By default, three available roles appear in the **Roles** field, STAFF, ADMIN, and REVIEWER. To add back a role after deleting it, click in the text box *below* the existing role name to open the list of roles.
WARNING! Do not add the SERVICE role to any user except the Data Loader user. Users with the SERVICE role cannot log into the GPR web application, regardless of their other assigned roles.
3. To add an existing STAFF user, click **Add Existing Staff User**. All STAFF-level users not already added to the current account appear. If you do not see the user you want to add, they are already added to the account or do not yet exist in the GPR Staff users list.
4. Click **Create** to finish setting up the user.

GPR sends an email enabling the newly-added person to set a password.

Update a user

All users >

Update User

Name *

yuriy



gagarin

Email *

gagarin@genesys.com

Roles *

× REVIEWER

× ADMIN

Update

Delete user

To manage users for an account:

1. Click the **Account > User Management** tab on the left-hand navigation bar. A table containing data for all configured users appears.
2. Click a user's email address.
3. Make the desired changes to the user name, email, or roles.
4. Click **Update** to save your changes.

If you need to remove the user, click **Delete user**.

Create the Data Loader user

All users >

New User

Name *

Data



Loader

Email *

dl@email.com


Roles *

× SERVICE

Create

When you are initially setting up Predictive Routing, a user with STAFF privileges must create a user with the special SERVICE role. This user and role are reserved for Data Loader, and should need no additional editing or maintenance after set up. Data Loader uses this user to connect with the GPR Core Platform.

To create the Data Loader user, perform the following steps:

1. To open the configuration menu, click the **Settings** gear icon, located on the right side of the top menu bar: .
2. Click the **Account > User Management** tab on the left-hand navigation bar.
3. Click **New User**.
4. Enter any first and last name that clearly indicates that this is the Data Loader user.
5. Enter any email address. Email notification functionality is not currently supported.
6. Assign this user the SERVICE role. Click in the role text box below the default user(s) and select **SERVICE**. You can remove the other roles, if desired. They do not affect Data Loader functionality.
7. Click **Create**. The Data Loader user appears in the users table.
8. Click **Reset Password** in the row containing the Data Loader user.
9. Specify the desired password, and then click **Change password**.
10. Copy this same password to the **password** option in the **default** section on the **Annex** tab of the Data Loader Application object and the **password** option in the **default** section of the Predictive_Route_DataCfg Transaction List object.

Following this initial setup, Data Loader then generates new passwords, following Genesys security standards, when required by the password policies you configured. Data Loader automatically updates the value of the **password** options.

NOTES:

- **Do not** delete the Data Loader user or manually change the password without specific instructions from your Genesys representative. You should not need to perform any further actions related to this user.
- **Do not** use the SERVICE role for any other user. It is reserved for Data Loader use only.
- For security, passwords are automatically hidden in the Data Loader log.

Roles

The following roles can do the following:

- **STAFF** - Access more than one account. Within the active account, add and edit users, assign roles, and set password policies. Create, edit, update, and delete Agent and Customer Profile data, datasets, predictors, and models. View the Feature Coverage, Model Accuracy, and KPI Outcome graphs. Generate Agent Variance and Feature Analysis reports, and view jobs.
- **ADMIN** - Access a single account, update password permissions, and manage users. View predictor Feature Coverage and Model Accuracy graphs.
- **REVIEWER** - View the View the Feature Coverage and Model Accuracy graphs. Change their own password.
- **SERVICE** - This is a reserved role that applies only to the account Data Loader uses to connect to the GRP Core Platform. **Do not** make any changes to the SERVICE role or the Data Loader account.
WARNING! Do not add the SERVICE role to any user except the Data Loader user. Users with the SERVICE role cannot log into the GPR application, regardless of their other assigned roles.

Reset a password

Contents

- [1 Reset a password](#)

-

The Password tab enables you to change the password for your existing user account and to reset other users' passwords.

Related pages:

-

Reset a password

Password Reset


First name *	<input type="text" value="Aimee"/>
Last name *	<input type="text" value="Baynes"/>
Email *	<input type="text" value="ab@company.com"/>
Current Password *	<input type="password" value="....."/>
New Password *	<input type="password" value=""/>
Confirm Password *	<input type="password" value=""/>

Passwords are not equal

Cancel

Update

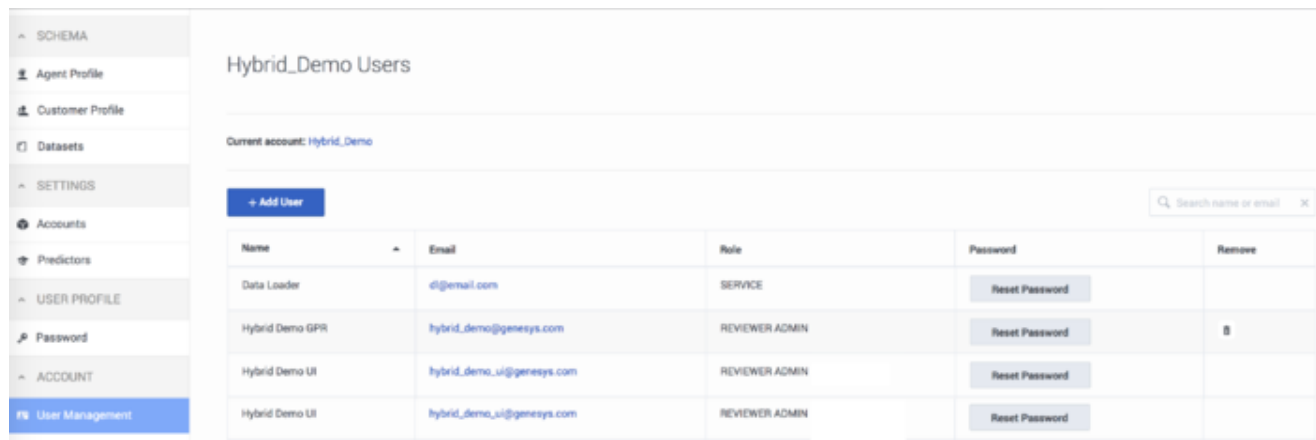
To reset your password:

1. To open the configuration menu, click the **Settings** gear icon, located on the right side of the top menu bar: .
2. Click the **User Profile** > **Password** tab on the left-hand navigation bar.
3. Enter the current password.
4. Enter the new password.
5. Re-enter the new password to make sure you entered it correctly.

Reset a password

6. Click **Update** to accept it.

You can also reset an existing password from the User table.



The screenshot shows the 'Hybrid_Demo Users' management page. On the left is a sidebar with navigation links: SCHEMA, Agent Profile, Customer Profile, Datasets, SETTINGS, Accounts, Predictors, USER PROFILE, Password, ACCOUNT, and User Management (highlighted). The main content area is titled 'Hybrid_Demo Users' and shows the current account as 'Hybrid_Demo'. Below this is a '+ Add User' button and a search bar. A table lists the users with columns for Name, Email, Role, Password, and Remove. Each user has a 'Reset Password' button in the Password column.

Name	Email	Role	Password	Remove
Data Loader	dl@email.com	SERVICE	Reset Password	
Hybrid Demo GPR	hybrid_demo_gpr@genesys.com	REVIEWER ADMIN	Reset Password	B
Hybrid Demo UI	hybrid_demo_ui@genesys.com	REVIEWER ADMIN	Reset Password	
Hybrid Demo UI	hybrid_demo_ui@genesys.com	REVIEWER ADMIN	Reset Password	

View your uploaded data

Data is the raw material for Predictive Routing. This section explains how to view the data you uploaded using Data Loader: customer, agent, interaction, and any other data, such as interaction outcomes and survey responses, you find to be relevant.


Related pages:

-

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.

After you configure the Predictive Routing Data Loader to upload your various datasets, use the GPR web application to view the uploaded data and to troubleshoot data upload issues.

- The Predictive Routing Data Loader creates datasets and the Agent Profile directly from Genesys Info Mart data. It uploads the Customer Profile and any additional data from prepared CSV files.
 - For instructions on how to configure Data Loader and the data it imports, [Configure Data Loader to upload data](#).
- Use the relevant tabs on the **Settings** menu to view the various types of data you are using to score your agents. You use the uploaded data to construct Predictors and Models.

To open the menu where these objects are managed, click the **Settings** gear icon, located on the right side of the top menu bar: .

- View your Customer Profile schema
- View your Agent Profile schema
- View your datasets

If you need to upload data using the GPR web application *instead of* using Data Loader, see [Upload data](#).

View the Customer Profile schema

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- [1 View the schema](#)
- [2 Update Profile data](#)

View the fields, datatypes, anonymization status and other aspects of the Customer schema.


Related pages:

-

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.

View the schema

After Data Loader uploads the Customer Profile, you can use the GPR web application to view the schema.

1. Click the **Settings** gear icon  , located on the right side of the top menu bar, to open the **Settings** menu (appears on the left side of the window).
2. Click the **Customer Profile** tab to open the Customer Profile window.

NOTE: Making changes on this page to a schema uploaded using Data Loader will cause a mismatch and prevent any subsequent updates using Data Loader.

All of the columns in your schema are listed and include the following information:

- **Label** and **Type** - The *Label* is the name of the column in the Customer Profile and the *Type* is the datatype for that field.
- The field specified as the **ID Field** field is marked with a dot in the radio button for that row.
- **Visible** - *Visible* fields appear in the display on the **Customers** tab (accessed from the top navigation bar).
- **Cardinality** - The number of unique values that occur in that column. If there are more than 1000, this field shows the value as **1000+**. Click the cardinality value to open a pop-up window that displays the first 1000 unique values that occur in the field.
- **Expression** - If you created a custom field using an expression, the expression you used is shown in this column.
- **PII** - A mark in this column indicates that the fields was configured to be anonymized upon upload. PII fields contain sensitive data or personally identifiable information.

You can sort the table by clicking any column header.

Update Profile data

NOTE: Although the GPR application presents buttons labeled **Upload Data** and **Add New Field**, this functionality is deprecated. Changes to the data made in the GPR web application cause a mismatch between the schema configuration in the Data Loader *Application* object and the data presented in the GPR web application.

To *update* data in the Customer Profile schema, create a CSV file containing the new data—but using the same schema—and upload it using Data Loader.

If you need to *change* the schema for the Customer Profile, use the following procedure:

NOTE: Execute this procedure while the Predictive Routing is turned off or when the inbound call volume through GPR is low, to reduce impact on the scoring results.

1. Open the **[dataset-customers]** section in the Data Loader *Application* object from GAX or any other Genesys configuration manager application.
2. Set the **upload-dataset** option value to `false`.
3. From the GPR web application, open the Customer Profile from the **Settings** menu.
4. Delete the Profile by clicking the trashcan icon next to the Customer Profile heading.
5. In the Data Loader *Application* object, change the values in the **[dataset-customers]** and **[schema-customers]** sections as desired.
6. Set the **upload-dataset** option in the **[dataset-customers]** section to `true`.

After Data Loader uploads the new Customer Profile, you can check the schema from the GPR web application.

View the Agent Profile schema

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- [1 View the schema](#)
- [2 Append data or change the schema](#)
- [3 Skills in Agent Profile data](#)

View the fields, datatypes, anonymization status and other aspects of the Agent schema.


Related pages:

- .

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.

View the schema

After Data Loader uploads the Agent Profile, you can use the GPR web application to view the schema.

1. Click the **Settings** gear icon  located on the right side of the top menu bar, to open the **Settings** menu (appears on the left side of the window).
2. Click the **Agent Profile** tab to open the Agent Profile window.

All of the columns in your schema are listed and include the following information:

NOTE: Making changes on this page to a schema uploaded using Data Loader will cause a mismatch and prevent any subsequent updates using Data Loader.

- **Label and Type** - The *Label* is the name of the column in the Agent Profile and the *Type* is the datatype for that field.
- The field specified as the **ID Field** field is marked with a dot in the radio button for that row.
- **Visible** - *Visible* fields appear in the display on the **Agents** tab (accessed from the top navigation bar).
- **Cardinality** - The number of unique values that occur in that column. If there are more than 1000, this field shows the value as **1000+**. Click the cardinality value to open a pop-up window that displays the first 1000 unique values that occur in the field.
- **Expression** - If you created a custom field using an expression, the expression you used is shown in this column.
- **PII** - A mark in this column indicates that the fields was configured to be anonymized upon upload. PII fields contain sensitive data or personally identifiable information.

You can sort the table by clicking any column header.

To delete the Agent Profile schema, click the trash can icon next to the **Agent Profile** page heading.

Append data or change the schema

NOTE: Although the GPR application presents buttons labeled **Upload Data** and **Add New Field**, this functionality is deprecated. Changes to the data made in the GPR web application cause a mismatch between the schema configuration in the Data Loader *Application* object and the data presented in the GPR web application.

The agent data uploaded directly from the Genesys Info Mart database is updated automatically. To *update* data from other sources in the Agent Profile schema, create a CSV file containing the new data—but using the same schema—and upload it using Data Loader.

If you need to *change* the schema for the Agent Profile, use the following procedure:

NOTE: Execute this procedure while the Predictive Routing is turned off or when the inbound call volume through GPR is low, to reduce impact on the scoring results.

1. Open the **[dataset-agents-gim]** section in the Data Loader *Application* object from GAX or any other Genesys configuration manager application.
2. Set the **upload-dataset** option value to `false`.
3. From the GPR web application, open the Agent Profile from the **Settings** menu.
4. Delete the Profile by clicking the trashcan icon next to the Agent Profile heading.
5. In the Data Loader *Application* object, change the values in the **[dataset-agents-gim]** and **[schema-agents-gim]** sections as desired.
6. Set the **upload-dataset** option in the **[dataset-agents-gim]** section to `true`.

After Data Loader uploads the new Agent Profile, you can check the schema from the GPR web application.

Skills in Agent Profile data

The Genesys configuration layer allows Skills and Groups to have the same name. There should be no impact on either Data Loader or scoring due to the same group name/skill name.

- Groups are stored in the groupNames list in the Agent Profile.
- Skills are stored in a skills dictionary.

As a result, there is no collision between the names.

For example, an Agent can be assigned to the Group "Complaints" and at the same time be assigned the Skill "Complaints" with a skill level of 2. This does not negatively affect GPR performance.

View uploaded datasets

Contents

- [1 Open the datasets schema page](#)
- [2 View a dataset](#)
- [3 The Uploads tab](#)

View a list of all of your datasets, the schema for each individual dataset, and the uploads that make up each dataset.

Related pages:

-

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.

Open the datasets schema page

Predictive Routing Agents Customers Datasets Predictors Jobs

VH VH

SCHEMA

Agent Profile

Customer Profile

Datasets

SETTINGS

Accounts

Predictors

USER PROFILE

Password

ACCOUNT

User Management

Datasets

+ Create Dataset Delete Selected

Search

Total: 2

<input type="checkbox"/>	Dataset Name	Status	File Name	Rows	Created	Updated
<input type="checkbox"/>	Dataset7456	Schema synchronized	200K_interactions.csv	200000	Feb 19, 2020 19:11 PM	Feb 19, 2020 19:17 PM
<input type="checkbox"/>	Dataset2656	Schema synchronized	200K_interactions.csv	200000	Feb 19, 2020 19:23 PM	Feb 19, 2020 19:29 PM

After you create a dataset, it appears in the table of datasets on the **Settings: Datasets** window.

- To delete a dataset from the list, select the check box in the leftmost column, then click **Delete Selected**.
- Click a dataset name to view that dataset and the individual uploads that are included in it.

View a dataset

When you click a dataset name in the **Settings: Datasets** list, the Dataset Schema tab is displayed. It shows all of the columns in your schema and includes the following information:

- **Field Name** and **Type** - the name of the column in the dataset and the datatype for that field.
 - The fields specified as the **Created At** Timestamp field and the **Interaction ID** field are marked with green identifying boxes.
- **Cardinality** - the number of unique values that occur in that column. If there are more than 1000, this field shows the value as **1000+**. Click the cardinality value to open a pop-up window that displays the first 1000 unique values that occur in the field.
- **Missing Values** and **Invalid Values** - The number of rows in which the value for that column is either missing or is in some way invalid. For example, there might be an alphabetical string in a numeric field. The number is followed by the percentage of rows with missing or invalid values. Use these fields to determine whether the data quality is satisfactory.
 - Invalid values are discarded from the dataset. If the **Created At** Timestamp row contains missing or invalid values, the entire row is discarded
- **PII** - Anonymized fields have a check mark in this column.

You can sort the table by clicking any column header.

The Uploads tab

Filename	Upload Date	Total Rows	Rows Imported	Missing Values	Invalid Values	Status
file_123_upload_name_1.csv	Jan 12, 2019 10:41 AM	10000	10000 (100%)	1 (0.01%)	0 (0%)	Good
file_456_upload_name_2.csv	Jan 12, 2019 11:15 AM	10000	10000 (100%)	0 (0%)	0 (0%)	Good

List of CSV files in Dataset

Click the **Uploads** tab to view a table listing the CSV files uploaded to the current dataset. For each CSV file, the table shows information to help you evaluate the source and quality of your data.

- Red numbers in the **Missing Values** and **Invalid Values** columns indicate gaps or inconsistencies in the data.
- The **Status** column provides a quick view of whether any CSV files have data issues that can cause problems when using the dataset for training Models or scoring agents. Hover your mouse over the status icon in a row to see a tooltip that explains the reason for the status.

The way the status is calculated depends on the number of uploads you have done. For the first five uploads, the status is calculated based on a simple percentage of successfully-imported values. For the sixth and later uploads, the status is calculated relative to the average results of all uploads.

Status	Uploads 1-5	Uploads 6 and above Calculated based on the average of the missing + invalid values for all previous uploads
Green checkmark icon = Success	Fewer than 5% of all values in the CSV file are missing or invalid.	From 0% to (average% + 3%)
Yellow caution icon = Warning	between 5% and 50% of the values are missing or invalid.	From (average% + 3%) to (average% + 13%)
Yellow half-circle icon = Warning	The CSV file contained more than 2.5 million rows, so that some rows were not uploaded.	The CSV file contained more than 2.5 million rows, so that some rows were not uploaded.
Red stop icon = Error	More than 50% of the values in the CSV file are missing or invalid.	From (average% + 13%) to 100%

You can remove a problematic CSV file from the dataset without deleting the entire dataset. To do so:

- Click the check box on the left side of the CSV row, and then click the trashcan icon that appears above the table.

Create and train predictors and models

Contents

- [1 About predictor and model creation](#)

Predictors and models are key objects to create and optimize predictive routing.

- *Predictors* enable you to analyze various factors that might affect a specific metric. For example, you might check how the matching between customer and agent languages, ages, genders, and locations affect the NPS score.
- *Models* are built on a predictor and include the same target metric. Each model has a subset of the agent and customer features present in the dataset. The Feature Analysis report helps you to identify the features with the strongest impact on the target metric. You can create multiple models for the same predictor, each with a different set of features selected.

Related pages:

-

About predictor and model creation

Before proceeding to create predictors, make sure you have used Data Loader to upload the following data.

Note: You cannot score agents without including Customer Profile features in your predictor.

- Customer Profile schema
- One or more interactions datasets
- Agent Profile schema

After you upload data, Genesys recommends you to evaluate your data using the Feature Coverage tab, which helps you create and train effective predictors and models.

Create and update predictors

Contents



- [1 Settings: Predictors window](#)
- [2 Create a predictor](#)
 - [2.1 Begin to create a new predictor](#)
 - [2.2 Select a metric and the Agent and Customer identifiers](#)
 - [2.3 Select the Agent ID and Actions Cutoff](#)
 - [2.4 Choose Agent Features](#)
 - [2.5 Choose Customer Features](#)
 - [2.6 Create and generate your new predictor](#)
- [3 View and update predictors](#)
 - [3.1 View your predictors](#)
 - [3.2 View the predictor information pane](#)
 - [3.3 Update a predictor](#)
- [4 Gather updated scoring data using profile look ups](#)
 - [4.1 Settings required to use profile lookups](#)
 - [4.2 How profile lookups work](#)

Predictors enable you to analyze various factors that might affect a specific metric. For example, you can check how the matchup between customer and agent languages, ages, locations, customer's reason for making contact, and agent skills affect the NPS score.

Related pages:

-

Settings: Predictors window

- To open the configuration menu, click the **Settings** gear icon, located on the right side of the top menu bar: .
- A navigation menu on the right side of the window opens a tree view of all datasets associated with your account, with the predictors and models configured for each. To open or close this navigation menu, click the  icon.
- You must reload the page to view updates made using the Predictive Routing API, such as creating, updating, or deleting a predictor.

Important

- The Tooltips, which appear when you hover over any ? icon, contain helpful explanatory information about the associated fields.

Create a predictor

The following series of procedures takes you through the steps required to create and configure a new predictor.

Begin to create a new predictor

Purpose: To create a predictor, which specifies a metric you plan to optimize and the agent and customer features you have found to have the strongest effect on that metric.

Prerequisites

- You can choose to run a Feature Coverage report before creating a predictor. The Feature Coverage report analyzes which whether your data is adequate for the metric you want to optimize and which features in your dataset have the strongest impact on the value of that metric.

Steps

To start creating a predictor:







1. Select **Predictor** from the left-side navigation bar and then click **Add Predictor**.
2. Name your predictor. Predictor names can consist only of alphanumeric characters, and must start with a letter or underscore.
3. Select a dataset from the selection menu. When you select a dataset, the dataset date range appears.
4. Move the slider bars at either end of the date range to select the part of the dataset you want the predictor to evaluate.

Select a metric and the Agent and Customer identifiers

To continue predictor configuration, perform the following steps:

1. Select the metric for this predictor. A predictor can be associated with only one metric.
2. Select the **Agent identifier**, which can be either `Dataset generated` or `Agents`.
 - **Dataset generated:** Agent profile data is derived from the most up-to-date data captured in the dataset used to create the current predictor. Note that this dataset must be synchronized for the latest data to be available for the predictor. If you select `Dataset Generated`, the **Override** and **Expression** fields are unavailable.
 - **Agents:** Agent profile data is taken from the Agent Profile schema. This is the typical production configuration.
3. Select the **Customer identifier**, which can be either `Customers` or `None`.
 - **None:** Customer and interaction data is gathered from attached data. If you select `None`, the **Override** and **Expression** fields are unavailable.
 - **Customers:** Customer data is taken from both the Customer Profile schema and attached data. If both sources include data for a specific field, the value in the attached data is used. This is the typical production configuration.
4. **KPI Type:** Select **Service** (the default) or **Sales**.
5. **Score expression** (Optional): Enter an expression GPR should use to compute the final score returned by the scoring engine. You can construct the expression using arithmetic operations, Python 3 built-in functions, and dataset fields. To access the available fields in your dataset, press the **SHIFT+@** shortcut.
Examples of ways to use this field:
 - If URS has different scales for scoring, you can use this field to scale the returned score appropriately.
 - If necessary, you can translate the result returned from URS to correct the sort order. For instance, if **customer_talk_duration** is a target metric, agents with lower scores are actually better. So you might enter the score expression `1 / p_score`, which produces an outcome such that higher predicted values are lower actual scores.
 - For an in-depth discussion of how GPR handles metrics, see [Understanding Score Expressions](#).
6. **Skip expression** (Optional): Enter an expression that specifies data to be skipped. You can construct the expression using arithmetic operations, Python 3 built-in functions, and Dataset fields. To access the available fields in your dataset, press the **SHIFT+@** shortcut.
 - For example, you might want to base the predictor only on records where the value in the **Revenue** field is less than 10,000. To set the revenue cutoff value, you would enter `Revenue` in the **Skip expression** field.

 Predictor daterange: 08/02/2018 — 01/29/2019

Metric  *	FCR
Agent Identifier  *	Agents
Customer Identifier 	Customers
KPI Type 	Service
Score expression 	p_score*100
Skip expression 	Revenue >100000



Select the Agent ID and Actions Cutoff

To continue predictor configuration, perform the following steps:

1. Select the Agent ID from the menu. The Agent ID is a unique employee identifier that is relevant for the type of metric you are evaluating.
If **Agents** (the Agent Profile schema) has been selected as Agent Identifier, the Agent ID you select must be the same field as the ID_FIELD in the Agent Profile.
2. Select the maximum number of best scores that will be returned when you make a scoring request to the API.

Important

The maximum number of best scores is only relevant to the API, not to scoring requests sent using the Predictive Routing application.

<div>Jan 26 Feb 07 Feb 18 Mar 02 Mar 14 Mar 25 Apr 06 Apr 19</div> <div>Generate Purge</div>	
Agent ID  *	Agent_AgentID
Actions cutoff 	

Choose Agent Features

Agent Features are items in the dataset that refer to the agent. All agent-related fields in your selected dataset appear in the drop-down list under **Agent Features**.

1. Select an Agent Feature from the drop-down list. The type associated with it in the dataset appears.
2. Continue until you have selected the Agent Features you want to include in your predictor.
3. Optionally, you can create a new feature. A new feature must be based on existing features. When you create a new feature, you can add an expression, which enables you to perform some action on existing features and then use the result in your predictor.

1. Click **Add New Feature**.

2. Type a name for your new feature and then select the type of value this feature returns: Boolean (the returned value is an either/or value, such as `true/false`), list (a list of the possible returned values), string, and so on.

3. If you need to use a value from a different source than that initially added to the schema, toggle the **Override** control to on (toggle turns from gray to blue) for those features that should be updated at the time of scoring and then add an expression that tells GPR what value to use. For example, if you configured your Agent Profile schema with the CSAT captured in the `AVG_CSAT` column, but at runtime you want the value to be computed from other columns in the schema, turn on the **Override** control and enter the desired expression in the **Expression** field.

Note: If you selected `Dataset Generated` in the Agent Identifier field, the **Override** and **Expression** fields are unavailable.

To construct your expression, you can use arithmetical operators, Python 3 built-in functions, and fields accessed by the following shortcuts:

- `SHIFT+@` - for Dataset fields
- `SHIFT+#` - for Profile fields

Agent Features

Override	Label	Type	Expression
<input checked="" type="checkbox"/>	Agent_Experience	Integer	
<input type="checkbox"/>	Agent_Location_Country	String	

Add New Feature

Choose Customer Features

Customer Features are items that refer to the customer or that are available in interaction user data. They refer to aspects of the environment, broadly speaking, in which the interaction occurs. All customer- and userdata-related fields in your selected dataset appear in the drop-down list under **Customer Features**.

Note: If you do not include Customer features in your predictor, GPR cannot score agents. Score requests are terminated and the GPR Core Platform sends the following KVP values to the Info Mart database and the GPR score_log: `gpmResult=7` and `gpmMessage=Failed to build Scoring Context`.

1. Select a Customer Feature from the drop-down list. The type associated with it in the dataset appears.
 2. Continue until you have selected the customer features you want to include in your predictor.
-

3. Optionally, you can create a new feature. A new feature must be based on existing features. When you create a new feature, you can add an expression, which enables you to perform some action on existing features and then use the result in your Predictor.

1. Click **Add New Feature**.

2. Type a name for your new feature and then select the type of value this feature returns: Boolean (the returned value is an either/or value, such as `true/false`), list (a list of the possible returned values), string, and so on.

3. If you need to use a value from a different source than that initially added to the schema, toggle the **Override** control to on (toggle turns from gray to blue) for those features that should be updated at the time of scoring and then add an expression that tells GPR what value to use. For example, if you configured your Customer Profile schema with the customer value status captured in the `CUST_VALUE` column, but at runtime you want the value to be computed from other columns in the schema, turn on the **Override** control and enter the desired expression in the **Expression** field.

Note: If you selected `None` in the **Customer Identifier** field, the **Override** and **Expression** fields are unavailable.

To construct your expression, you can use arithmetical operators, Python 3 built-in functions, and fields accessed by the following shortcuts:

- `SHIFT+@` - for Dataset fields
- `SHIFT+#` - for Profile fields

Customer Features * ?

	Override ?	Label ?	Type	Expression ?
✕	<input type="checkbox"/>	Customer_AccountValue	Integer	
✕	<input type="checkbox"/>	Customer_CustomerID	String	

Add New Feature

Create and generate your new predictor

To finalize your predictor configuration, save and generate it:

1. Click **Create** to save your predictor settings. You should receive a success pop-up window indicating that the predictor has been created.
2. Before you can train and activate models, you must generate your predictor. Scroll up to the date range display on your predictor configuration window, and then click **Generate**.
Progress windows indicate the progress of the generate job.

Your new predictor now appears in the list of predictors, along with information about its status, such as the number of associated models, when it was last run, and its quality.

The screenshot shows a web interface for creating predictors. It is divided into two main sections: 'Agent Features' and 'Customer Features'. Both sections have an 'Override' toggle, a list of features with 'Label' and 'Type' fields, and an 'Add New Feature' button. The 'Agent Features' section includes 'Agent_Experience' (Integer) and 'Agent_Location_Country' (String). The 'Customer Features' section includes 'Customer_AccountValue' (Integer) and 'Customer_CustomerID' (String). At the bottom, a 'Create' button is circled and labeled 'Step 1'. A red arrow points from the 'Create' button to a 'Generate' button in a top-right panel, which is also circled and labeled 'Step 2'. The top-right panel also contains a bar chart and a 'Purge' button.

Agent Identifier Agents

Customer Identifier Customers

Score expression Use @ hotkey to get suggestions

Agent Features

Override ☒

Label Agent_Experience

Type Integer

Agent_Location_Country

String

Add New Feature

Customer Features

Override ☐

Label Customer_AccountValue

Type Integer

Customer_CustomerID

String

Add New Feature

Step 1

Create

Step 2

Generate

Purge

View and update predictors

After you have created predictors, use the following procedures to view and maintain them. It is important to ensure that your predictors and models stay up-to-date, so that they continue to address your most compelling business needs.

View your predictors

When you navigate to **Settings > Predictors**, the window shows a table listing all your existing predictors. For each, the table shows what the following information:

- Name - The name given to the predictor when it was created.
- Type - Whether the metric requires classification (binary) or regression analysis.
- Models - The number of models created for the predictor.

- Rows - The number of rows in the dataset used to create the predictor.
- Quality - The quality value displayed for the predictor (AUC for classification metrics and RMSE for regression metrics) is the average of the results for each trained model associated with that predictor. Both active and inactive models are included in the average, as long as they are trained.
- Metric - The metric that the predictor is built to optimize.
- Last Run - The last time the predictor was trained.

From this list you can do the following:

- Edit your predictor, if you have not yet created and activated any models created for it. See Update a predictor (below) for details.
- Create or edit models for the predictor. Click the name of a predictor to open it, and then click **Models** to access the model functionality.
- Delete a predictor. Select the check box next to a predictor name, and then click the trash can icon.

Predictors

Delete a Predictor

Open a Predictor

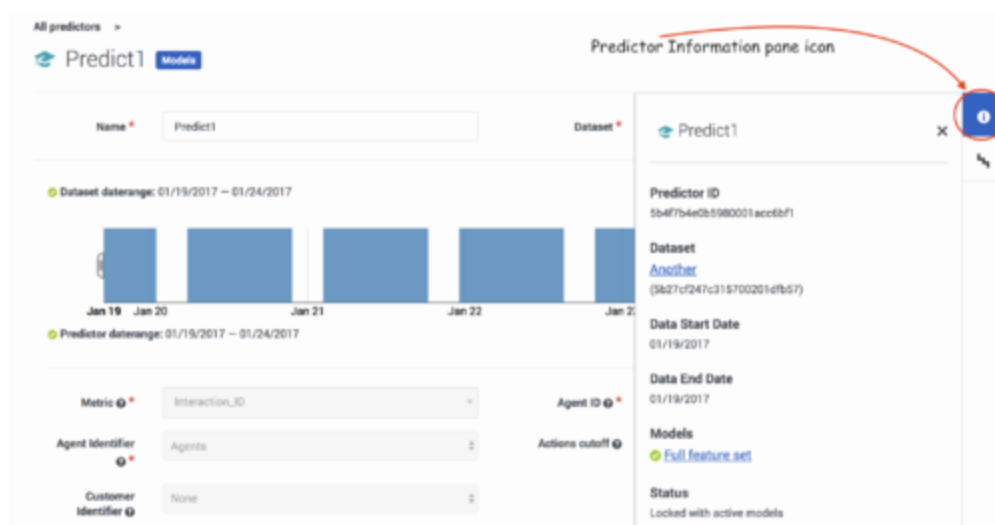
+ Add Predictor

Name	Type	Models	Rows	Quality	Metric	Last Run
<input type="checkbox"/> Pr_Bk	Regression	1	8000	RMSE: 1.44	CSAT	Dec 11, 2018 10:50:14 AM
<input type="checkbox"/> PR_Ag	Regression	1	194	RMSE: 3.32	VQ_Performance	Dec 11, 2018 10:34:12 AM
<input type="checkbox"/> PR_er	Regression	2	0	RMSE: 34986175343943.12	アカウントを閉じる	Dec 10, 2018 3:21:11 PM

View the predictor information pane

When you view the configuration data for a predictor, the right-hand toggle information pane icon becomes active. Click this button to view the following information:

- The Predictor ID, which you can use to make API requests affecting the predictor.
- The dataset upon which the predictor is based.
- The start and end dates for the data on which the predictor is based.
- The model or models created for this predictor.
- The predictor status.



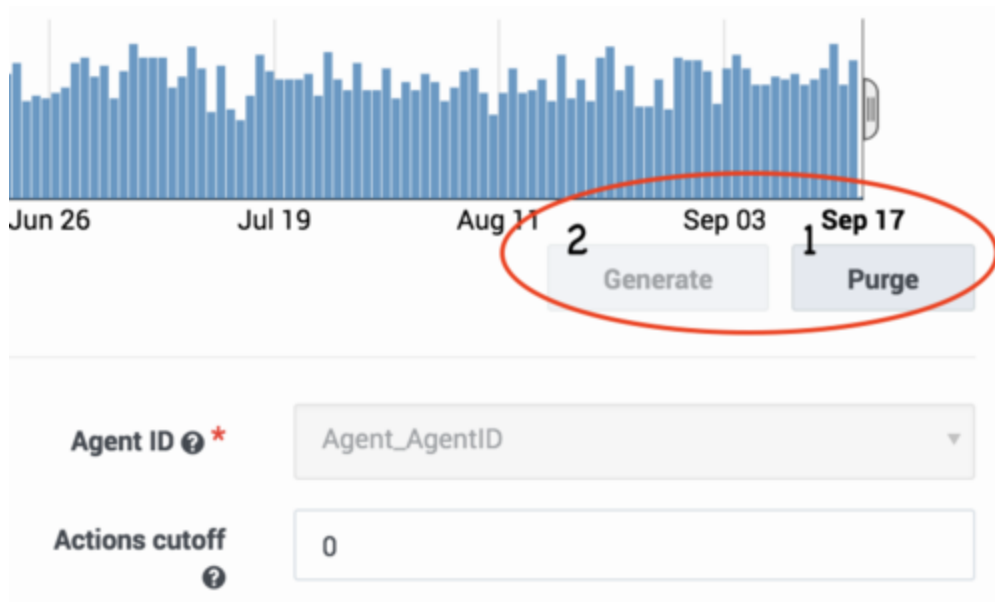
Update a predictor

You can edit your predictor *unless* you have created and activated one or more models based on it. In that case, Genesys recommends that you create a new predictor with the desired parameters.

You can change the predictor date range, purge generated data, and re-generate your predictor with a different date range at any time. However, already trained and activated Models continue to use data from the old date range.

1. Click **Purge** to change the date range in your dataset used to generate new models.
Activated existing models continue to use the same date range.
2. Select the new date range, and then click **Generate**.

Pop-up windows indicate the progress of the purge and generate jobs.



Gather updated scoring data using profile look ups

When you are using a model to score agents, you can configure Predictive Routing to incorporate up-to-date data from the Agent Profile schema and/or the Customer Profile schema rather than the corresponding data from your dataset.

For example, your dataset might be three months old. As a result, various metrics might no longer reflect the actual conditions in your environment. For example, a metric such as agent tenure is now three months out of date. Agent performance scores for each virtual queue might have changed, because of factors such as changes in virtual queue assignments, or training that might have improved an agent's performance.

To make use of the most recent available data, you *override* the use of the older data and enable Predictive Routing to look up the new values for key features.

Important

When configuring profile lookups, keep in mind that a large number of lookups can significantly impact the scoring response time. You should test for impact on scoring performance in your environment before configuring overrides for a large number of features.

Settings required to use profile lookups

To have Predictive Routing look up fresh values for specified fields, you must have the following:

- Agent Profile and Customer Profile schemas loaded and accepted.
- The **Agent Identifier** and **Customer Identifier** fields set to `Agents` and `Customers`, respectively.

Important

These instructions are given for both Agent and Customer Profile lookups. If you do not need Customer Profile lookups—that is, the customer data is fairly stable and does not need to be updated constantly, you can omit the **Customer Identifier** and **Customer Features** settings.

How profile lookups work

The image below shows a record in the Agent Profile schema that shows how to encode agent performance across different queues. The **a_performance** column contains a dictionary, consisting of two entries with the values `Tech Support:10.00` and `Sales:1.00`, respectively.

a_id	a_performance
a_1000	{Tech Support:10.00,Sales:1.00}

Important

- In the predictor schema, the action feature—in this case, **a_performance**—must be defined in such a way as to allow it to be an expression, since its actual value is based on an Agent Profile lookup.
- Currently only one-dimensional dictionaries are supported, with up to 200 key-value pairs where the key is a string and the value is int, float, or Boolean.

Note that information from the Agent Profile schema is used only for scoring, not for model training. When you are training a model based on your predictor dataset, the model uses the original profile data, but stores it in a flat (non-dictionary) format. This works well for training a model, where what is needed is a complete and consistent set of data.

The following image shows a dataset record encoding the same information as shown above, only in a flattened format:

a_id	VQ	Feedback
a_1000	Sales	1
a_1000	Tech Support	10

Here the **VQ** columns contain the names of the virtual queues and the **Feedback** column contains the agent performance value for the associated virtual queue.

In the example we have been using, the **Feedback** column (*feature*) holds the historical data on the agent's performance. To get the most recent value at run time, *override* this field so that it gets its value from the Agent Profile dataset rather than from the predictor (training) dataset. To do so, enable the **Override** toggle control next to the corresponding field and provide a lookup expression:

The **Override** toggle appears only beside fields that have a direct corresponding field in the dataset. Once **Override** is toggled on, the expression field appears and you can enter an expression for looking up the associated value from the profile dataset. Use the following shortcuts to open a suggestion list in the expression field:

- SHIFT+@ - for dataset fields
- SHIFT+# - for profile fields

The following graphic illustrates how the lookup expression maps to the different datasets:



Now you can issue a scoring request and it looks up the associated value in the Profile dataset. In this example, Predictive Routing looks up the value in the Agent Profile **a_performance** column using the VQ Key: **Sales**.

```

1 - {
2   "token": "d63a9832dfe43bdd259a546f141aa1358a6a46fc",
3   "context": {
4     "VQ": "Sales",
5     "Account_1_value": 600,
6     "Account_2_value": 2
7   },
8   "action_filters": "a_id in ['a_1000', 'a_1001']"
9 }

```

How to configure score expressions

Contents

- [1 Using expressions to improve scoring results](#)
- [2 How URS interprets score values](#)
- [3 Increasing and decreasing functions](#)
- [4 Scoring expressions for classification analysis](#)
- [5 Scoring expressions for regression analysis](#)
- [6 Metrics and score expressions in predictors](#)

Using Genesys Predictive Routing (GPR) is all about improving key performance indicators (KPIs) in your environment. These KPIs are represented as the *target metric* in your predictors and in analysis reports, such as the Feature Analysis report.

Related pages:

-

Using expressions to improve scoring results

When you configure a predictor, you have the option of entering a *score expression*, which enables you to adjust the metric. For example, you might want to feed it into another application that requires a metric value in the range of 1-10 instead of 1-100. Or you might be optimizing for a metric for which a better value is lower rather than higher.

Predictors support the use of score expressions. This topic explains how metrics for which a higher score is better (metrics you want to maximize) differ from metrics for which a lower score is better (metrics you want to minimize). The discussion also accounts for whether the metric is of a classification type (results fall into categories or classes) or regression type (results can occur along a continuum of values, usually with specified minimum and maximum values).

Important

GPR uses the term *p_score* to indicate the raw predictor score returned from the GPR scoring engine. This is an internally derived value and is not related to *p*-value or any other standard statistical terminology.

How URS interprets score values

URS has certain constraints on how it expects score values to be provided. Keep in mind the following:

- URS expects scores to be ≥ 0 .
- URS assumes that higher scores are better.
- Use the max-score configuration option to specify the highest score value URS can expect to encounter from GPR.
- URS truncates scores to integers by dropping any decimals produced by the scoring engine. As a result, if GPR generates scores of 99.01, 99.50 and 99.99, URS truncates all three scores to 99.

Increasing and decreasing functions

An *increasing scoring expression* or *increasing function* is one where the value of the expression increases if you increase the `p_score`. The following are examples of increasing scoring expressions:

- `p_score`
- `1+ p_score`
- `p_score -10`
- `5*p_score`
- `(2*p_score - 5)`

To see how this works, take the last example. If you evaluate `(2*p_score -5)` for two values, 1 and 2, you get the following results:

- $2*1-5 = -3$
- $2*2-5 = -1$

As you increased the `p_score` from 1 to 2, the scoring expression value increased as well, from -3 to -1. This is the defining characteristic of an increasing function, which can be used for metrics where a higher value is better. And as stated before, if you do not configure a scoring expression, the metric is treated as one you want to maximize.

A *decreasing scoring expression* or *decreasing function* is one where the value of the expression decreases if you increase the `p_score`. The following are examples of decreasing scoring expressions:

- `1-p_score`
- `10-p_score`
- `1/p_score`

To see how this works, take the last example. If you evaluate `1/p_score` for two values, 1 and 10, you get the following results:

- $1/1 = 1$
- $1/10 = 0.1$

As you increase the `p_score` from 1 to 10, the scoring expression value decreases from 1 to 0.1. This shows that you have a decreasing scoring expression, which you can use for a metric where a lower score is better.

Scoring expressions for classification analysis

A metric with binary classification results—one where the outcome is either of two values—can be either optimal when higher or optimal when lower, depending which of the two values is preferred. For example, you might have a metric indicating whether a sale was successful, with 1 meaning a sale was made and 0 meaning no sale. In this case, the desired outcome is the higher value, so GPR can handle this as a metric to be maximized. This is GPR default behavior, so entering a scoring expression is optional.

However, you might have a target metric such as deactivation, where if an SMS message is sent it—metric result is 1—this indicates that the customer deactivated their account. If the customer stays active, they do not send an SMS, and the result is 0, the desired outcome. In this case, to optimize the result, you should configure your predictor with a score expression of `1-p_score`. This flips the zeros to ones and the ones to zeros, and GPR correctly handles the metric as a case where you want to minimize the metric value.

Scoring expressions for regression analysis

For regression metrics, you can use a number of different types of scoring functions. The examples given above for the increase and decrease functions are regression-type scoring functions. The following recommendations can guide you in creating effective scoring expressions.

Example 1—Known Range of Values

The target variable ranges from 1 to 10. If you want to minimize the metric value, you might use the scoring expression `10-(p_score -1)`. This scoring expression neatly preserves the original range of the target metric. If you evaluate the scoring expression with `p_score` values of 10 and 1, you get output values of 1 and 10, respectively. This is an ideal result.

This can be stated more generally as `max-(p_score-min)`, where *max* is the maximum metric value and *min* is the minimum metric value.

Example 2—Unknown Range of Values

What if the maximum and minimum values of the target metric are unknown, as when working with AHT? In that case, use this scoring expression: `1/p_score`.

Note that there are important considerations when working with division in scoring expressions:

- The denominator must *never* evaluate to 0. In the case of AHT, because AHT is never negative, you can change the denominator to `1+p_score`.
- Write the numerator as 1.0 instead of 1, which tells Python (the underlying processing language) to interpret the numerator as a *float* value instead of an *int* value.
 - If the operation is performed on *int* values, the result must be an integer; that is, it cannot be a decimal or fraction. As a result, the output might be different than you anticipate. For example:
 - `1/2` (1 is an *int*) = 0
 - `1.0/2` (1.0 is a *float*) = 0.5.

Keeping these two rules in mind, the final scoring expression for our example of AHT becomes `1.0/(1+p_score)`.

This is, in fact, a good scoring expression for AHT, but adding another term to the generalized expression ensures that you do not end up dividing by zero in other cases: `1.0/(1+p_score-min)`, where *min* is the minimum metric value. If your metric has no set minimum—as AHT does not—use the minimum possible value.

Example 3—All Possible Values are Positive

As in the case of AHT, there is no set minimum, but the value cannot be a negative number. Therefore, use 0 as the minimum.

Example 4—The Minimum Value Can Be a Negative Number

If the target metric is in the range -5 to +5, then $1/(1+p_score)$ results in 0 as the denominator for $p_score=-1$. To avoid that, use $1/(1 + p_score - (-5))$. Now, the denominator can never be 0.

Metrics and score expressions in predictors

GPR supports both metrics where a higher value is better, such as FCR, CSAT, and so on, and metrics where a lower score is better, such as AHT, deactivation, and so on. When handling scoring requests, by default GPR assumes metrics should be maximized. If necessary, use the scoring expression field in your predictor configuration to manipulate the raw metric values.

For example, if you are creating a predictor for a metric you want to minimize, the simple expression $1/p_score$ transforms your metric so that lower (improved) scores generate a higher result. See Example 2—Unknown Range of Values under "Scoring Expressions for Regression Analysis" (above) for a full discussion of the best expression to use for metrics you want to minimize.

For a complete discussion of how to create and use predictors, see [Create and update predictors](#).

Configure, train, and test models

Contents

- [1 About models](#)
- [2 Create a new model](#)
 - [2.1 Open the Models interface](#)
- [3 Add a new model](#)
- [4 Configure a model](#)
- [5 Set the training and testing percentages](#)
- [6 Train your new model or retrain an existing one](#)
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- [8 ROC Model Quality analysis](#)
- [9 Activate a model](#)
 - [9.1 Activate multiple models at once](#)
- [10 Edit a model](#)

A *model* is built on a predictor and includes the same target metric. Each model has a subset of the agent and customer features present in the dataset. The Feature Analysis report helps you to identify the features with the strongest impact on the target metric. You can create multiple models for the same predictor, each with a different set of features selected.


- You can compare how well models work to create the most effective ones.
- You can configure models that are best-suited to specific circumstances and control which model is used by activating and deactivating them. This enables you to respond promptly to changes such as weekday vs weekend volume or the anticipated increase in certain types of interactions after a big marketing push.

Related pages:

-

About models

When you create a predictor, GPR automatically creates a full feature set model that includes all the agent and customer features included in the predictor. A predictor can have up to 50 active models per Tenant associated with it.

- The right-hand toggle navigation menu enables you to view a tree view of all datasets associated with your account, with the predictors and models configured for each. To open or close this navigation menu, click the  icon.
- You must reload the page to view updates made using the Predictive Routing API, such as appending data to a dataset, creating, updating, or deleting a predictor, or creating, updating, or deleting a model.
- You can configure a routing strategy to use a specific predictor, then edit the models and change which are active. In this way, routing can be adjusted and optimized on the fly, without requiring you to edit the strategy. For instructions on this specific functionality, see [Activating multiple models at once](#), below.
- The list of models includes the **Quality** column, which provides analysis reports on Model quality and agent coverage.

Create a new model

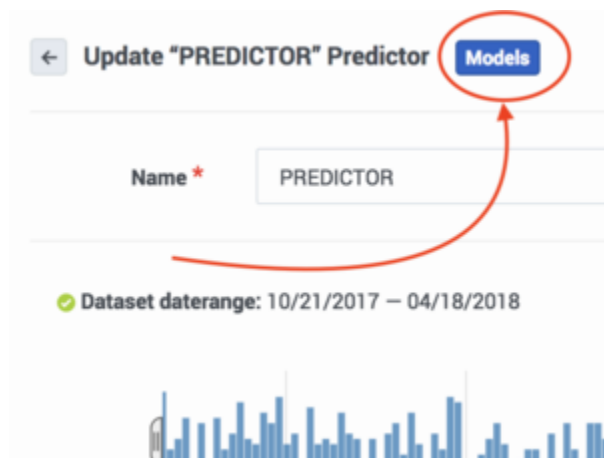
To open the configuration menu, click the **Settings** gear icon, located on the right side of the top menu bar:



Open the Models interface

To access your models:

1. Select **Predictor** from the left-hand navigation bar and then click the name of a predictor in your list.
The Predictor configuration window opens.
2. Click **Models**.



Add a new model

A screenshot of the Predictive Routing interface. The left sidebar shows the navigation menu with 'Predictors' selected. The main content area shows the 'Models of "PREDICTOR_1" page. It includes a '+ Add Predictor Model' button, a search bar, and a table of models.

	Name	Status	State	Rows	Quality	Last Run
<input type="checkbox"/>	A1	ACTIVE	LOCKED	2906	AUC: 0.53 MAE: 0.37	Oct 22, 2020 9:36: AM
<input type="checkbox"/>	FFS_1	ACTIVE	LOCKED	345	AUC: 0.59 MAE: 0.28	Oct 19, 2020 1:05: PM

When you create a predictor, GPR automatically adds the full feature set model, as shown in this graphic. The full feature set model includes every agent and customer feature you selected when you created the predictor.

- To create a new model, click **Add Predictor Model**.

Configure a model

The screenshot displays the 'Predictive Routing' application interface. The top navigation bar includes 'Agents', 'Customers', 'Datasets', 'Predictors', and 'Jobs'. The left sidebar contains a 'SCHEMA' section with 'Agent Profile', 'Customer Profile', and 'Datasets', followed by a 'SETTINGS' section with 'Accounts', 'Predictors' (highlighted), 'USER PROFILE', 'Password', 'ACCOUNT', and 'User Management'. The main content area shows the breadcrumb 'All predictors > PREDICTOR_1 > Predictor models' and a title 'Full feature set' with a calculator icon. Below this, the configuration fields are: 'Model Name' (Full feature set), 'Description' (empty text area), 'Customer Features' (CUSTOMER_INTENT, CUSTOMER_LANGUAGE, CUSTOMER_LOCATION, CUSTOMER_SEGMENT), 'Agent Features' (AGENT_LANGUAGE, AGENT_LOCATION), and 'Train vs Test Split' (80 - 20) with a slider set to 80.

Edit the fields as explained below.

- Enter a name for your model.

NOTE: Model names cannot include spaces.

Set the training and testing percentages

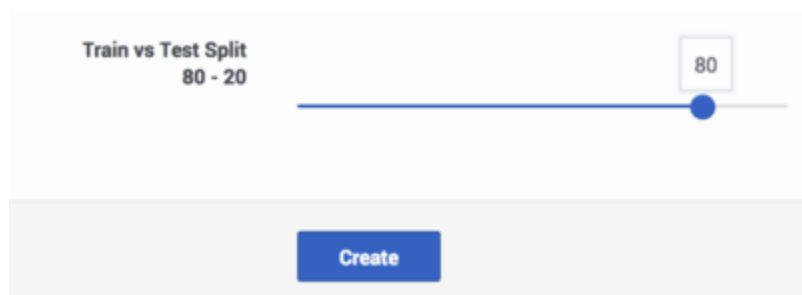
You can configure how much of your dataset is used to train your model and how much is used to test how well it works. This split is time-based. The most recent interactions are allocated to the test section of the dataset. For example, if you use 80% of the data to train your model and 20% to test it, the most recent 20% of the dataset records are used for testing.

Important

Data used for training is not used to score agents. Agent scoring is based on the data in the Agent and Customer Profiles or, if you are using the GPR API, on data passed in the API score request as part of the **context** parameter. If both are present, data from the API request takes priority over data from the Agent and Customer Profiles.

To set this value:

1. Use your mouse to slide the indicator to the desired point on the **Train/Test** bar.



The image shows a user interface for configuring the Train vs Test Split. It features a horizontal slider bar with a blue indicator dot. Above the slider, the text "Train vs Test Split" is displayed, followed by "80 - 20". A small box above the slider shows the value "80". Below the slider is a blue button labeled "Create".

Train your new model or retrain an existing one

All predictors > PREDICTOR_1 >

Models of "PREDICTOR_1"

+ Add Predictor Model

Train

Search by Name

Total: 4 / Selected: 1

	Name ▲	Status	State	Rows	Quality	Last Run
<input type="checkbox"/>	A1	ACTIVE	LOCKED	2906	AUC: 0.53 MAE: 0.37	Oct 22, 2020 9:36:59 AM
<input type="checkbox"/>	FFS_1	ACTIVE	LOCKED	345	AUC: 0.59 MAE: 0.38	Oct 19, 2020 1:05:55 PM
<input type="checkbox"/>	Full feature set	ACTIVE	LOCKED	345	AUC: 0.66 MAE: 0.34	Oct 19, 2020 1:05:32 PM
<input checked="" type="checkbox"/>	New_Model	INACTIVE	NEW		AUC: MAE: 0.00	

After you create your model, you must train it on your data.

- When a trained model has not been yet activated, you can modify it. For example, you might add new agent or customer feature, change the train/test split, and so on. After those modifications, you must retrain your model.
- When you train or retrain a model, the integer in the **Version** column of the list of models is incremented.
- If you change the date range for the predictor data, then purge and regenerate your dataset, an already-trained model does not need to be retrained. It uses the previously configured date range. But all models created after the data purge and regeneration use the new date range.

1. Select the check box in the table row for your model.

2. Click **Train**.

The training job can take a fairly long time, depending on the size of your dataset. Click the **Jobs** tab to monitor job progress.

View Model Quality results

Total: 1

	Name ▲	Status	State	Rows	Quality	Last Run	Version ⓘ	Mix ⓘ
<input type="checkbox"/>	Full feature set	🟢 ACTIVE	LOCKED	345	RMSE: 19.66 MSE: 386.49 FBQ: 0.58 MAE: 15.44 R2S: -0.57	Oct 19, 2020 1:07:10 PM	1	1

After you train your model, the **Quality** column shows values for various methods of evaluating how well the model works. The evaluation methods are selected automatically depending on the type of model.

GPR provides the following analysis types:

- *Classification* analysis buckets observations into predetermined binary categories, based on data already used for training. In this case, you already know that the data can be divided into meaningful categories, into which your new data can be placed. For example, you might record interaction results showing whether a customer's issue was resolved or not; whether the desired AHT was met or not; whether the final NPS was above a certain value or not; and so on.
- *Regression* analysis attempts to determine the strength of the relationship between one dependent variable (usually denoted by Y) and a series of other changing variables (known as independent variables). For example, you might be evaluating how agents' language skill levels (independent, changing) affect their ability to achieve first contact resolution (the dependent variable).

How different model types are evaluated for quality:

For binary *classification models*, which are evaluated using the area under the curve (AUC) method, you can analyze their effectiveness using a Receiver Operating Characteristic (ROC) Curve.

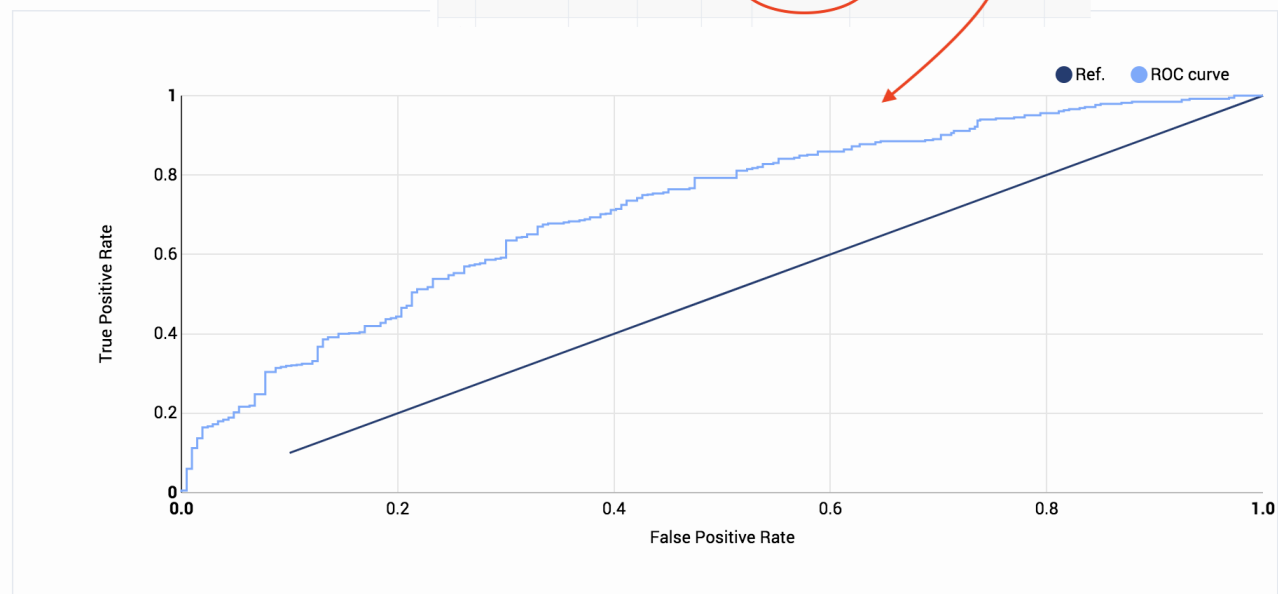
Regression models, such as those shown in the graphic, are evaluated by the following methods:

- RMSE (Root-mean-square deviation)
- MSE (Mean squared error)
- FBQ (Fraction below quantile. Calculated as `mean(y_i < y_pred)`, where `y` and `y_pred` are sequences of actual and predicted values, respectively.)
- MAE (Mean absolute error)

- R2s (R squared) indicates how closely the predictions fit with the historical observations. The values range from 1.0, the highest possible value, down. Use the following guidelines to interpret the level of success your predictions are achieving:
 - Score = 1.0: The best possible model. This is an unlikely score in real-world situations.
 - Score between 0 and 1: The higher the score, the better your predictions. This is the range you can expect to encounter if your models are correctly configured.
 - Score = 0.0: Indicates a blind model; that is, a constant model that always predicts the same expected value, disregarding the input features.
 - Score
- **Notes:**
 - The values for root mean square deviation (RMSE), mean squared error (MSE), and mean absolute error (MAE) are all relative to your defined metric. You should expect these to vary with the metric value. For example, a MAE of 10 might indicate serious problems if you have a NPS score, with a range of 0 - 10. In this case, a MAE of 10 indicates very poor performance, since it means that on average the estimate misses the mark by 10. However, for a metric such as AHT, with a range of 60 - 600, a MAE of 10 indicates excellent performance. In general, the following guidelines apply:
 - MAE and RMSE - any value that is less than 25% of your maximum metric value indicates a good model. Anything less than 50% of your maximum value could still have some potential. Anything higher than that should indicate that you need to reassess the features you are using for your model.
 - MSE - The same logic applies as with RMSE and MAE, except that the numbers are squared.

ROC Model Quality analysis

ROC Curve - AUC (0.72)



Close

For classification models (predictors that use a Boolean metric), you can drill down to view a detailed graph showing the effectiveness, evaluated by the area-under-curve (AUC) method, with a Receiver Operating Characteristic (ROC) Curve.

To open this graph, click the value shown in the Models column of the Predictors list. All models created for that predictor appear. The AUC value in the **Quality** column is active.

When you click the AUC value, a graph opens, showing the ROC curve balancing the True Positive Rate and False Positive Rate. These terms, and some useful associated ones, are defined below:

*True Positive (TP) - The number items that met the specified condition, and were predicted to meet the condition. In this case, a TP would be an interaction that met the designated CSAT level (value = `true`) and was predicted correctly to do so.

*False Positive (FP) - The number of items that did not meet a condition, but were predicted to meet the condition. In this case, it would be interactions that were predicted to result in the specified CSAT level but did not.

*False Negative (FN) - The number of items that did meet a condition, but were predicted not to meet the condition. In this case, it would be interactions that were predicted to result in an unsatisfactory CSAT level but did not.

*Positive Population (PP) - The total number of interactions with a satisfactory CSAT (value = `true`).

*Negative Population (NP) - The total number of interactions with an unsatisfactory CSAT (value = `false`).

The diagram shows a curve outlining the items that were true positives—correct, positive predictions—that occurred at a rate better than guesswork (the black line). The analysis looks at model sensitivity versus specificity.

*Sensitivity = $TP / (TP + FN) = TP / PP$ - The ability of the test to detect the desired result.

*Specificity = $TN / (TN + FP) = TN / NP$ - The ability of the test to correctly rule out the condition where it doesn't occur.

The ROC curve is a way to see the tradeoff between sensitivity and (1 - specificity) for different thresholds of probability for classification.

Activate a model

All predictors > PREDICTOR_1 >

Models of "PREDICTOR_1"

Activate the model

+ Add Predictor Model

Retrain

Total: 4 / Selected: 1

	Name ▲	Status	State	Rows	Quality
<input type="checkbox"/>	A1	ACTIVE	LOCKED	2906	AUC: 0.53 MAE: 0.37
<input type="checkbox"/>	FFS_1	ACTIVE	LOCKED	345	AUC: 0.59 MAE: 0.38
<input type="checkbox"/>	Full feature set	ACTIVE	LOCKED	345	AUC: 0.66 MAE: 0.34
<input checked="" type="checkbox"/>	New_Model	INACTIVE	TRAINED	3100	AUC: 0.53 MAE: 0.37

After your model is trained, activate it to use it for routing.

1. Select the check box in the table row for your model.
2. Click the **Play** button.
3. To deactivate a model, click the **Pause** button.

Activate multiple models at once

You can test model performance against other models by activating multiple models at once. You can then choose how much traffic is scored using each model. Models are selected at random to score interactions, with the number scored by each model dependent on how you *weight* the model using the **Mix** parameter.

- In the **Mix** column, enter the desired numbers for each model or set them using the up and down arrows located next to the number in the table cell.

The numbers indicate the relative numbers of interactions that are scored using each model. If you have a **1** in each column, the interactions are equally divided among the active models. If you set **1** for Model A and **2** for Model B, Model B is used to route two interactions for every one using Model A.

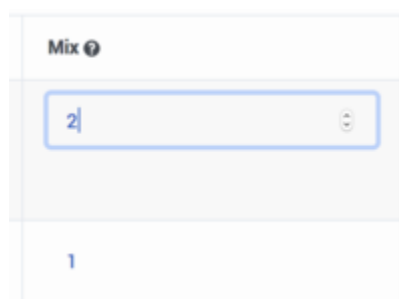
For example, you might have three models to which you have assigned the weights of **1**, **8**, and **4** in the **Mix** field. Think of these weights as creating three buckets of different sizes, with a total value equal to the three weight values added together:

- 0 | 1 | 13

On each incoming interaction, GPR chooses an entirely random number between **0** and the sum of all the weights (here this is **13**). Depending on which bucket or range the chosen number falls in, the interaction is scored using the associated model. In this example, models are selected as follows:

- If the number is between 0 - 1 (the first bucket), the interaction is scored using the first model
- If the number is between 2 - 9 (the second bucket), the interaction is scored using the second model
- If the number is between 10 - 13 (the third bucket), the interaction is scored using the third model

Given that the numbers are selected randomly, the number of interactions scored using each model end up proportional over time to the weights you selected in the **Mix** field.



The screenshot shows a table with a column labeled 'Mix'. The first row has a value of '2' in the 'Mix' column, which is highlighted with a blue border. The second row has a value of '1' in the 'Mix' column.

Mix
2
1

Edit a model

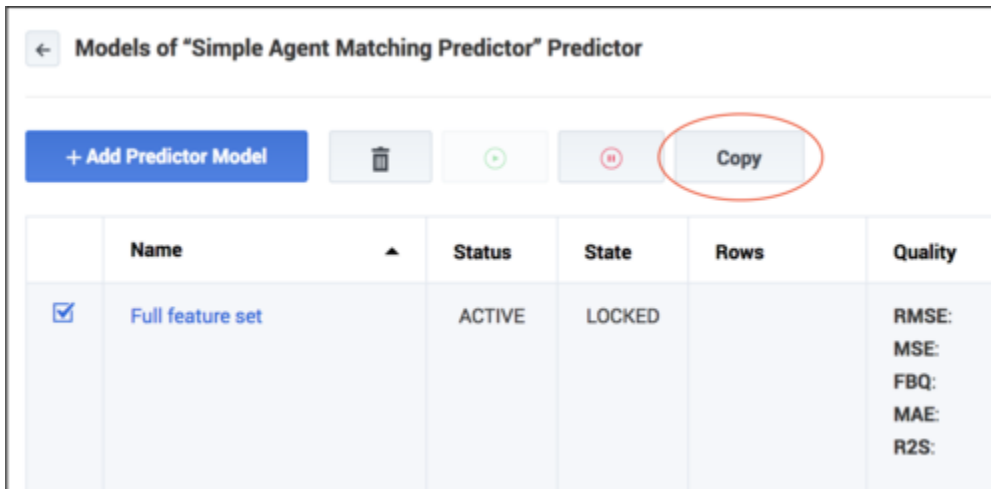
You can only edit a model that has not yet been activated.

- If a model has been trained and edited after training, the model needs to be retrained.

Once a model has been activated, it can not be changed or edited again. Even if you stop (deactivate) it, the model remains locked.

To edit an activated model, copy it. Only an active, trained model can be copied. When you make a copy, you are creating a new model that has the same name as the original model with the added suffix .

1. Select the check box for the model to be copied in the list of models. The **Copy** button appears.
2. Click **Copy**. The copy appears in the list of models.
3. Click the name of the copy and then follow the steps given above to edit, train, and activate the copy.



The screenshot shows a web interface titled "Models of 'Simple Agent Matching Predictor' Predictor". At the top, there is a navigation bar with a back arrow and the title. Below the title, there is a toolbar with five buttons: "+ Add Predictor Model" (blue), a trash icon, a green play icon, a red stop icon, and a "Copy" button (grey) which is circled in red. Below the toolbar is a table with the following columns: "Name", "Status", "State", "Rows", and "Quality". The table contains one row with the name "Full feature set", status "ACTIVE", and state "LOCKED". The "Quality" column lists metrics: RMSE, MSE, FBQ, MAE, and R2S. A checkmark is visible in the first column of the table row.

	Name	Status	State	Rows	Quality
<input checked="" type="checkbox"/>	Full feature set	ACTIVE	LOCKED		RMSE: MSE: FBQ: MAE: R2S:

A/B model performance testing

Contents

- [1 A/B Testing](#)
 - [1.1 Use A/B Test Results for Contact Center Wide Decisions](#)
 - [1.2 Advantages of A/B Testing](#)
 - [1.3 How Many Interactions Do You Need for A/B Testing?](#)
- [2 How Time-Sliced A/B Testing Works](#)
- [3 Getting Started with A/B Testing](#)
- [4 Building a Strategy, Predictor, and Models](#)
 - [4.1 Building Predictors](#)
 - [4.2 Building Models](#)
 - [4.3 Test Mode](#)
- [5 Pitfalls to Avoid](#)

Predictive Routing enables you to use Genesys historical reporting to generate an A/B testing report, which assesses how well your Predictive Routing models perform when compared with other models or with your standard routing.

- Learn more about Models.

When you run an A/B test, you compare the outcome of routing using one model with the outcome from one or more other models that differ from the first in specific, targeted ways. After a set amount of time, an analysis of the outcomes can show you the strengths and weaknesses of each model.

Related pages:

-

A/B Testing

A/B testing is a variety of testing that involves single element changes across multiple variations. Predictive Routing enables you to test various Models against each other with respect to a specific metric. For example, you might be able to evaluate which Model best achieves an improvement in first contact resolution, compared to each other and to routing without Predictive Routing.

Important

To perform A/B testing, you must have the full Genesys Historical Reporting solution (Interaction Concentrator, Genesys Info Mart, Reporting and Analytics Aggregates (RAA), and Genesys CX Insights (GCXI) deployed. See Predictive Routing A/B Testing Report for more information.

Use A/B Test Results for Contact Center Wide Decisions

You can use A/B testing to evaluate the impact of changes both Models and as well as for the impact of other routing decisions. Such tests help you see what elements are important for your agents and customers in a controlled environment. Once you have seen the results of a test you can apply the new knowledge to your interaction routing design or training plans.

Advantages of A/B Testing

- You can see results quickly.

- You can use it to test outcomes from advanced analytics, such as the effect on handle time, speed of answer, transfers, and so on.
- Uncovers features you can manipulate to make significant improvements to Key Performance Indicators (KPIs).
- Helps to prove that predictive routing improves targeted KPIs compared with skill-based routing.
- Requires a relatively small number of interactions.

How Many Interactions Do You Need for A/B Testing?

A common question is how many interactions you need when running a test. This depends of course on a number of factors. You might be able to make useful decisions based on only 100-200 interactions, especially when you have some scenarios where some aspect of your environment is significantly underperforming. In general, you should allocate at least 1,000 total interactions to your test stream and run the test for at least a week to account for any daily variances.

How Time-Sliced A/B Testing Works

Predictive Routing provides *time-sliced* A/B testing, with which you can enable and then disable Predictive Routing for specific periods of time. You can compare results from a Predictive Routing Model and routing without Predictive Routing. These time periods should be long enough to allow for a large enough sample size for each time period. Genesys recommends periods of at least 3 times your maximum speed of answer to give enough samples in each period.

Important

To use time-sliced A/B testing, all interactions must come from queues using Predictive Routing.

To be useful, these time periods also need to be comparable in expected volume of interactions, and number and quality of agents.

To configure A/B testing:

- Set the value of the prr-mode configuration option to `ab-test-time-sliced`.
- Configure the length in seconds of the time-slices that go into each sub-stream in the `ab-test-time-slice` configuration option.

Getting Started with A/B Testing

The features or steps in your current targeting strategy, such as the skill expression used, agent skill sets, training plans, shifts worked, and so on, have consequences. Those consequences are benefits that have been designed to suit your business and operational model. When you consider how to use A/B testing to improve your results, keep in mind the following principles:

- Focus on a specific KPI or metric that you can pin-point for testing.
- Make sure you are aiming to improve a metric that matters.
- Study the data to identify as clearly as possible which features affect that KPI. The testing itself then enables you refine your judgment.
- Clearly identify which features are necessarily static given your environment and which you can change.
- Change one feature at a time when fine-tuning your models, so you can clearly identify which have real impact.

Building a Strategy, Predictor, and Models

To start testing, create a main strategy. Insert the ActivatePredictiveRouting subroutine into the appropriate place in the strategy flow, then use the Predictive Routing interface to create a predictor for the strategy. For each predictor, you can create multiple models. By activating and deactivating one or more models from the Predictive Routing interface, you can control your testing without having to edit your strategy each time.

Predictive Routing will work if you are targeting all agents in your contact center, agent groups, or personalized direct-to-agent targeting.

Building Predictors

Each predictor can be built to operate on only one metric, such as first contact resolution, NPS, handle time, revenue, and so on. You might want to test predictors against each other, to see which metric gets the most lift from Predictive Routing, but for the most part, you will be testing models against models, not predictors against predictors.

Building Models

A model is a variant of a predictor, which you configure to use a specific set of agent and customer features. By changing one feature at a time in various models, you can focus in on the features with the greatest impact on results. Start with the default model created by Predictive Routing, which includes all customer and agent data, then analyze and adjust from there.

Important

For instructions on how to create and activate models, see [Configuring, Training, and Testing Models](#), which you can access from this link or directly from the interface by clicking the ? icon.

Test Mode

Predictive Routing has various modes, which can be set using the prr-mode configuration option. You can also configure a Switch block in your routing strategy, which can direct interactions along paths configured with the various modes:

- Dry-run—Predictive Routing scores agents for your interactions, but does not use the scores for routing.
- A/B time-sliced
- Production—Predictive Routing scores are used to route all interactions.

Test mode is especially useful when you are doing early-stage model analysis to identify the most promising models for additional A/B testing.

Pitfalls to Avoid

- You are testing a hypothesis that is not based on your data.
- Your data does not contain the information you need to test the metric you have selected.
- You are using different agent pools, agent groups, or target skills for A/B testing, which means you have multiple variables operating at once.
- Your models are running in dissimilar strategies.
- You are using time-slicing testing but your time period is too short for significant results.

Routing Scenarios Using GPR

Contents

- [1 High-Level Predictive Routing Interaction Flow](#)
- [2 How the Strategy Subroutines Work](#)
- [3 Routing Scenarios Using Predictive Routing](#)
 - [3.1 Agent Surplus Flow](#)
 - [3.2 Interaction Surplus Flow](#)
 - [3.3 Using gpmStatus and gpmSuitableAgentsCount to Monitor Your Routing](#)
 - [3.4 How Interactions are Sorted within the Queue](#)

To deploy the GPR subroutines, you modify your IRD strategies to incorporate them. Rather than picking the Agent with required skills who has been available longest, or using simple Agent Group routing, Predictive Routing predicts the best results for a specific interaction, based on customer intent or other relevant information.

Related pages:

- .

This topic presents the following information:

- A high-level view of a Predictive Routing interaction flow
- How the URS Strategy Subroutines work together to score agents and identify a routing target
- Routing scenarios using Predictive Routing, explaining how URS ranks agents by score

Important

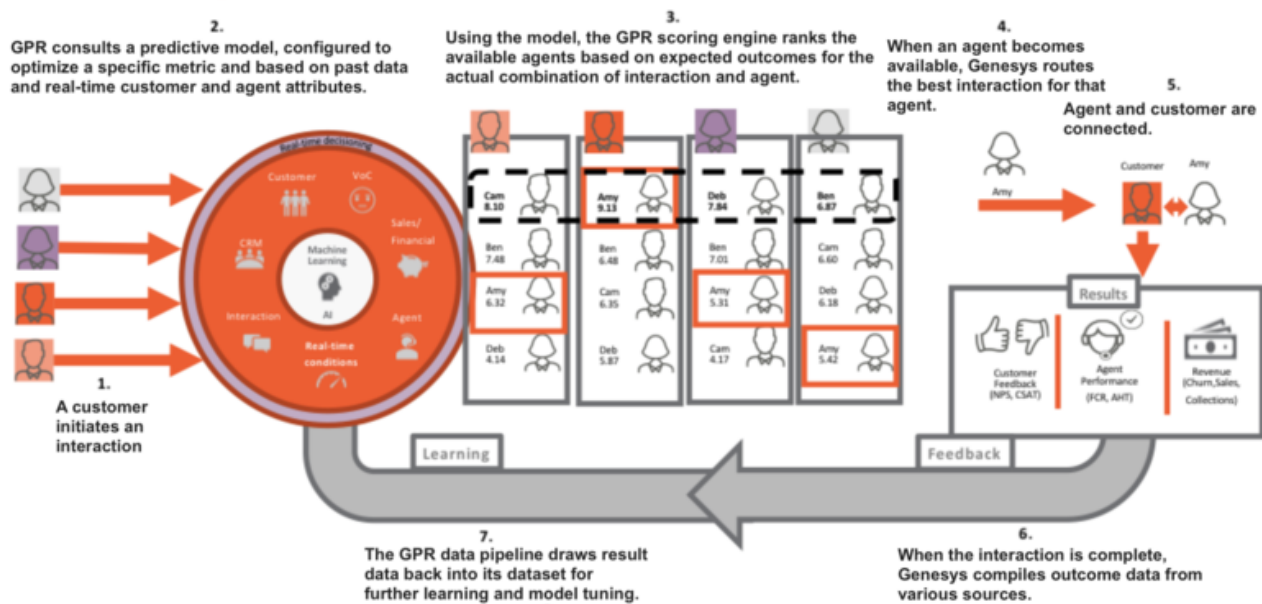
- If you would like to evaluate Genesys Predictive Routing for use with schedule-based routing (using Genesys Workforce Management), service-level routing, or business-objective routing, contact Genesys Professional Services for a review of your routing environment.
- If your environment uses multiple URS instances receiving interactions from a single T-Server, the only criterion used to select the next interaction for routing is priority.
- This topic assumes that you are using a virtual agent group (VAG) as the target for your routing. If you route using a skill expression to identify your targets, convert it to a VAG string expression using the IRD functions MultiSkill or CreateSkillGroup before passing the resulting string as an argument to the ActivatePredictiveRouting_v3 subroutine. See Using Agent Skills for Ideal Agent Selection in the *Supplement to the Universal Routing 8.1 Reference Manual* for more information.

High-Level Predictive Routing Interaction Flow

The graphic below shows a very general interaction flow using Predictive Routing. Refinements to the flow depend greatly on details of your environment. Key aspects that differ in various environments:

- Your data - That is, the interaction types supported and the applications that might have relevant information. Genesys Info Mart is a key data source, but CRM systems and other applications in your environment can also provide important data. See Set up data for import for more information.

- Your pre-routing data flow - This depends on the interaction type and the exact architecture in your environment. For example, is this a chat interaction or a call? Do you use an IVR, and if so, what information do you attach?
- The Genesys routing solution you are using - Predictive Routing supports routing with IRD/URS.
- Your reporting solution for Predictive Routing - Whether you are using GCXI, Genesys Pulse, or another solution to present the data stored in Genesys Info Mart.



How the Strategy Subroutines Work

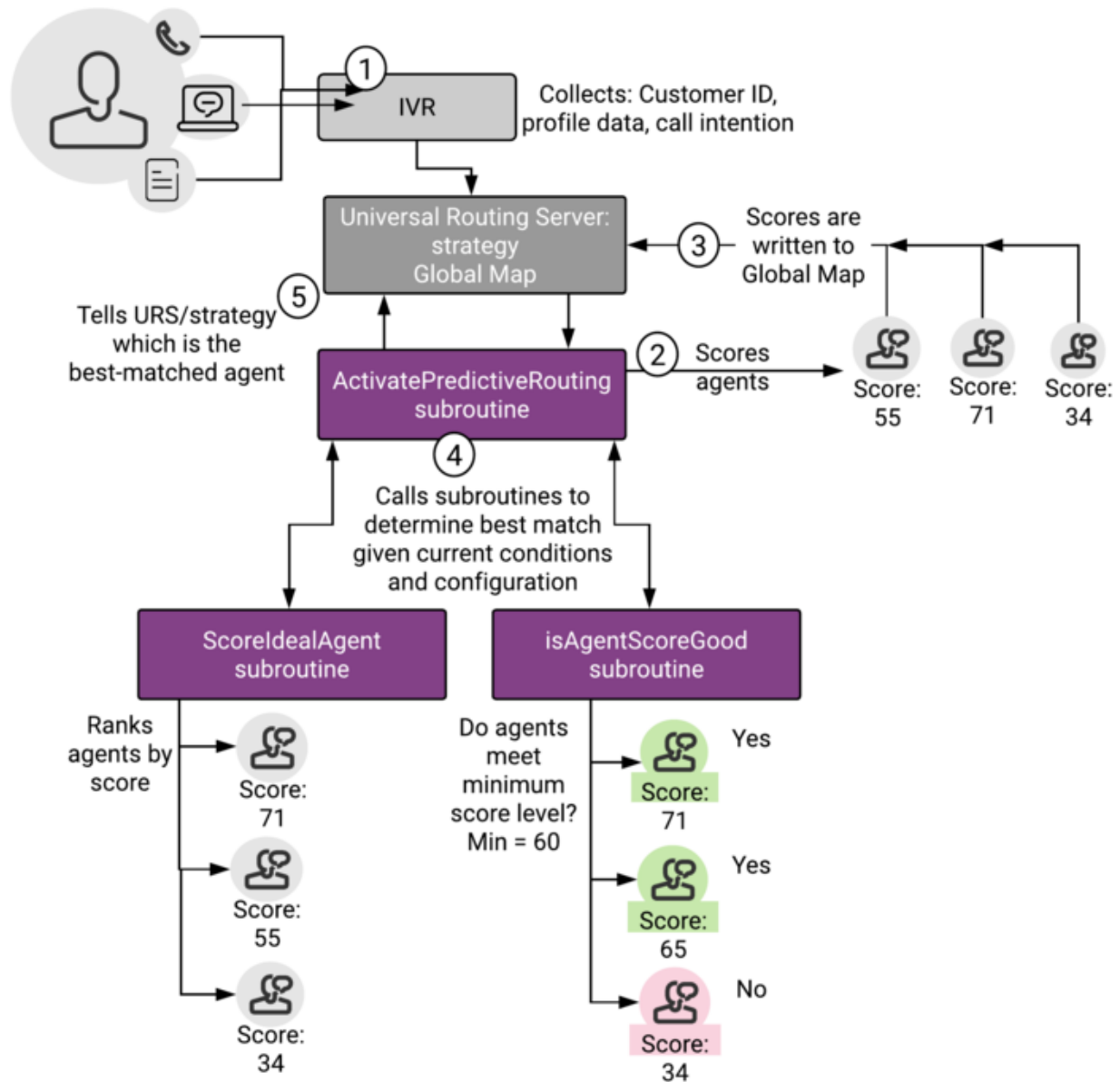
The following sequence provides a basic overview of the way the various GPR subroutines work together to evaluate agent scores and determine the best match given the currently available agents and the currently waiting interactions.

1. ActivatePredictiveRouting retrieves agent scores are retrieved from the GPR Core Platform via REST API request and stores them in the global map in URS memory. The name of the map is the interaction ConnectionId (the original ID, if the interaction is a consult). This map contains pairs of agent employee IDs as the keys and their scores for the interaction as values. ActivatePredictiveRouting calls the SetIdealAndReadyCondition subroutine for further interaction processing.
2. SetIdealAndReadyCondition processes the different modes of Predictive Routing. It calls the SetIdealAgent IRD function to schedule the execution of the URS callback subroutines. It calls the ScoreIdealAgent subroutine to facilitate interaction queuing according to their scores, and calls SetReadyCondition (if enabled) to call the isAgentScoreGood subroutine.
The parameters for these callback subroutines are retrieved and verified before any URS request is invoked to enable the callbacks.
3. After establishing a list of potential targets based on the target expression (Skill, Agent Group, and so on) SetIdealAndReadyCondition then executes the ScoreIdealAgent callback subroutine.

4. ScoreIdealAgent retrieves the scores for the potential target agents from the global map set in Step 1.
5. When an agent becomes ready, URS executes the isAgentScoreGood subroutine to determine whether that target is acceptable. If you enabled agent hold-out, URS executes the isAgentScoreGood subroutine when an agent becomes ready, which determines whether that agent reaches the specified threshold score. If not, URS waits for a configured timeout period, then checks whether any agent now satisfies the adjusted threshold value. See How does GPR score agents for a detailed discussion of how agent hold-out routing works.
6. Once the isAgentScoreGood subroutine locates an available agent who scores above the current threshold, it sends the target details to URS to initiate routing.
7. URS calls the GPRInCompleted subroutine as a custom step from a Routing Block in the strategy. It collects the Predictive Routing outcome for the successfully routed interaction (the DBID of the agent to whom it was distributed, the score of the agent, other interaction statistics relevant for the Predictive Routing performance) and prepares the user data for Predictive Routing reporting.
8. URS calls the GPRInCleanup subroutine from both the success and failure exits from the Routing block, or if the interaction is abandoned. The purpose of the subroutine is to publish the Predictive Routing reporting user data and to clean up the ScoreIdealAgent and isAgentScoreGood callback subroutines. GPRInCleanup publishes reporting data in two ways:
 - It sends a UserEvent containing the user data relevant for Predictive Routing to T-Server/SIP Server, from which is enters the Genesys historic reporting solution flow.
 - It can submit the same data AI Core Services via REST API request where it is stored in the score_log and can be retrieve using an API request.

Important

If your routing strategy uses the SelectDN and SuspendDN IRD functions instead of a Routing Block, consult with Genesys Professional services about how the ActivatePredictiveRouting, GPRInCompleted and GPRInCleanup subroutines can be integrated into your strategy.



Routing Scenarios Using Predictive Routing

When you are using Predictive Routing to route interactions, there are two main scenarios that affect how this matching plays out:

- **Agent Surplus** - There are relatively few interactions, which means there could be a number of high-score agents available. You can configure a minimum threshold so that, if the agents available are not very highly ranked, the strategy keeps the interaction in queue until a better-scoring agent becomes available.
- **Interaction Surplus** - There are many interactions, so that most agents are busy and it might be more difficult to find an ideal agent for each interaction. In such a scenario, you can have agents matched to the interaction for which they have the highest probability of getting a positive result.

Agent Surplus Flow

In this case there are agents logged in and in the Ready state who can respond to interactions immediately. From a Virtual Agent Group that is defined by skill expression, URS first tries to route an interaction to an agent with the best score, using the following process to match agents and interactions:

1. An interaction arrives at the routing strategy, which has a target group of agents.
2. The ActivatePredictiveRouting subroutine sends a request to the Predictive Routing scoring server via HTTP request.
3. Predictive Routing returns scores for each agent in the target group based on the criteria you selected in the active model.
4. The ActivatePredictiveRouting subroutine updates a global cache in URS memory, which keeps agent scores for all interactions. When URS tries to route the current interaction to the agent group, it sorts the agents according to their scores, in descending order, and routes to the agents with the best score first.

When URS takes an interaction from the queue:

1. URS calls the ScoreIdealAgent subroutine, which reads the agent scores in the target group from global map and ranks the agents by score.
2. URS calls the IsAgentScoreGood subroutine, which selects the available agent with the highest score, assuming the agent has a score high enough to be selected for this interaction.
In an agent-surplus scenario, it is typically not a problem to route to an agent with a good score. For scenarios where this is not the case, see **Interaction Surplus Flow**, below.
3. URS calls the GPRIdxnCompleted subroutine, which computes the values for the GPR KVPs based on the selected agent scores and updates the URS global map..
4. URS calls the GPRIdxnCleanup subroutine, which sends outcome and other scoring data to the score log and attaches them to EventUserEvent in the form of KVPs for storage in the Genesys Info Mart database.

Interaction Surplus Flow

This scenario covers situations when all agents are already busy handling interactions and new interactions are queued. When one of the agents becomes ready, the system selects the interaction for which the agent has the best score. This is not necessarily the interaction that has been in the queue longest.

When interactions are waiting, URS uses a number of criteria to decide the order in which it directs the interactions to the best target. In general, URS uses the following hierarchy:

1. Interaction priority.
2. Best agent score.

Important

In scenarios where both scored and unscored interactions might have the same priority, scoring is disregarded for all the interactions and the selection is based on the next differentiating criterion, time.

3. Time in queue, which can be based on age of interaction or time in queue and can incorporate predicted wait time.
4. Interaction ID (URS selects the interaction with the lowest—oldest—ID). This is a rarely-used "tie-breaker" criterion.

Using gpmStatus and gpmSuitableAgentsCount to Monitor Your Routing

gpmStatus and gpmSuitableAgentsCount are KVP values written in the Genesys Info Mart database when an interaction is routed using the GPR subroutines. (You can also retrieve the values by using the GPR API to query the score log.)

- gpmStatus indicates whether there was an agent-surplus or an interaction-surplus condition when the interaction was routed.
- gpmSuitableAgentsCount indicates the number of agents who have scores returned from AICS greater than or equal to the initial threshold value when the scoring response is received. If gpmSuitableAgentsCount is 0, then no agents have eligible scores compared with the threshold value, so the interaction must wait for a higher-scoring agent to become available or for the next threshold relaxation step

These KVP values, when analyzed for different interactions over a representative day or week period can help you understand your contact center traffic and GPR performance. The following table indicates certain scenarios and how to interpret them.

KVP Values	Inference
gpmStatus = caller-surplus gpmSuitableAgentsCount > 0	Your GPR Model is returning useful scores with relation to the configured routing threshold, but agent staffing is not adequate to produce satisfactory wait times.
gpmStatus = agent-surplus gpmSuitableAgentsCount > 0 or consistently a very small number	Analyze why the scores GPR returns are not meeting the configured threshold. You might need to retrain your Model, adjust the scoring expression, or reduce the threshold level.

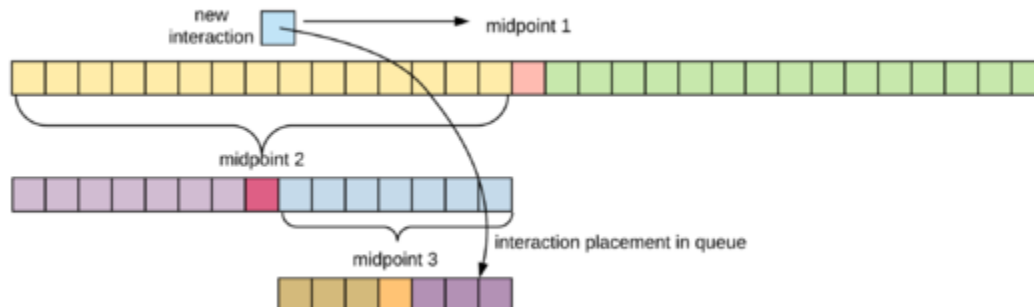
How Interactions are Sorted within the Queue

As each interaction comes in, it is scored, and then assessed relative to the interaction at the midpoint of the existing array of interactions. Does it come before or after the mid-point?

Important

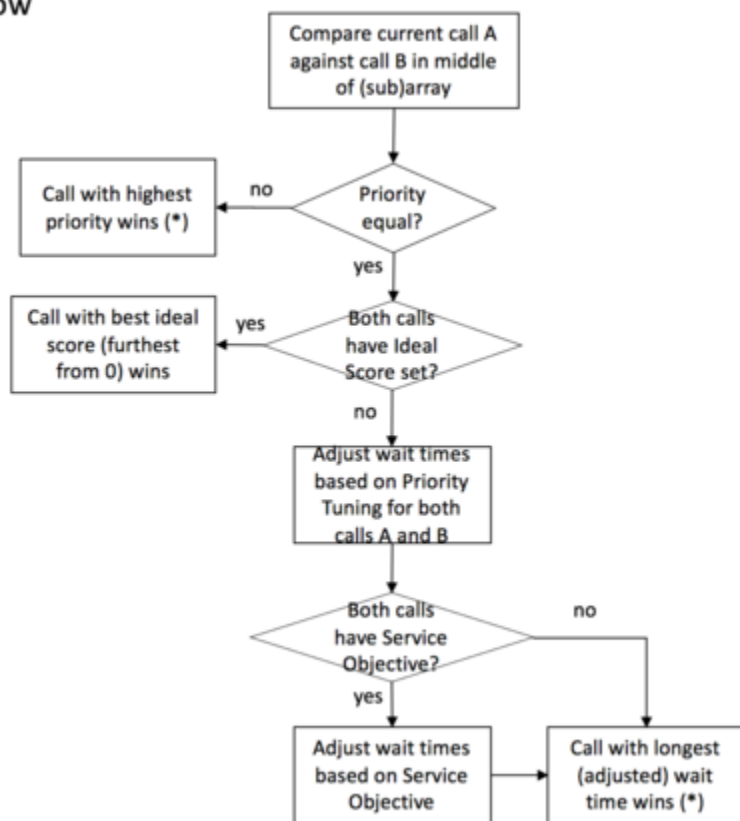
The order in which interactions are prioritized is called an *array* here. This is not equivalent to a queue. These interactions might be from multiple queues, each of which is submitting interactions for URS sorting and routing.

After this decision, URS compares the new interaction against the midpoint within the selected region. Each time URS evaluates the interaction, it is assigned to a smaller region with the total array, always relative to the midpoint of the previous region.



The sorting decision tree:

flow



Example 1

Three calls arrive at a contact center:

- C1 - priority = 1, agent score = 0.3, timestamp = 0:00, URS ID = 1
- C2 - priority = 1, agent score = n/a, timestamp = 0:05, URS ID = 2
- C3 - priority = 1, agent score = 0.6, timestamp = 0:10, URS ID = 3

1. C1 arrives first and is placed into the empty array.
2. C2 arrives. URS compares it with the middle (in this case, only) call in the array, C1.
The priority is equal and, because C2 has no agent score, URS moves to the next decision criterion.
3. C2 has a shorter wait time, so is put behind C1.
With only two calls in the array, no further comparison is needed.
4. C3 arrives. URS compares it against the "middle" entry of the array, C1.
The priority is equal. C3 has better score (further from 0), so URS puts it in front of C1.

Outcome: C3, C1, C2 (the example assumes that interactions are taken from the left end of the array)

Example 2

Five calls arrive at a contact center and are placed in either the Predictive Routing queue or a conventional queue:

- C1 - priority = 1, agent score = n/a, timestamp = 0:00, URS ID = 1
- C2 - priority = 1, agent score = 0.5, timestamp = 0:05, URS ID = 2
- C3 - priority = 1, agent score = n/a, timestamp = 0:10, URS ID = 3
- C4 - priority = 1, agent score = 0.75, timestamp = 0:15, URS ID = 4
- C5 - priority = 1, agent score = 0.95, timestamp = 0:20, URS ID = 5

1. C1 arrives first. URS places it into the empty array.
2. C2 arrives. URS compares it with the middle (in this case, only) call in the array, C1.
The priority is equal and, because C1 has no agent score, URS moves to the next decision criterion.
3. C2 has a shorter wait time, so is put behind C1. (In this example,
Current order: C1 C2 (the example assumes that interactions are taken from the left end of the array)

With only two calls in the array, no further comparison is needed.
4. C3 arrives. URS compares it against the "middle" entry of the array, C2.
The priority is equal and, because C3 has no agent score, URS moves to the next decision criterion.
5. C3 has a shorter wait time, so is put behind C2.
Current order: C1 C2 C3
6. C4 arrives. URS compares it against the middle entry of the array, C2.
The priority is equal. C4 has a better score (further from 0), so URS places it before C2.
7. Now URS must determine whether C4 should be before or after C1, which is also before C2.
The priority is equal and, because C3 has no agent score, URS moves to the next decision criterion.
8. C4 has a shorter wait time (a more recent timestamp), so URS places it behind C1.
Current order: C1 C4 C2 C3
9. C5 arrives. URS compares it against the "middle" entry of the array, C2.
The priority is equal. C5 has a better score (further from 0), so URS places it before C2.

10. Now URS must determine whether C5 should be before or after C4, the "middle" call in the section of the array before C2.
The priority is equal. C5 has a better score, so URS places it before C4.
11. Now URS must determine whether C5 should be before or after C1.
12. C5 has a shorter wait time, so URS places it behind C1.
Final order: C1 C5 C4 C2 C3

Using Agent Hold-Out

Agent hold-out enables you to have an interaction wait a specified time, even when an agent has become available, if the available agent has a low score for the interaction and there is a chance a better-matched agent might become available within the configured time window. The interaction flow is as follows:

1. URS calls the `IsAgentScoreGood` subroutine, which determines whether any of the available agents meet the threshold for handling the interaction.
2. If available agents have low scores for this interaction and the interaction spent only a short time in the queue, URS waits for a better agent to become ready.
3. The minimum acceptable score required for an agent for the interaction is gradually reduced, so if no higher-scored agent becomes available, the lower-scored agent might finally be given the interaction.

After that determination occurs, the remainder of the flow is the same as that given in the agent-surplus flow above. Use the relevant `Predictive_Route_DataCfg` Transaction List Object configuration options to set up agent holdout.

Dynamic Interaction Priority Increments

To avoid having interactions lingering in a queue for an excessive amount of time, URS can trigger an escalation in interaction priority after a time delay that you set. To speed up interaction handling, you can incrementally relax the minimum skill level required for agents to handle the interaction or expand the pool of agents to consider.

Each time a routing strategy tries to route an interaction, it calls the `ActivatePredictiveRouting` subroutine. After each failed routing attempt, the strategy checks how long the interaction has been waiting in the queue and, if the time in queue is above a certain threshold, it routes the interaction to the next available agent, no matter their score for the interaction.

Use the relevant `Predictive_Route_DataCfg` Transaction List Object configuration options to set up the priority increments.

How Does GPR Score Agents?

Contents

- [1 Default Agent Scores](#)
- [2 Score Adjustment](#)
- [3 Threshold Scores](#)
 - [3.1 Score Relaxation Timeouts](#)
- [4 How the Availability Status of Agents in the Target Agent Group is Determined](#)

GPR scores agents based on the data uploaded to the Agent and Customer Profiles or, if you are using the GPR API, on data passed in the API score request as part of the context parameter. If both are present, data from the API request takes priority over data from the Agent and Customer Profiles.

This topic explains how GPR handles various scoring scenarios, depending on your environment and your configuration settings.

Related pages:

- .

Default Agent Scores

If an agent belongs to the target Agent Group but GPR does not score the agent, the `isAgentScoreGood` and `ScoreIdealAgent` subroutines assign a score for that agent according to the value set for the `default-agent-score` configuration option.

For agents who have a default score assigned, the following KVPs reflect that value:

- `gpmAgentScore`, which records the value specified in the **default-agent-score** option if the agent who handled the interaction had the default score. If the the AICS scoring engine calculated a score for the agent, `gpmAgentScore` reports the calculated score value.
- `gpmDefaultAgentScore`, which records the value specified in the **default-agent-score** option.
- `gpmDefaultScoreUsed`, which indicates whether the selected agent was assigned the default score.
- `gpmDefaultScoredAgents`, which records the number of agents assigned the default agent score.

Example 1

Agents A and B log in after the scoring request is made and are each assigned the default score, which is 40. Agent A receives the interaction. The related KVPs have the following values:

- `gpmAgentScore` = 40
- `gpmDefaultAgentScore` = 40
- `gpmDefaultScoreUsed` = 1
- `gpmDefaultScoredAgents` = 2

Example 2

GPR assigns Agent C a score of 80. The default score is 40. No agents are assigned the default score. The related KVPs have the following values:

- gpmAgentScore = 80
- gpmDefaultAgentScore = 40
- gpmDefaultScoreUsed = 0
- gpmDefaultScoredAgents = 0

Score Adjustment

The GPR subroutines enable you to adjust agent scores using an **occupancy** factor when URS sorts them. You control the agent occupancy setting in the agent-occupancy-factor configuration option. Scores adjusted using an agent occupancy factor are recorded in the gpmAdjustedAgentScore KVP.

Example 1

GPR returns a score of 80 for Agent A. The **agent-occupancy-factor** option value is 0.5. If this agent selected to receive the interaction, the agent score KVPs have the following values:

- gpmAdjustedAgentScore = 40
- gpmAgentScore = 80

Example 2

- Agent A is available and has an occupancy of 80% and a score of 75
- Agent B is available and has an occupancy of 60% and a score of 70

The following settings are configured:

- agent-occupancy-factor = 0.5
- use-agent-occupancy = true
- agent-occupancy-threshold = 70%

Agent A

- gpmAdjustedAgentScore = 40
- gpmAgentScore = 80

Agent B

- gpmAdjustedAgentScore = 75
- gpmAgentScore = 75

As a result, the call is routed to Agent B

Important

This adjusted score is used only for sorting the agent scores in the `ScoreIdealAgent` subroutine. The adjusted agent score is *not* used in the `isAgentScoreGood` subroutine to compare the agent score with the configured threshold. The actual returned score is used.

Threshold Scores

To implement the agent holdout feature, GPR checks the score returned for the agent against the threshold value configured in the `score-base-threshold` option. URS calls the `isAgentScoreGood` subroutine to suppress routing to an agent who is in ready state if this agent does not provide an acceptable match for the interaction. This is used in conjunction with relaxation thresholds to target better-matched agents preferentially, expanding the pool of agents if the best-matched agents are unavailable.

- See Agent Holdout Options for the complete list of options used for agent holdout and threshold settings.

Score Relaxation Timeouts

By design, URS checks the threshold relaxation ("awakens") at two-second intervals. As a result, the minimum *real-world* value for `threshold-relaxation-timeout` is 2 because the threshold relaxation is checked only every two seconds. Even though the default value for the `threshold-relaxation-timeout` option is 1, URS applies the threshold relaxation only at two-second intervals.

When the `initial-threshold-timeout` value has elapsed, the minimum score required to allow an agent to handle the interaction is reduced by the configured relaxation step. This relaxation step can be applied multiple times, depending on the option settings you specify.

Example 1

GPR returns a score of 50 for Agent A. The threshold and relaxation options have the following values:

- `score-based-threshold` = 55
- `initial-threshold-timeout` = 2
- `threshold-relaxation-timeout` = 4
- `threshold-relaxation-step` = 4

Agent A is selected after 6 seconds. The related KVPs have the following values:

- `gpmAgentScore` = 50
- `gpmInitialScoreThreshold` = 55
- `gpmFinalScoreThreshold` = 47

URS attempts for Agent A	Threshold Value	Result
Interaction queued and scoring completed in the same second	55 (initial threshold value)	agent score (50)
after 2 seconds	51 (first relaxation applied, 55-4)	agent score (50)
after 4 seconds	51 (no change from previous step)	agent score (50)
after 6 seconds	47 (second relaxation applied, 51-4)	agent score (50) > threshold (47); interaction routed to agent

Example 2

GPR returns a score of 30 for Agent B. The threshold and relaxation options have the following values:

- score-based-threshold = 40
- initial-threshold-timeout = 5
- threshold-relaxation-timeout = 2
- threshold-relaxation-step = 5

Agent A is selected after 8 seconds. The related KVPs have the following values:

- gpmAgentScore = 30
- gpmInitialScoreThreshold = 40
- gpmFinalScoreThreshold = 30

URS attempts for Agent B	Threshold Value	Result
Interaction queued and scoring completed in the same second	40 (initial threshold value)	agent score (30)
after 2 seconds	40 (no change from previous step)	agent score (30)
after 4 seconds	40 (no change from previous step)	agent score (30)
after 6 seconds (initial timeout is 5 seconds, but relaxation is applied only when URS awakens)	35 (first relaxation applied, 40-5)	agent score (30)
after 8 seconds	30 (second relaxation applied, 35-5)	agent score (30) = threshold (30); interaction routed to agent

Example 3

GPR returns a score of 35 for Agent C. The threshold and relaxation options have the following values:

- score-based-threshold = 40
- initial-threshold-timeout = 5
- threshold-relaxation-timeout = 1 (no value specified, default value used)
- threshold-relaxation-step = 1 (no value specified, default value used)

Agent C is selected after 10 seconds. The related KVPs have the following values:

- gpmAgentScore = 35
- gpmInitialScoreThreshold = 40
- gpmFinalScoreThreshold = 34

URS attempts for Agent C	Threshold Value	Result
Interaction queued and scoring completed in the same second	40 (initial threshold value)	agent score(35)
after 2 seconds	40 (no change from previous step)	agent score (35)
after 4 seconds	40 (no change from previous step)	agent score (35)
after 6 seconds (initial timeout is 5 seconds, but relaxation is applied only when URS awakens)	38 first and second relaxation applied: <ul style="list-style-type: none">• first relaxation after initial 5 seconds• second relaxation after next 1 second	agent score (35)
after 8 seconds	36 (third and fourth relaxations applied, 38 - 2)	agent score (35)
after 10 seconds	34 (fifth and sixth relaxations applied, 36 - 2)	agent score (35) > threshold (34); interaction routed to agent

How the Availability Status of Agents in the Target Agent Group is Determined

URS provides agent availability information to GPR. It checks with Stat Server on the agent login status of the specified target group before making the scoring request, and adds the list of matching agents in the request field 'action_filters'.

The GetActionFilters subroutine reads the login statuses specified to be available for routing from the login-status-expression configuration option.

- To use this functionality, set the value of the use-action-filters configuration option to `false` (the default value is `true`).

Sample scoring request showing a list of agents employee IDs in the field `action_filters`, where `POC0x` strings indicate IDs of agents with a required login status:

```
{
  "token": "",
  "format_as_map": "true",
  "context_id": "3600",
  "log_request": "true",
  "action_filters": "employeeId in [\"POC01\", \"POC02\", \"POC03\", \"POC04\"]",
  "context": {

```

```
"PR_TYPE":"Gold",  
"PR_LANG":"French"  
}  
}
```

Important

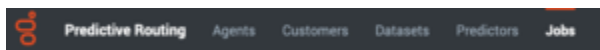
- This architecture increases the load on URS by approximately 15%. Use the sizing worksheet to verify that you have sufficient URS bandwidth available.
- Only alphanumeric characters, spaces, and underscores are supported in the names of Stat Server `Application` objects. Names including other special characters cause a malformed scoring request.

What you can monitor

Genesys Predictive Routing (GPR) provides a number of ways to assess the quality of your data within the application interface.

Related pages:

-



The top navigation bar enables access to the following windows, which display various trends and performance metrics:

Agents - View agent distribution and details.

Customers - View customer distribution and details.

Datasets - View dataset trends and details. The **Datasets** tab also provides the Feature Analysis and Agent Variance reports.

Predictors - Monitor feature coverage, model accuracy, and KPI outcomes.

Model Quality - View model quality statistics from the list of models for a selected predictor.

Integrate with Genesys reporting - Explains how GPR integrates with the Genesys Reporting solution, which provides in-depth feature-rich reporting on scoring, interaction handling, outcomes, and so on.

Monitor predictor feature coverage

Contents

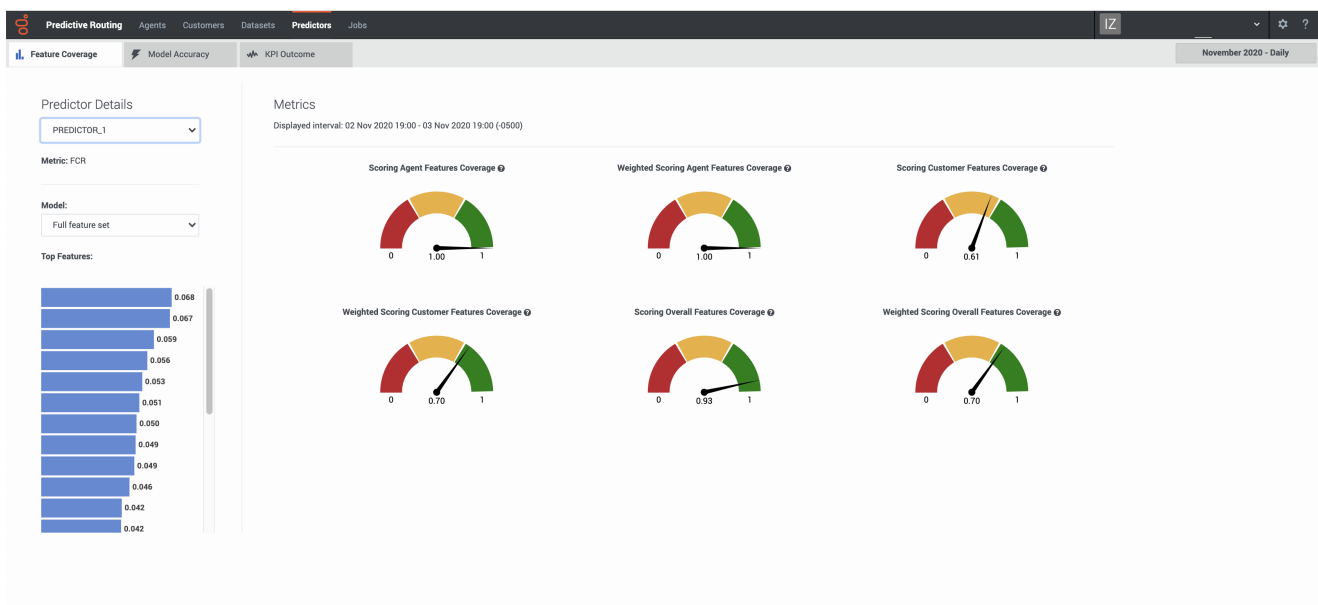
- [1 The Feature Coverage tab](#)
 - [1.1 Configure the view](#)
- [2 How to read the dials](#)
- [3 Metrics definitions](#)
 - [3.1 Feature coverage scores](#)
 - [3.2 Weighted feature coverage scores](#)
- [4 View feature coverage trends](#)

Gain insight into your Machine Learning model performance factors to ensure you always get the best predictions.

Related pages:

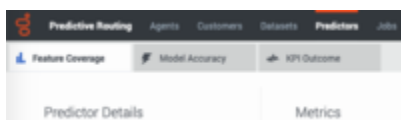
-

The Feature Coverage tab



The **Feature Coverage** tab provides a view into whether you have adequate data to make good predictions.

This tab is on the **Predictors** window:



Prerequisites: To use this tab, you must have created a Customer Profile dataset, an Agent Profile dataset, one or more predictors, and have scoring data available.

Configure the view

The **Feature Coverage** tab enables you to select the following information:

- The name and ID of the predictor. Use the selector to specify which predictor to view.
- The name and ID of the model. Use the selector to specify which model to view.
- The displayed date range. Use the year and month selectors to specify the month to view.
- The granularity—Day, Hour, or 15 minutes—at which the data is displayed on the dials and on the Trends window that opens when you click one of the dials.

Note: This page does not display real-time updates. GPR refreshes the data displayed once per day, at 3:00 am UTC.

The left side of the window shows the features that have the strongest effect on the predictor's target metric. They appear in a horizontal bar graph that shows the strength of each of features with a weight of at least 0.01%.

- To see what the features are, hover your mouse over the graph bars. A tooltip opens, showing the feature name and its calculated importance weight.

How to read the dials



The **Feature Coverage** tab presents six dials, each with a range of 0-1, which indicates the percent coverage of the specified performance factor. The number below the dial corresponds with the point indicated by the needle on the dial. That is, a dial setting of 0.59, as shown in the graphic, equals 59%.

Note: If the window displays no agent feature dials, there are no agent features present in the selected model.

The dials are colored red, yellow, and green to provide a quick visual indicator of whether the feature coverage for the associated parameter is satisfactory. *Green* indicates that you have good coverage, *yellow* means that you should review your coverage quality, and *red* indicates that coverage is not adequate and you should take action to improve predictor performance.

Metrics definitions

Feature coverage scores

Three of the dials show the percentage of features available when the selected model was trained that are also in the actual data used for scoring. One shows agent features, one customer features, and one shows the result for all features taken together.

The values range from 0 to 1, with higher being better. If all features in the training dataset used to create the model are also in the data used for scoring, the value is 1. A lower value shows that some data you expect might no longer be available.

If, over time, feature coverage drops but weighted feature coverage holds steady, the data in the missing features might be of low value in any case, since the weighted coverage value gives emphasis to the features with the highest impact on the KPI configured in the predictor.

Weighted feature coverage scores

The remaining three dials also show the percentage of features available when the selected model was trained that are also in the actual data used for scoring, but with that figure adjusted to weigh the most significant features higher.

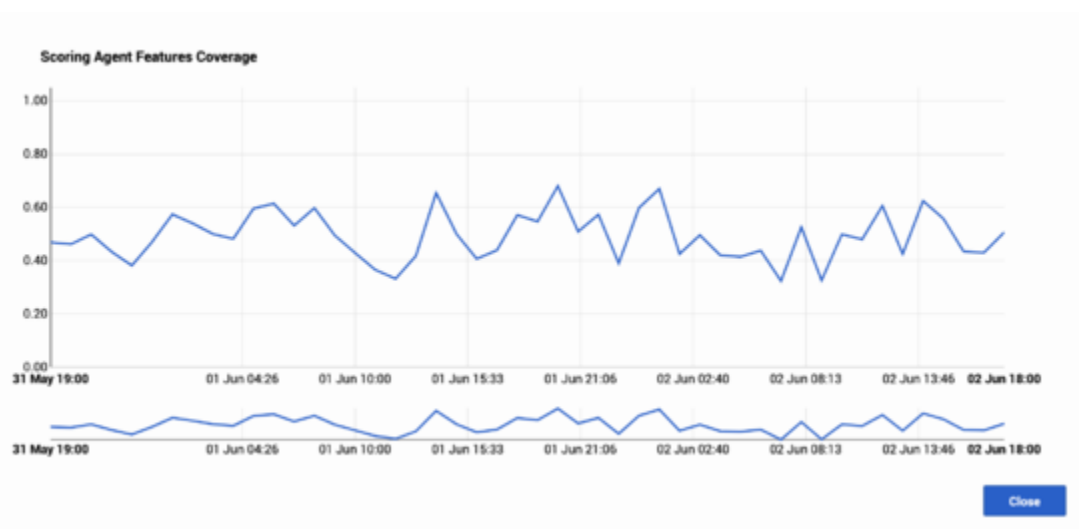
- To view the feature weighting, see the bar graph showing the top features on the left side of this window.

As a result of the weighting, if coverage is good for very significant features but poor for insignificant ones, the weighted result is still good. However, even if feature coverage is good for most features, if it is poor for one or more significant features, the weighted result is poor. As a result, coverage can appear good on the non-weighted dials and poor on the weighted ones.

In these dials also, the values range from 0 to 1, with higher being better.

If weighted feature coverage drops but feature coverage is steady, the small amount of missing data must disproportionately affect key features.

View feature coverage trends



The feature coverage dials show data for the selected month period. To view feature coverage trends over the selected time, follow these steps:

1. Click any of the six dials. A **Trends** window opens, with a graph showing all data points for the metric you clicked during the month you selected on the main window. The data points reflect the granularity selected in the **Plot By** field.
2. To show a shorter period of time within the month, click the blue selector line below the main chart. This activates a slider function, enabling you to narrow the time period shown on the upper Trend graph. This
3. Hover your mouse over the Trend line to open a tooltip showing the exact date and feature coverage value for that point on the line.

View model accuracy

Contents

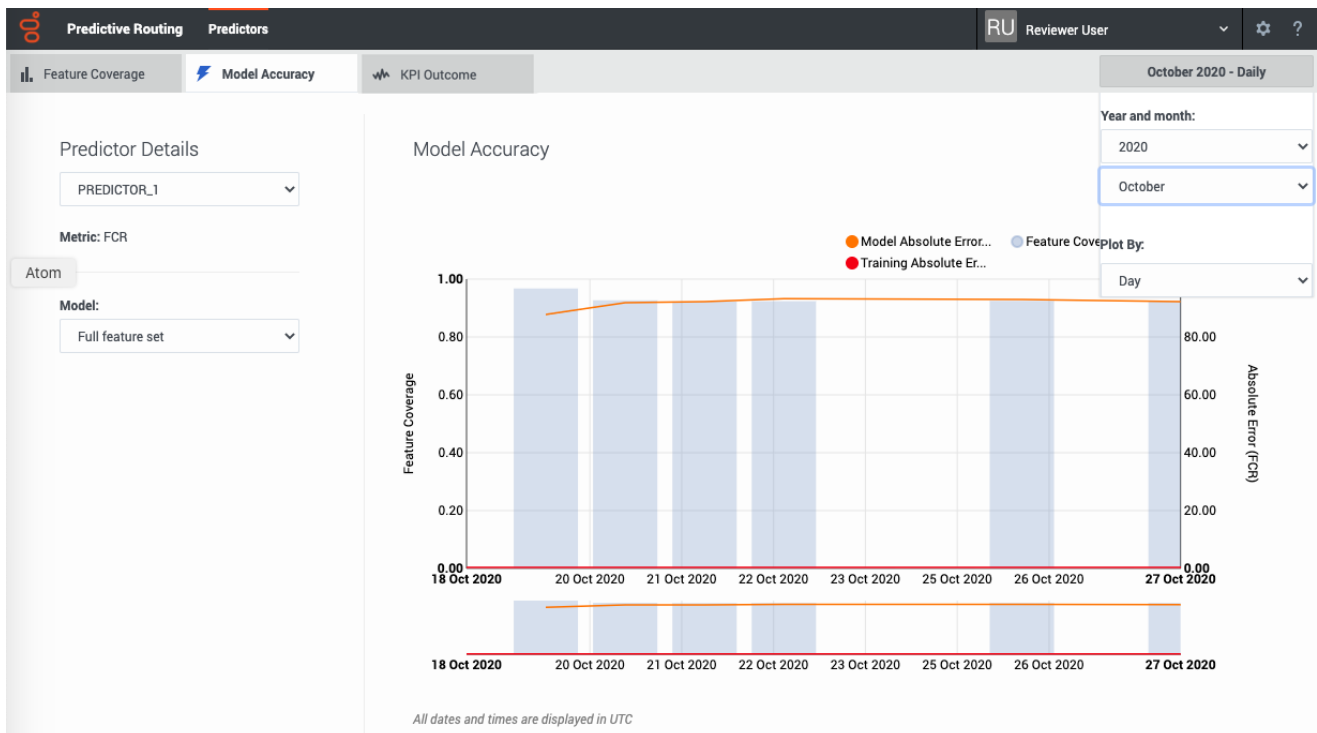
- [1 The Model Accuracy tab](#)
 - [1.1 Configure the view](#)
- [2 How to read the graph](#)

View how well your model is performs over time, how accurate your model was when trained, and feature coverage.

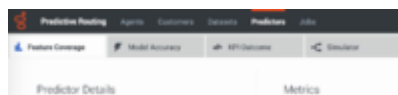
Related pages:

-

The Model Accuracy tab



The **Model Accuracy** tab provides a view into how well your model performs over time.



This tab is on the **Predictors** window:

Prerequisites: To use this tab, you must fulfill the following conditions:

- Your account must include an Agent Profile dataset, an interaction dataset with the Interaction ID field set, one or more predictors, and have scoring data available.
- You must configure Data Loader to extract from the Genesys Info Mart database the necessary data to derive outcome results for the metric in your predictor, and append this data to the interaction dataset used to create the selected predictor.

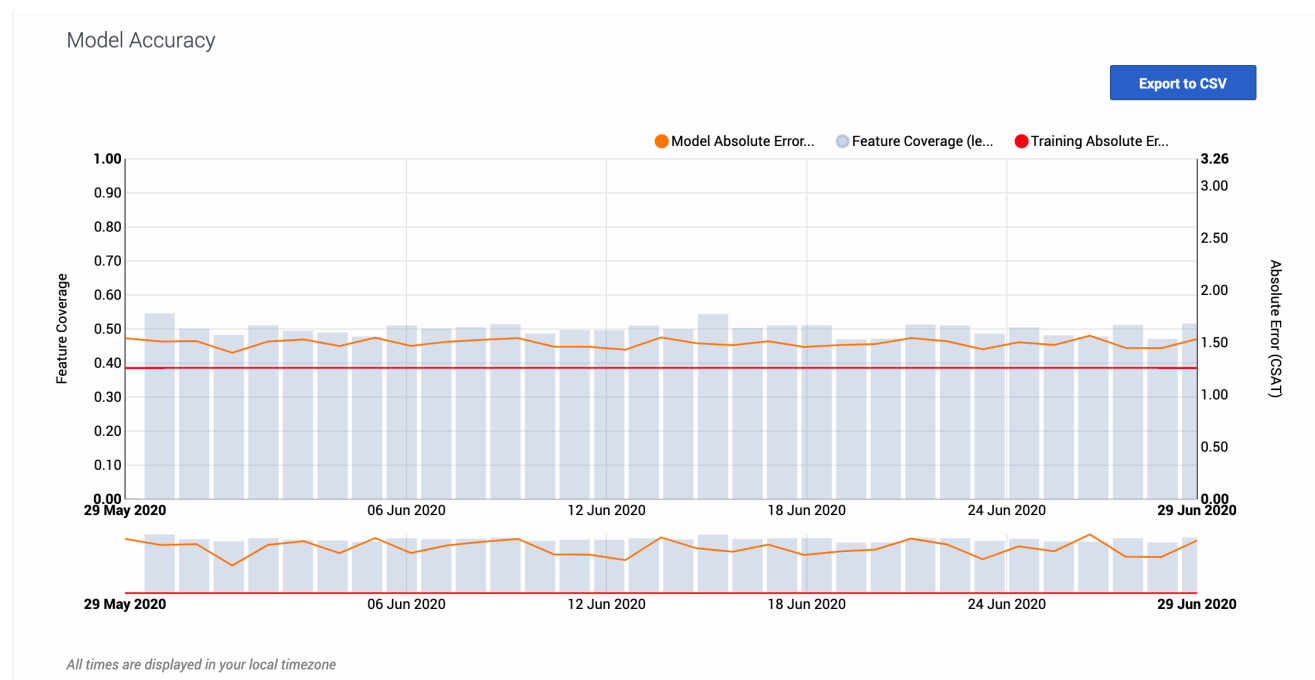
Configure the view

The **Model Accuracy** tab enables you to select the following information:

- The name and ID of the predictor. Use the selector to specify which predictor to view.
- The name and ID of the model. Use the selector to specify which model to view.
- The displayed date range. Use the year and month selectors to specify the month to view.
- The **Plot By** selector enables you to set the granularity with which the graph displays data. You can choose to view data by Day, Hour, or 15-Minute interval.

Note: This page does not display real-time updates. GPR refreshes the data displayed once per day, at 3:00 am UTC.

How to read the graph



The Model Accuracy graph shows the mean absolute error value, indicating the difference over time between the results the model predicts and the actual outcomes. This value, and

how to interpret it, varies depending on the type of key performance indicator (KPI) your model optimizes.

The graph also includes a horizontal line marking the accuracy level when the model was trained, enabling you to compare the training result with real-world performance. The gray bars show the feature coverage level, since feature coverage issues are often the reason for degradations in model accuracy.

Note: If feature coverage does seem to be the source of a model's drift away from accuracy, use the **Feature Coverage** tab to troubleshoot issues. To view the features ranked by the strongest impact on the KPI value, see the **Top Features** horizontal bar graph on the Feature Coverage tab.

Example

When you view the graph, keep in mind that the vertical axis on the right shows the mean absolute error rate, not the actual KPI value. The example image on this page shows the graph for a model designed to optimize CSAT. The horizontal red training line shows that when you created the model, it had an error rate of 1.26. That is, the average difference between the predicted CSAT and the actual CSAT was 1.26 points. As you have used this model over time, this difference between the predicted CSAT and the actual CSAT has ranged from 1.40 to 1.56.

To export the model accuracy data as a .csv file, click the **Export to CSV** button.

View KPI outcome

Contents

- [1 The KPI Outcome tab](#)
 - [1.1 Configure the view](#)
- [2 Read and configure the graph](#)

View how well Genesys Predictive Routing (GPR) optimizes your key performance indicators (KPIs) compared with routing without GPR.

Related pages:

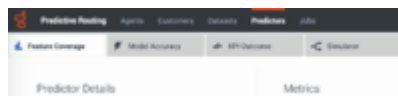
.

The KPI Outcome tab



The **KPI Outcome** tab provides a view into how effectively Predictive Routing (GPR) routing optimizes your KPI compared with non-GPR routing.

This tab is on the **Predictors** window:



Prerequisites: To use this tab, you must have the following:

- Your account must include an Agent Profile dataset, an interaction dataset with the Interaction ID field set, one or more predictors, and have scoring data available.

- You must configure Data Loader to extract the necessary data from the Genesys Info Mart database to derive outcome results for the metric in your predictor and append this data to the interaction dataset used to create the selected predictor.

Configure the view

The **KPI Outcome** tab enables you to select the following information:

- The name and ID of the predictor. Use the selector to specify which predictor to view.
- The name and ID of the model. Use the selector to specify which model to view.
- The displayed date range. Use the year and month selectors to specify the month to view.

The **Plot By** granularity is set to Day. This value is not configurable.

Notes on the data displayed

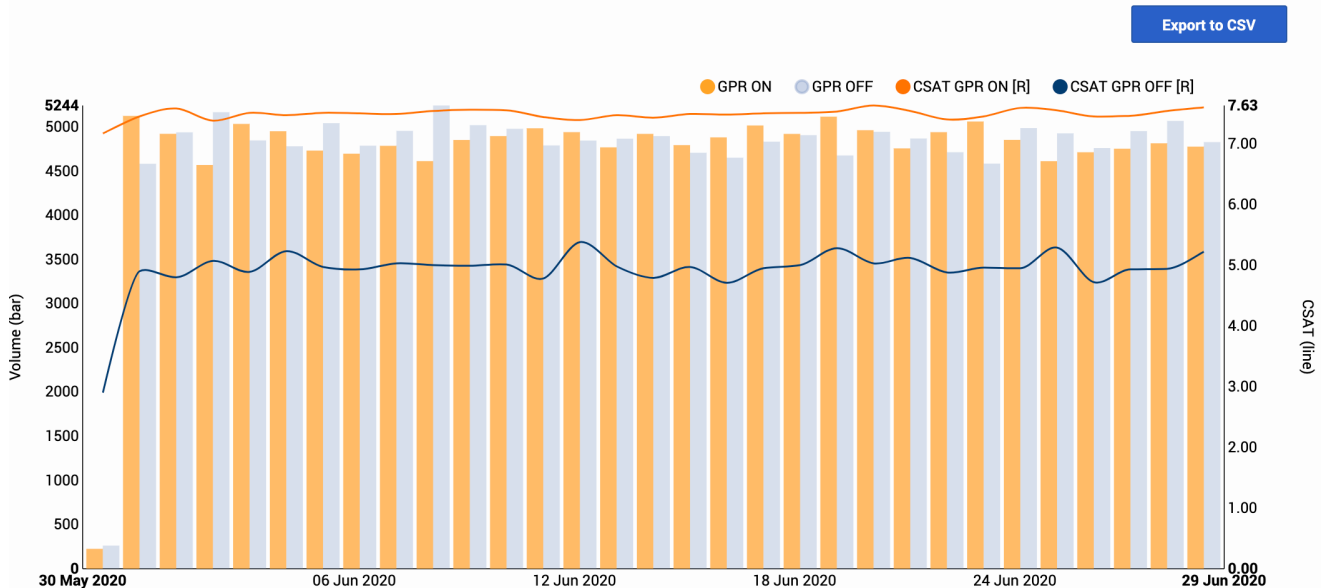
- GPR filters the data used to generate this graph to remove calls identified as anomalies. For example, GPR might discard the following:
 - Calls with an AHT of less than 15 seconds or greater than 2400 seconds.
 - Calls with null values for the AHT, EMPLOYEE_ID, or VIRTUAL_QUEUE fields.

The actual criteria used for filtering depend on your environment. For details, contact your Genesys representative.

- This page does not display real-time updates. GPR refreshes the data displayed once per day, at 3:00 am UTC.

Read and configure the graph

KPI Outcome



The KPI outcome graph has two vertical axes, volume of interactions on the left side and the KPI values on the right. The horizontal axis shows the dates displayed. The graph uses two sets of bars and lines, one for interactions routed using GPR (orange), one for non-GPR interactions (unavailable).

- Bars: Show the volume of interactions routed with and without GPR on each day.
- Lines: Show the metric level for GPR and Non-GPR interactions on each day.

To view only GPR or non-GPR interactions, click the radio buttons above the graph to switch what data the graph displays.

To export the KPI Outcome data as a .csv file, click the **Export to CSV** button.

View Agent Details

Contents

- [1 The Details tab](#)

The Agents window enables you to view detailed information about the agents in your Agent Profile.

Related pages:


-


- To open this window, click **Agents** on the top navigation bar.

Important

Fields with the visibility turned off in the Agent Profile schema are not visible on the **Agent Details** tab.

The Details tab

**Predictive Routing** **Agents** Customers Datasets Predictors Jobs

 **Details**

Agents Details

AGENT_LANGUAGE	AGENT_LOCATI
English	Europe
Spanish	North America
English	Europe
Spanish	Europe
French	North America
French	Europe
English	North America
French	North America

The **Details** tab presents a table displaying columns from your Agent Profile schema. These columns are fields marked as Visible in the in the Agent Profile schema. By default, only the first 15 Visible features (columns) are displayed in the table.

To view all columns for a row, click anywhere in that row to open a window containing the complete record. The data for that row is displayed as a two-column table. The first column contains the names of all columns in the original table row and the second column contains the corresponding values.

Agent Record (ID: 0)

Key	Value
_tags_processed	false
Agent_Age	32
Agent_AgeBucket	1
Agent_AgentID	0
Agent_DateOfBirth	1985-06-17
Agent_Experience	17
Agent_First	Aurora
Agent_Gender	female
Agent_HireDate	2009-09-15
Agent_IsActive	false
Agent_Last	Maguire
Agent_Location_Country	US
Agent_Location_State	MS
Agent_Number	0

View Customer Details

Contents

- 1 [The Details tab](#)

The Customers window enables you to view complete information about the agents in your Customer Profile.

- To open it, click **Customers** on the top navigation bar.

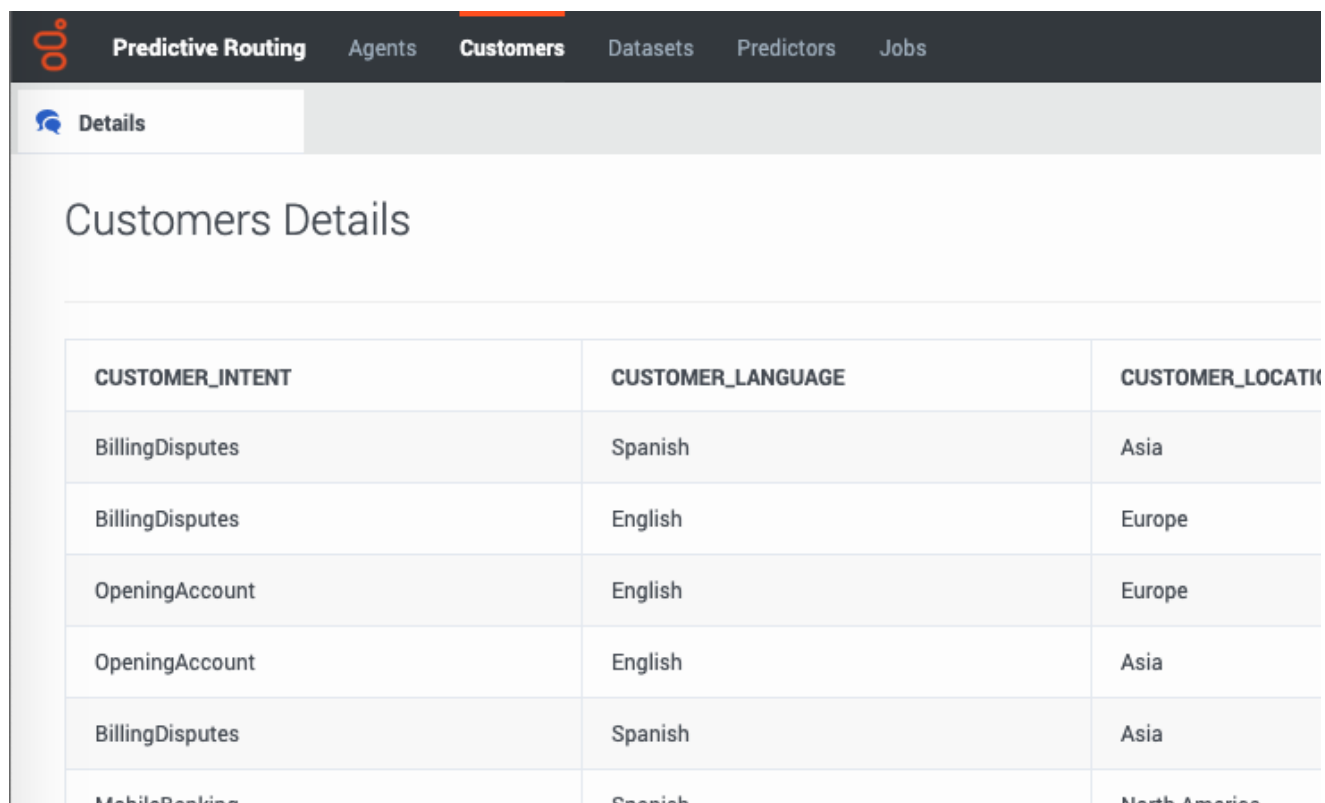
Important

Fields with the visibility turned off in the Customer Profile schema are not visible on the **Customer Details** tab.

Related pages:

-

The Details tab



The screenshot shows the Genesys Predictive Routing Staff Help interface. The top navigation bar includes links for Predictive Routing, Agents, Customers (highlighted), Datasets, Predictors, and Jobs. Below this, the 'Details' tab is selected. The main content area is titled 'Customers Details' and contains a table with three columns: CUSTOMER_INTENT, CUSTOMER_LANGUAGE, and CUSTOMER_LOCATION. The table lists several customer records with their respective intent, language, and location.

CUSTOMER_INTENT	CUSTOMER_LANGUAGE	CUSTOMER_LOCATION
BillingDisputes	Spanish	Asia
BillingDisputes	English	Europe
OpeningAccount	English	Europe
OpeningAccount	English	Asia
BillingDisputes	Spanish	Asia
MobileBanking	Spanish	North America

The **Details** tab presents a table displaying columns from your Customer Profile schema. These columns are fields marked as Visible in the in the Customer Profile schema. By default, only the first 15 Visible features (columns) are displayed in the table.

To view all columns for a row, click anywhere in that row to open a window containing the complete record. The data for that row is displayed as a two-column table. The first column contains the names of all columns in the original table row and the second column contains the corresponding values.

Customer Record (ID: 2f18aed5-7147-4b24-a224-de11826a44c6)

Key	Value
Customer_AccountValue	173684761
Customer_Age	22
Customer_AgeBucket	1
Customer_ANI	2f18aed5-7147-4b24-a224-de11826a44c6
Customer_Escalations	3
Customer_Income	242572
Customer_Intent	Tech Support
Customer_Location_Country	US
Customer_Location_State	MO
Customer_Segment	Gold
Intent Group 0	8
Intent Group 1	6
Intent Group 10	8
Intent Group 11	3
Intent Group 12	4

View Datasets Trends and Reports

Contents

- [1 Dataset Reports](#)
- [2 The Trend Tab](#)
 - [2.1 View the Dataset Trend Graph](#)

View Dataset trends on the **Trend** tab and generate reports for your datasets.

Related pages:

- .

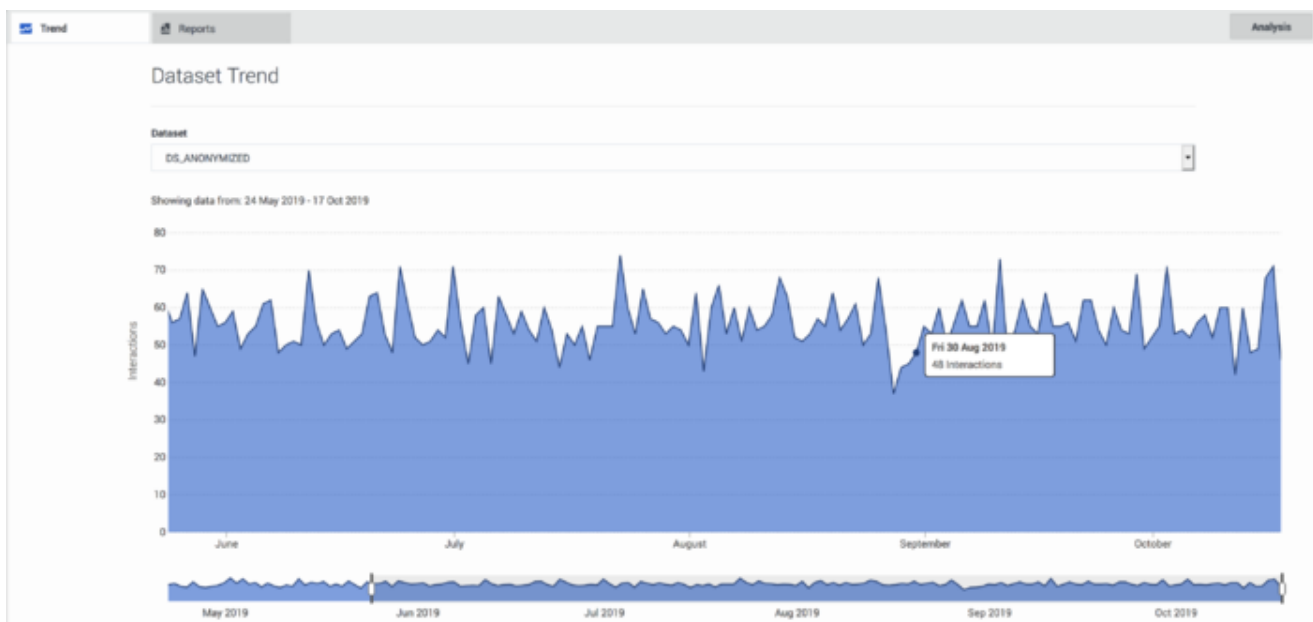
Dataset Reports

Click **Reports** to view previously-generated reports based on the selected dataset. See the Feature Analysis Report and Agent Variance Report topics for information about the reports available for datasets.

The Trend Tab

The Trend tab displays a plot showing the number of interactions over time.

View the Dataset Trend Graph



1. Select **Datasets** from the top navigation bar.

2. Click the **Trend** tab.
3. To change which dataset you are viewing, select the desired dataset from the **Dataset** drop-down menu.
4. Use the slider on the mini-graph below the main graph to adjust the period of time shown on the main graph. Move the left-hand or right-hand slider control to reduce the period shown. This provides increased granularity on the main graph view.
5. Hover your mouse over the trend line on the main graph to open a pop-up window with exact information about the currently-highlighted point on the graph.

Agent Variance report

Contents

- [1 About the Agent Variance report](#)
- [2 Generate an Agent Variance report](#)
- [3 About the Agent Variance report graphs](#)
 - [3.1 Inter-Agent Variance](#)
 - [3.2 Agent Variance Across Categories](#)

Success using Genesys Predictive Routing (GPR) depends on the presence of variance in agent performance for a target metric. The more variance between agents, the greater the impact of choosing better agents.

Related pages:

- .

About the Agent Variance report

The Agent Variance report actually produces two different graph types, depending on your choices as you configure the report:

- **Inter-agent Variance** - Shows how well individual agents perform, which enables you to see which are your highest-performing and weakest agents.
- **Agent Variance** - Shows the range of agent performance for each category as specified in the **Group By** field. For example, if you group your report by location, you can see how your agents are performing in each location.

Important

- Predictive Routing supports report generation that includes up to 250 features (columns).
- For all reports, mandatory fields are marked with an asterisk.

Generate an Agent Variance report

To create an **Agent Variance** report:

1. Click **Datasets** on the top navigation bar.
2. Click **Analysis**. This button is located on the right side of the top navigation bar.
3. Choose the **Per Agent Variance** report type from the drop-down list.
4. Select the settings you want to include in the report.
 - **Target Metric:** Choose the target metric from the drop-down list of metrics included in the selected dataset. The target metric must be of a numeric or Boolean type.

- **Agent ID:** The Agent ID should be an identifier that uniquely and precisely distinguishes each agent included in the dataset.
- **Group By:** Your selection here determines which type of graph output is generated.
 - The agent variance tool enables you to show variance between agents grouped by a categorical or a numeric variable, such as agent location, virtual queue, or seniority. To create such a report, select the appropriate parameter in the **Group By** field.
 - Alternatively, you can create an inter-agent performance analysis. In this case, you are analyzing how a specific agent performs in various contexts. To create this type of report, the **Group By** value should be the same as the **Agent ID** value.
- **Min Interactions Per Agent:** Set this parameter to filter out agents that have too few interactions in the dataset records to give a meaningful picture of their performance. Genesys recommends that the minimum number of interactions per agent should be at least 10.
- **Number of Agents:** Specify the number of agents for which you want to run this report. The default is 50 agents. GPR determines which agents to include by first filtering the pool of agents using the parameters you set when configuring the report, then by ranking the agents in descending order according to the number of interactions they have handled. The number of agents you specify here are then selected from the top of the resulting list.

5. Click **Run Analysis**.

The result appears on the **Reports** tab. Information above the graph shows the parameters used to generate it. You can view it on the **Reports** tab or use the buttons to the upper right of the graph to export or delete the results.

- See About the Agent Variance Report Graphs (below) for an explanation of the resulting report.

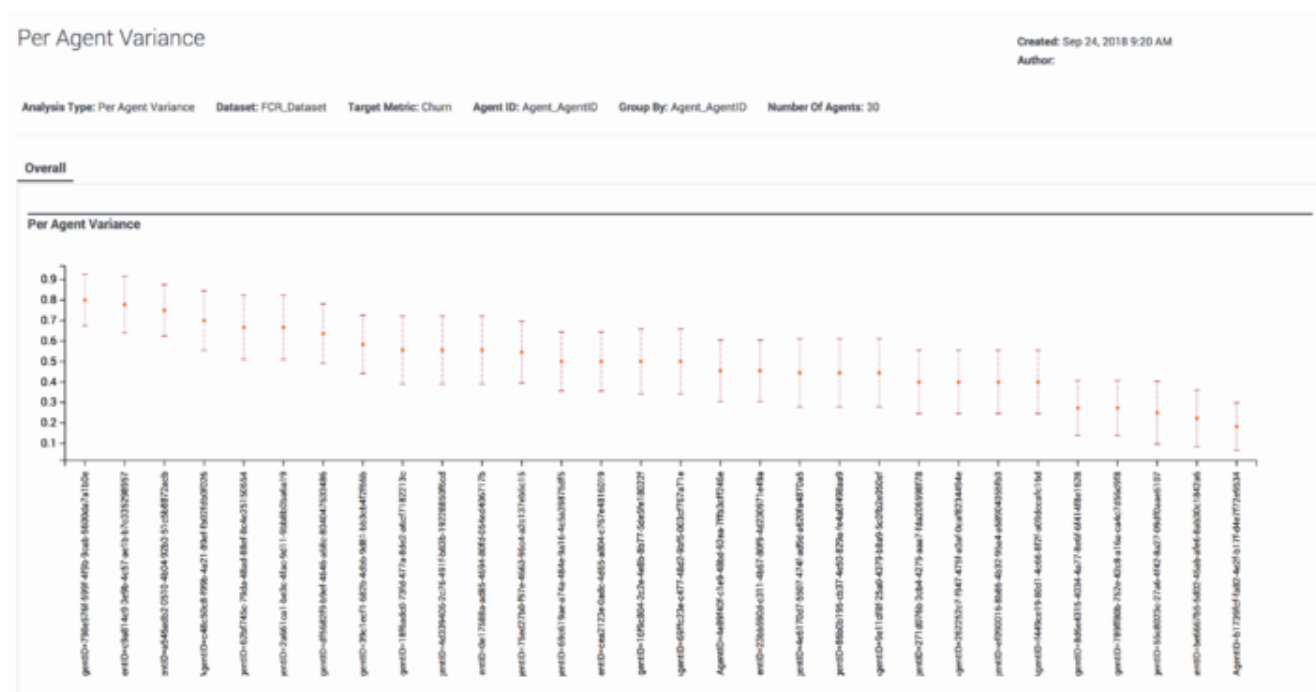
About the Agent Variance report graphs

This report produces two different chart types, depending on what you select as the value of the **Group By** parameter: intra-agent variance or agent variance across categories.

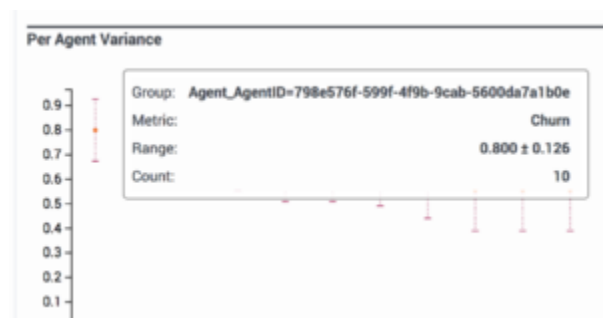
Inter-Agent Variance

When specify Agent_ID as the value for the **Group By** setting, the graph shows inter-agent variance with each agent functioning as its own "group". In this scenario, the highest potential for optimization occurs when you have tight vertical bounds, showing consistency in agent skills, and large horizontal variations, indicating that the mean values for these agents are very different.

In the Inter-agent variance graph, each red bar represents one agent.



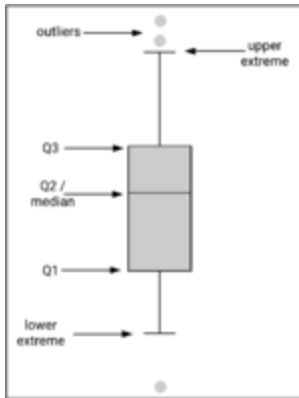
Hover over the center red dot on any bar to view details about that item.



- The **Range** indicates the numeric value of the mean (central dot), followed by the the standard error of the mean for the agent who is represented by the selected bar, showing agent performance for the specified Metric. The standard error of the mean is "a measure of the dispersion of sample means around the population mean" (Wikipedia, Standard Error).
- The **Count** is the number of interactions (or rows in the Dataset) and agent has that relate to the specified Metric.

Agent Variance Across Categories

If you select any Group By value other than the agent ID, the result is shown in a box plot.



- A large variation in the mean or median values along the *horizontal* axis means that the agent performs very differently depending on the selected interaction or customer category (whatever you entered as the **Group By** value).
- A large variation on the *vertical* axis means that agent performance varies a great deal within the category.

AV_AHT_VQ

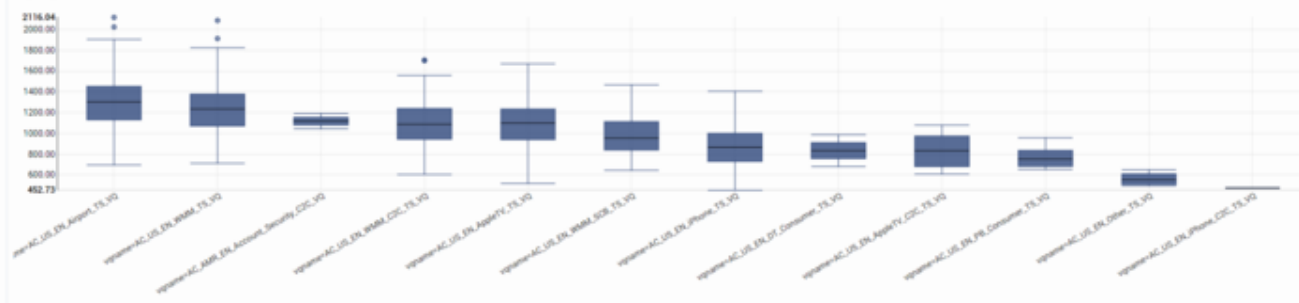
Created: Jul 26, 2018 5:27 PM
Author: Peter

Analysis Type: Per Agent Variance Dataset: POT23_Sites Target Metric: aht_secs Agent ID: empid Group By: vname Number Of Agents: 50 Min Interactions Per Agent: 50

Delete

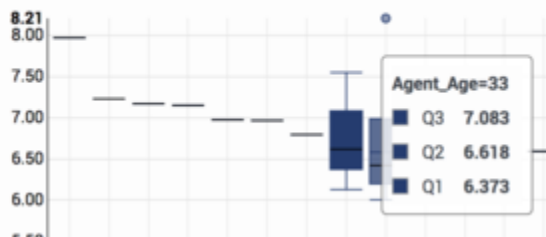
Overall

AV_AHT_VQ



If you hover over any box on the graph, a popup window shows the numeric values that are shown graphically in the box plot. Gray dots scattered above or below the box plot and its *whiskers* indicate outlier values.

Per Agent Variance



Q in this window stands for *quartile*. The numbers on the popup indicate the numeric value at which the respective quartile starts.

Feature Analysis report

Contents

- [1 About the Feature Analysis report](#)
- [2 Feature Analysis end-to-end example](#)
- [3 How to generate a Feature Analysis report](#)
 - [3.1 Tips for creating an effective Feature Analysis report](#)
- [4 View a Feature Analysis report](#)
 - [4.1 Report Header and Tabs](#)
 - [4.2 Report Graph or Table](#)
 - [4.3 Report Trends Graph](#)

The Feature Analysis report provides a starting point for the process of creating Predictors and Models. It enables you to determine which factors—agent and customer characteristics and behavior—have the most impact on a target metric you select.

Related pages:

-

About the Feature Analysis report

Feature Analysis is run on a Dataset (from the **Datasets** tab). It considers all features in the Dataset.

The Feature Analysis report returns only those *features* (also referred as *attributes*) that most influence the target metric. The features are ranked, from the one with the strongest impact on the target metric to the one with the least. Each subsequent feature is ranked in relation to the most powerful one. Therefore, a feature with a numeric ranking of 0.5 is half as powerful as the highest-ranked feature.

By default, the report displays only the attributes with the strongest impact on the target metric. Use this aspect of the functionality to identify, and then omit from the Models you create, attributes with an insignificant impact on the value of the target metric. This way, you can focus your Model on the most powerful attributes.

Although not all features are shown by default, the report does contain data for all features. If a feature has minimal impact, it does not affect the outcome of the report.

Important

- Predictive Routing supports report generation that includes up to 250 features (columns).
- For all reports, mandatory fields are marked with an asterisk.
- When a Dataset has many fields, you can hide some to view the most relevant fields more easily. Hiding fields only removes them from your view. Hidden fields are still used in Feature Analysis reports.

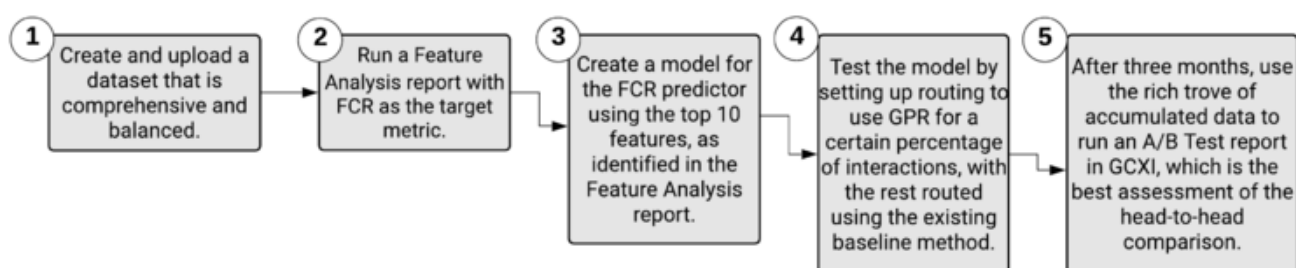
Feature Analysis end-to-end example

Alissa's business is plagued with escalations and frustrated customers who have to contact their agents multiple times to resolve issues. She needs to improve first contact resolution, but a scan of the data leaves her confused. Each case seems so different. How can she tell what aspects of the environment to target for quick, lasting results?

Alissa starts by compiling and importing a high-quality Dataset. She makes sure of the following points about her Dataset:

- It contains at least three months' worth of contact center data.
- It includes data from all the queues she needs to evaluate.
- If an agent is included in the Dataset, all that agent's interactions for the covered period are included.

With the data in place, Alissa runs a Feature Analysis report using FCR as the target metric.



The outcome lists the Dataset fields having the strongest effect on FCR. The feature, or aspect of the environment, having the greatest impact on FCR is listed first and given a weight of 1. All other features are compared with the highest-ranked feature and given a ranking that expresses how strongly they affect the target metric relative to the top feature. If a feature has a value of 0.75, that means it has 3/4 as much impact as the top feature.

Now that Alissa knows which are the most critical features in her environment, she can use this information to construct a better Model for the predictor in her environment Predictor that uses FCR as the target metric. Although the Predictor includes all features, when Alissa creates Models based on the Predictor, she configures them with only those features that the Feature Analysis report identified as most important.

Alissa takes the top ten features as a starting point for her first Model. She knows that if she selects only some of the high-ranked features—the features ranked, for example, at 1, 3, 4, and 6—she will be second-guessing the algorithm. The Feature Analysis accounts for the fact that the features can be interrelated and affect each other. If Alissa arbitrarily selects only a few of the top features, her Model will be weaker and less accurate than it should be.

So, by using the results of the Feature Analysis report, Alissa removes features that are minimally relevant from her Model, enabling her to focus on the key factors. She can create and run Models efficiently, with less load on her system. She can also target her company's efforts to allocate resources and provide training toward those areas that will drive the greatest improvements to the target metric.

After configuring her company's routing strategies to use baseline routing for some interactions and using GPR for the rest, Alissa can perform a real-world A/B test of how well GPR performs over time when compared against the baseline routing without GPR. With at least three months' worth of data, she can see the real-world results. She runs a Predictive Routing A/B Testing Report in Genesys CX Insights, using Genesys Historical Reporting.

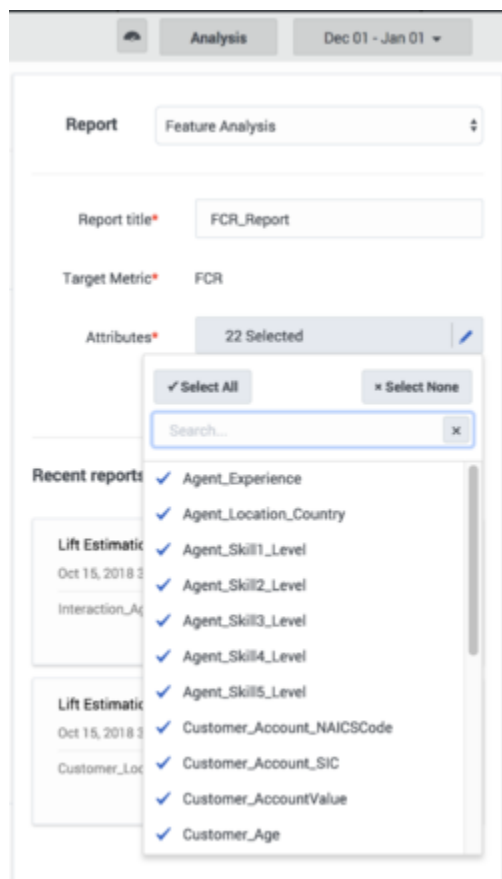
However, she's careful to monitor whether there are changes to the Dataset that affect the environment in ways that make it necessary to create a train a new Model. For example, changes in the environment that might cause features to gain or lose importance in how much they affect the target metric. After new data is appended to the

Dataset, and obsolete data purged, Alissa can repeat the steps to regenerate Predictor data, run a new Feature Analysis report, and then create and train new Models.

For example, Alissa's company has created a new IVR flow that directs certain types of challenging interactions to a new agent group that is specially trained to handle such issues. By rerunning the Feature Analysis report based on the new conditions in the environment, Alissa can quickly gather better insight on how to set up new Models to replace the now-outdated ones.

How to generate a Feature Analysis report

Run **Feature Analysis** reports from the **Datasets** tab. Use the following procedure to create a Feature Analysis report:



1. Click the **Dataset** tab on the top navigation bar.
2. Click **Analysis**. This button is located on the right side of the top navigation bar.
3. Select **Feature Analysis** from the drop-down **Report** menu.
4. Choose the parameters you want to include using the selectors on the left side of the window.
5. Click **Run Analysis**.

The result appears on the **Reports** tab.

Tips for creating an effective Feature Analysis report

The Feature Analysis report uses two types of analysis depending on the target metric type:

- **Numeric** (continuous): The Feature Analysis report uses regression analysis, which predicts the output value using training data.
- **Boolean**: The Feature Analysis report uses classification analysis, which groups the output values into two classes, `true` and `false`.

Target Metrics metric_name> Range: Appears only if your target metric is numeric. The Target Metric Ranges slider converts a numeric—regression—metric into a classification metric. For example, if you have a numeric metric with a range from 0-10, you can adjust the slider to divide the outcome results into two or three classes or *buckets*. You might move the buttons to create one bucket from 0-3, one from 4-6, and one for 6 and higher. To create two buckets, leave one button at the far end of the slider and use the other to divide the bar.

- Creating these buckets sets the Features Analysis report to use classification analysis on the target metric, rather than regression analysis. So the same numeric target metric could produce different results depending on which underlying analysis type you specify.
- To have the Feature Analysis report use regression analysis, leave both buttons at the far ends of the bar, to create a single bucket.
- If the report for a numeric metric is taking an unacceptably long time to run, you can speed processing by dividing the possible values into buckets. To do this, you need to have some understanding of how dividing the data into buckets affects the outcome. This scenario requires input from your data science team and might require experimentation to determine the best trade-off between the need for fine-grained detail, which is coarsened by bucketing, and the need to improve processing speed.

Attributes: When you are setting the report parameters, all features/attributes are available for selection. Selected attributes have a check mark next to the name. Click the attribute to toggle the check mark on or off. To add all or remove all, click **Select All** or **Select None**.

- You can select up to 250 attributes. For help understanding how GPR analyzes and displays attributes, refer to the section below.

View a Feature Analysis report



Feature Analysis Report Window

To view a report:

- Click a report to view it from the list in the **Run Analysis** window; or
- Click the **Reports** tab and select it from the list on the left side of the tab.

The report window is large and contains a number of sections and options for how to view the analysis results. The thumbnail on the right shows the entire window, for your reference (click to enlarge it). The sections that follow explain the report display, section by section.

Report Header and Tabs

By default, the report opens showing an Overall view of the data. All attributes (features) you selected for the report and which have a relative weight greater than one-half percent (0.5%) are listed on tabs under the report name, so you can view analyses of the data for each feature.

- The numbers on the following graphic correspond to the field descriptions (below the graphic).

Customer_IsHappy_Report

1. Classes: true | false

2. Created: Oct 19, 2018 12:51 PM

3. Author: John Doe

4. Predictor: predictor_1

models: []

5. section: predictors

6. from_dt: 2015-10-01 00:00:00

7. to_dt: 2018-10-20 23:59:59

Delete

Export

CSAT_Report

1. Range: 1 - 5

Created: Oct 19, 2018 2:25 PM

Author: John Doe

8. dataset_id: 5bba3705e252a501f99bc19e

9. name: ds1001

from: Oct 1 2015 3:00 AM

to: Oct 21 2018 2:59 AM

section: datasets

Delete

Export

1. **Classes/Range:**

- **Classes** - The target metric for the report is Boolean, or a numeric target metric was bucketed using the Target Metrics Range setting. The Classification algorithm was used to create the report, the label reads **Classes**, and lists all identified classes.
- **Range** - The target metric is numeric. The Regression algorithm was used to create the report, the label reads **Range**, and displays the minimum and maximum values for the metric.

2. **Created:** Date the report was generated.

3. **Author:** Name of the user who generated the report.

4. **From_dt:** Dataset start date.

5. **To_dt:** Dataset end date.

6. **Dataset_id:** ID of the Dataset used for analysis.

7. **Name:** Name of the Dataset used for analysis.

The header also contains the following objects:

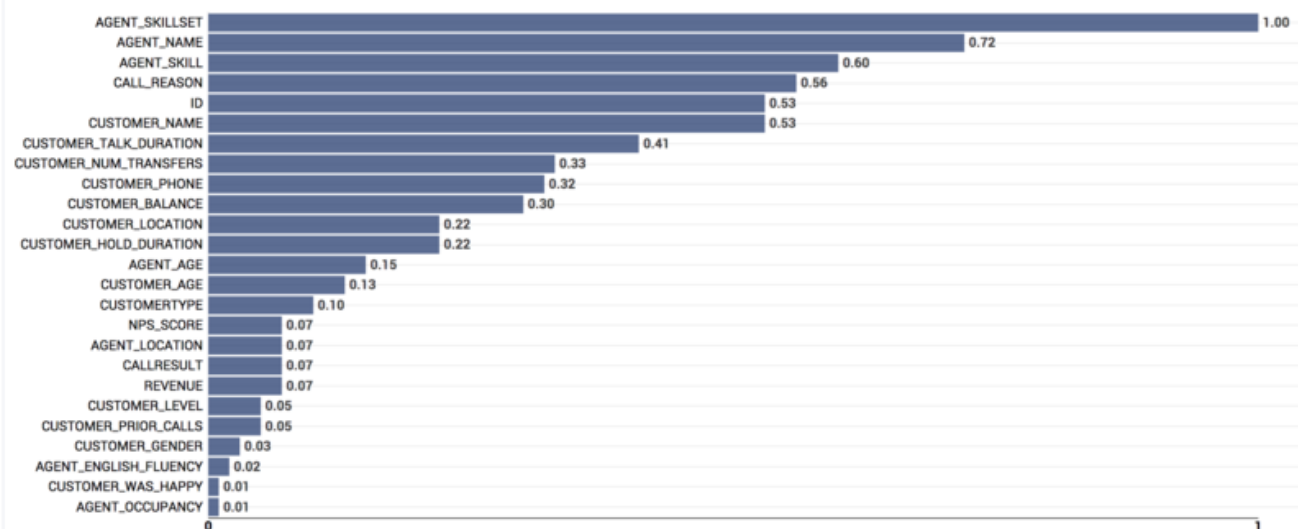
- **Delete button:** Entirely removes the report from your reports list.
- **Export button:** Creates a CSV file containing the report data for the currently-selected tab.
- **Tabs:** Features that are analyzed to have the strongest impact on the target metric appear as tabs above the report graph or table. All features with a weight of at least 0.5 relative to the most powerful feature appear as tabs.

Report Graph or Table

The button at the top left of the graph enables you to toggle between the chart view (shown here) and a tabular view.



Attributes weights



- The Overall view contains a graph listing the features ranked according to how strongly they affect the target metric. The feature that affects the metric most strongly is assigned a value of 1.0 and the remainder are assigned numbers that indicate how influential they are relative to the strongest feature. All features with a weight of 0.5% or higher are displayed.

For example, you might have three features, ranked as follows: FeatureA = 1.0, FeatureB = 0.86, and FeatureC = 0.54. These numbers indicate that FeatureB has only 86% as much weight in affecting the target metric as FeatureA, and FeatureC 54% of the impact on the target metric. These values are relative to the most impactful feature, not an absolute measure of their impact on the target metric.

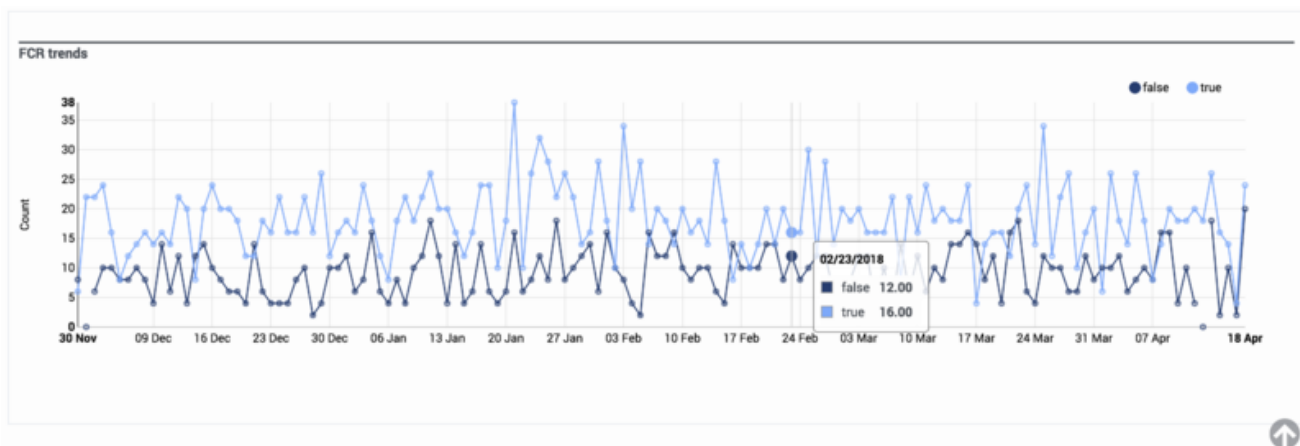
Important

If the Dataset you are using to run the report has more than 100,000 samples for a feature, GPR samples the rows for that feature randomly. As a result, in such cases, the Feature Analysis report might produce slightly different results when running the report on the same Dataset with the same parameters selected.

Click a tab for a specific feature on the top section of the report to view a chart displaying data for that feature only.

Click the bar on the graph for a feature with a weight less than 0.5 (that is, for which a tab is not generated by default) to have a new tab open showing a chart of that feature. Note that this tab is displayed only until you navigate away from it.

Report Trends Graph



In the Overall view, the second chart shows the target metric values over time.

- Hover over any chart to view a tooltip containing information about that exact data point.
- To toggle between a table view and a chart view of the report, click the icon at the top left corner of the top-most chart or table.
- To drill down to more granular data about a specific feature, click its name from the list above the graphical display. By default, tabs for feature sub-reports are visible only for features with a weight greater than 0.5. To access sub-reports for features weighted less than 0.5, click the corresponding bar in the bar chart.

- The charts change to show data relevant to how that feature affects the target metric.
- When you are viewing charts for a specific feature, the score for that attribute is provided in a gray oval next to the feature name.
- To export the results of a Feature Analysis report, click **Export**. The export contains all of the features and the weights determined for them. You can save the file in Excel format.

View jobs reports and details

Contents

- [1 The Reports tab](#)
 - [1.1 View Jobs reports](#)
- [2 The Details tab](#)
 - [2.1 View Jobs details](#)

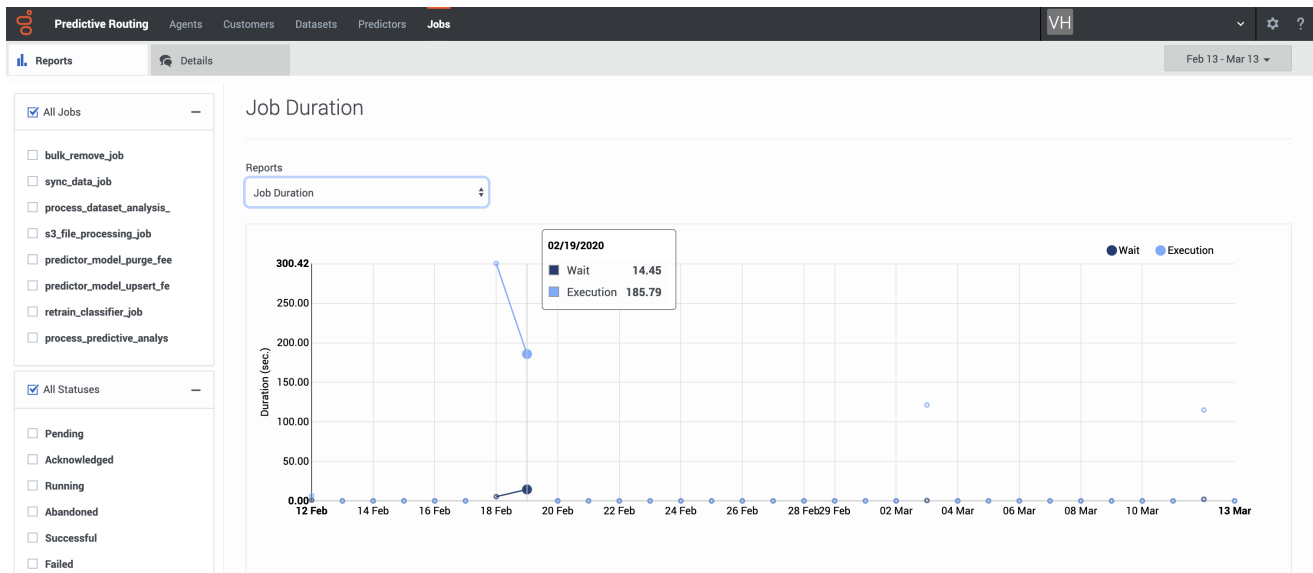
The **Jobs** window enables you to view the status and outcome for the following job types:

- Data synchronization (datasets, Agent Profiles, and Customer Profiles)
- Data purging
- Processing analysis reports (Feature Analysis, and Agent Variance)
- Model training

Related pages:

-

The Reports tab



The Jobs **Reports** tab enables you to view the job count and duration data over time in graph format.

- To change the time period shown, click the date selector on the right end of the top menu bar and choose the desired date range from the drop-down menu that appears.

View Jobs reports

1. Select whether to view **Jobs Count** or **Jobs Duration** using the drop-down menu above the graph.

- To view a tooltip displaying data for each time-point along the line, hover your mouse pointer over the graph line.
- To filter the data displayed, select the job types or job statuses you want to include from the left-hand navigation bar. To choose job types or statuses:
 - Click the **+** sign by the feature you want to drill down into.
 - Select the check box next to the parameters you want to see.

The **All Jobs** and **All Statuses** filter menus display all the possible types and statuses. If you select a type or status that does not exist in your environment for the specified time period, the graph is replaced with an informational message stating: "No data available for the selected date range".

For technical reasons, you cannot monitor data uploads on the **Jobs** window.

The Details tab

Reports

Details

☒ All Jobs

+

☒ All Statuses

+

Jobs Details

Search by name

×

ID	Name	Type	Status	Account Name	Wait Time	Execution Time	Created
5e6bb706b0a88c34970f4cd9	gpr.predictors.tasks.predictor_model_upsert_feedback_task	predictor_model_upsert_feedback_task	Successful	IS1	1s	1m 57s	Mar 13, 2020 12:38:30 PM
5e6bb5afd6b4e502a90f49d0	gpr.predictors.tasks.retrain_classifier_job	retrain_classifier_job	Successful	IS1	2s	1m 30s	Mar 13, 2020 12:32:47 PM
5e6bb4b9b0a88c34970f4ccd	gpr.predictors.tasks.predictor_model_upsert_feedback_task	predictor_model_upsert_feedback_task	Successful	IS1	2s	2m 16s	Mar 13, 2020 12:28:41 PM

The Jobs **Details** tab enables you to view all jobs and the data available about them for the selected time period.

View Jobs details

- To sort the table, click the header cell of the column by which to sort.
- To change the date range displayed, click the date control on the right side of the header bar and select the desired range from the drop-down menu.
- If you know the job name, you can enter part or all of the name in the **Search** field above the right side of the table to display only job with names matching your search text.
- To filter the data displayed, select the job types or job statuses you want to include from the left-hand navigation bar. To choose job types or statuses:
 - Click the **+** sign by the feature you want to drill down into.
 - Select the check box next to the parameters you want to display.

The **All Jobs** and **All Statuses** filter menus display all the possible types and statuses. If you select a type or status that does not exist in your environment for the specified time period, the graph is replaced with an informational message stating: "No data available for the selected date range".

Upload data using the GPR web application

The GPR web application can enable you to upload data.

Related pages:

-

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.

- Functionality in this section is enabled only when data anonymization in the Cloud is enabled.
- To upload data using Data Loader, see [Configure Data Loader to upload data](#).
- To view uploaded data in the web application, see [View your uploaded data](#).

Set up data for import

Contents

- [1 Supported types of data](#)
 - [1.1 Interaction data](#)
 - [1.2 Agent Profile data](#)
 - [1.3 Customer Profile data](#)
 - [1.4 Outcome and other data](#)
- [2 .csv file size requirements](#)
- [3 .csv data formatting requirements](#)
- [4 Data size for models and scoring](#)
- [5 Data anonymization](#)
- [6 Unsupported characters in column names](#)
- [7 Data retention policies](#)

Certain requirements and limitations apply to the data that you upload to GPR. This topic explains these requirements, and also presents data security and anonymization.

Related pages:

-
-

Supported types of data

In general, you need the following types of data:

Interaction data

- Data Loader automatically extracts interaction data from the Genesys Info Mart database to create datasets.

Agent Profile data

- Data Loader automatically extracts agent data from the Genesys Info Mart Database. You can optionally add agent data from other sources by providing a .csv file for Data Loader to upload.

Customer Profile data

- To create the customer profile, create a .csv file and upload it using Data Loader.

Outcome and other data

- To use outcome data, or data any other sort you find to be relevant for predictive routing, such as results of an after-call survey, create a .csv file and upload it using Data Loader.

See [Configure Data Loader to upload data](#) for how to configure Data Loader to upload both Genesys Info Mart data and .csv data.

See the relevant portion of the [Help](#) for how to use the GPR application to view your uploaded data and append data to existing datasets.

.csv file size requirements

Use the following guidelines to construct .csv files for data uploads:

- Data Loader uploads data in 512-MB chunks. If your dataset is larger than 512 MB, Data Loader automatically breaks it into chunks for upload.
- The maximum number of columns in a dataset is 100; the maximum number of rows is 2.5 million. If you upload a file with more than 2.5 million rows, Data Loader uploads only the first 2.5 million and discards the remainder.
- The maximum length of a single column name in a .csv file for upload is 127 characters.
- The maximum length of a single column name that Data Loader will anonymize is 120 characters.
- The maximum number of rows in the agent profile is 20 thousand.
- The number of rows in the customer profile is 20 million.
- The maximum number of columns (features) in the agent and customer profile datasets is configured for each account. The default limit is 50 features for each profile dataset. Only a STAFF user can change this value.

If you try to upload more data than the data size limits allow, GPR generates an error and discards the remaining rows.

When you have reached the size limit, GPR does not add records. However, you can update data associated with previously uploaded records (as identified by the Agent or Customer ID). For example, if you have uploaded 20,000 agents, you cannot add any more. But you can upload the same agents with new values, such as skills or location, and GPR makes those updates.

To add records, you must remove some uploaded records using the GPR API `*/purge` endpoints.

.csv data formatting requirements

- When you create the .csv data file for a dataset, agent profile, or customer profile, do not include the following in the column name for the ID_FIELD, the Agent ID, or the Customer ID:
 - ID
 - _id
 - Any variant of the string `ID` that changes only the capitalization.

Using these strings in the column name results in an error when you try to upload your data.

- When you create the .csv data file for a dataset, agent profile, or customer profile, do not include the following reserved names in column names:
 - created_at
 - tenant_id
 - updated_at
 - acl
- In the agent profile, if you are using skill names that include a dot (period) or a space in them, use double quotation mark characters to enclose the skill name. For example, enter a skill named "fluent spanish.8" as "fluent spanish.8".
- GPR supports UTF-8 encoding. All responses and returned data arrives in UTF-8 encoding.

- If you use a Microsoft editor to create your .csv file, remove the carriage return (^M) character before uploading. Microsoft editors such as Excel, WordPad, and NotePad automatically insert this character. For tips on removing the character from Excel files, refer to How to remove carriage returns (line breaks) from cells in Excel 2016, 2013, 2010.
- GPR supports only one-dimensional dictionaries, with up to 200 key-value pairs where the key is a string and the value is int, float, or Boolean. GPR does not support nested dictionaries and lists.
- If you have dictionary-type fields that use comma separators, use tab separators for your .csv file.
- Fields of the dictionary (DICT) type are discovered correctly only if the quotes appear as in the following example, with double quotation marks outside a dictionary entry and single quotation marks for the values within it. This requirement applies to DICT fields in all datasets, including the agent and customer profile datasets.
 - `"{'vq_1':0.54,'vq_2':6.43}"`
- GPR does not support use of angle brackets () to signify "not" in SQL queries. Genesys recommends that you use the following symbols instead: !=.

Data size for models and scoring

The following size limits apply to model creation:

- Maximum number of active models per Tenant - 50
- Total cardinality limit for model training: no specific column count; has been tested up to 250 columns.
 - Total cardinality must be less than 2 to the power of 29.
 - *Total Cardinality* = the number of numeric columns plus the sum of the number of unique values across all string columns within a specified dataset.
- Record count limit for model training - not applicable; from a model-training perspective there is virtually no limit on the number of columns. The constraining issue is the possibility of compromising the model quality by ending up with a reduced number of samples for training.
 - The total number of records must be less than 2 to power of 29 (that is, 536870912) divided by total cardinality as defined above.
 - **Example 1:** You must to use ALL of the data for training the model . If the dataset contains 1 million records, the maximum total cardinality is 536 (536870912 divided by 1 million).
 - **Example 2:** You can *undersample* the data for training the model—that is, use fewer than the ideal number of records for training. You might take 10,000 as the total cardinality, but only 53,687 of your total of 1 million records will be used for training. The calculation to determine this is $10,000 * 53,687 = 536870912$ (the maximum cardinality).

The following limitation applies to scoring requests:

- Maximum number of agents that can be scored in one scoring request - 1,000.

Data anonymization

PII, or personally identifiable information, and sensitive data, such as passwords, must be hidden when you upload it to the GPR Core platform. To ensure that sensitive data is secured, instruct Data Loader to anonymize the fields containing such data.

After Data Loader anonymizes the fields you identified as PII, it uploads it securely using TLS.

Note the following points about anonymized data in GPR:

- You can anonymize up to 20 fields in each dataset.
- You cannot anonymize fields *after* you have uploaded data.
- Once you have uploaded data with anonymized fields, you cannot de-anonymize them.
- Anonymizing Numeric or Boolean fields changes them to String fields. This change has some effect on how the fields are weighted in the Feature Analysis report and during scoring.
- Each Tenant has its own unique salt for anonymization.

NOTE: If you anonymize a field, you must anonymize it in every dataset in which it appears. For example, if you anonymize a customer phone number in the customer profile, you must also anonymize it in any dataset in which it appears. If there is an inconsistency, GPR cannot correctly map agents and, as a result, cannot build models for them.

GPR uses the following steps to ensure secure data handling:

1. When Data Loader starts up, it generates a unique 64-character salt string that will be used for anonymization. It stores this string in the **anon-salt** option in the **[default]** section on the **Annex** tab of the primary and backup Data Loader `Application` objects and the `Predictive_Route_DataCfg Transaction List` object.
 - When you open these options in GAX, or any other configuration manager application you use, you cannot see the salt value itself. What you see is an obfuscated version of the salt string.
 - **WARNING!** Do not edit or delete the value Data Loader sets for the **anon-salt** options. If you try to modify a salt value, GPR generates an alarm message and Data Loader restores the original salt value. *If for some reason, Data Loader cannot restore the original salt value, your predictors become unusable for scoring and routing. To rectify this situation you must recreate the agent and customer profiles, reload all interaction datasets, and retrain your models. If you do not recreate the agent and customer profiles and datasets exactly, you must also create and train new predictors and models. Therefore, Genesys strongly recommends that you do not modify or delete the salt values.*
2. Before uploading the dataset to the GPR Core Platform, Data Loader uses this salt to anonymize the fields you specified as sensitive or PII data when you configured the schema.
3. The anonymized data is uploaded to the GPR Core Platform using TLS for secure data transport. The uploaded data is used for creating predictors and models.
4. After you create a predictor and one or more models, and begin using them to route interactions, the GPR subroutines retrieve the list of sensitive or PII features that are included in the active predictor. This list of features is stored in the URS Global Map.
5. The GPR Subroutines access the on-premises instance of your data to use in scoring requests. As a result, the Subroutines anonymize all sensitive fields included in the predictor you are using for scoring, based on the salt value stored in the `Predictive_Route_DataCfg Transaction List` object.
6. If one of the anonymized fields is the `EMPLOYEE_ID`, after the `ActivatePredictiveRouting` subroutine receives the response to the score request, it maps the agent scores back to the non-anonymized versions of the employee IDs so that routing can proceed.

7. Before the GPRInCleanup subroutine reports the routing outcome to the GPR Core Platform, it anonymizes all fields marked as PII that are included in the score outcome report. It then sends the results to the score log, which is stored in the cloud.

Unsupported characters in column names

The following characters are not supported for column names. If GPR encounters these characters in a .csv file, it reads them as column delimiters and parses the data accordingly.

- The pipe character
- \t (the TAB character)
- , (the comma)

Workaround: To use these characters in column names, add double quotation marks (") around the entire affected column name, except in the following situations:

- If you have a comma-delimited .csv file, add double quotations marks around commas within column names; you do *not* need quotations for the \t (TAB) character.
- If you have a TAB-delimited .csv file, add double quotations marks around TAB characters within column names; you do *not* need quotations for the , (comma) character.
- You must *always* use double quotations for the pipe character.

Data retention policies

GPR follows standard Genesys data retention guidelines for Genesys Engage cloud as outlined in Section 14 of the Genesys Engage cloud User Guide.

Most objects and data are deleted automatically after 90 days during which they are inactive. These include the following:

- Dataset data and the dataset object - Deleted after 90 days of idle time, which means no new files were appended and the dataset was not used to generate any data for predictors in that period.
- File upload object - Deleted after 90 days of idle time. Here idle time means this file was not used to generate any data for predictors in that period.
- Agent / Customer Profiles - Deleted after 90 days of idle time, which means the profile was not updated in the last 90 days.
- Model - Deleted after 90 days of idle time, which means the model was not used for any score requests in last 90 days.
- Predictor generated data and the predictor object - Deleted after 90 days of idle time, which means that no associated model was used for a score request in last 90 days.

The following data uses different retention policies:

- Uploaded anonymized files - Deleted 7 days after upload.

- Files stored for billing purposes - Deleted 60 days after creation.

Upload Customer Profile data

Contents

- [1 Create a Customer Profile](#)
- [2 Verify the Schema](#)
- [3 Add Data to the Customer Profile](#)

Instructions for uploading data from a CSV file to the Customer Profile using the GPR web application. Note that this upload functionality is deprecated in favor of uploads using Data Loader.

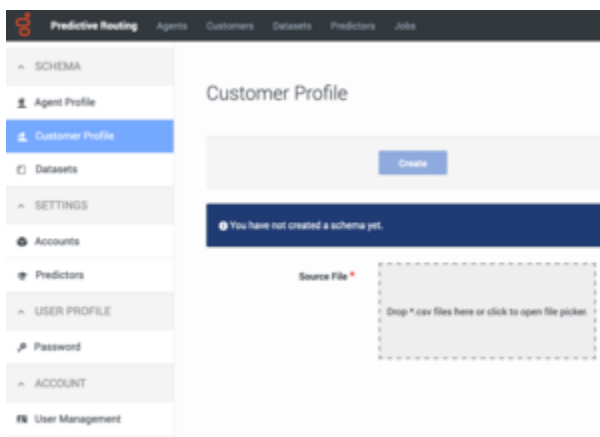
Related pages:

-

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.


- Functionality in this section is enabled only when data anonymization in the Cloud is enabled.

Create a Customer Profile



Select CSV file to upload data

To start creating your Customer Profile:

1. Compile a CSV file containing the desired data in a consistent schema. See Set up data for import for data requirements and recommendations.
2. Click the **Settings** gear icon  located on the right side of the top menu bar, to open the **Settings** menu (appears on the left side of the window).
3. Click the **Customer Profile** tab to open the Customer Profile window.
4. Click the **Source File** text box to browse for your CSV file, or drag and drop it into the text box.

The GPR web application automatically determines the separator type and reads the schema.

NOTES:

- If the number of customer features (columns) included in your CSV file is larger than the limit configured for your account, GPR generates an error message and does not upload the CSV file.
- You must reload this page to view updates made using the Predictive Routing API, such as appending data to the Customer Profile.

Verify the Schema

At this stage, before the data is uploaded, review and configure your Customer Profile schema.

Customer Profile

Create

Source File +

PML_CSV_test.csv (252 bytes)

Separator +

Comma

ID Field +

None Selected

PI Fields +

Search...

Business type

CustomerID

	Type	
AgentID	Numeric	
Business type	String	
CustomerID	String	
Date	Timestamp	
Interaction ID	Numeric	

Verify Customer Profile Schema and Set ID

1. Scroll down the list of fields and ensure that the datatypes have been discovered correctly. If any are incorrect, select the correct datatype from the **Type** drop-down list.
 - GPR supports the following datatypes: Boolean, Numeric, List, String, Timestamp, and Dict. See Set up data for import for how to correctly prepare your data, including characters that are unsupported or need special handling.
2. Click the **X** in a row to remove it from the Customer Profile. If you change your mind before you upload your data (that is, before you click the **Create** button on the window), scroll to the bottom of the list of fields and click in the **None Selected** text box. Choose the field to be restored, and click **Add Back**.
3. Set the **ID Field**, which is used as a key when joining customer with interaction data. The drop-down list contains all fields with the String datatype.

NOTE: ID Fields with a numeric datatype are not supported.
4. (Optional) Click in the **PII Fields** text box to select the fields that contain personally identifiable or sensitive information, such as Social Security numbers, passwords, names and addresses, phone numbers, and so on. Data in these fields is anonymized when you create the Customer Profile. See Data Anonymization for important information about how data is anonymized. Note that you cannot anonymize the **ID Field**.
5. Click **Create** to upload the data.

- If you try to upload a file that contains more than the number of features (columns) configured for your account, GPR generates an error message. Cancel out of the upload procedure, edit your CSV file to reduce the number of columns, and then repeat the upload procedure.
- If you try to upload a file with too many columns using the GPR API, the error message appears in the Customer Profile **Description** field in the GPR application.
- If you try to upload more than 2.5 million rows to a Customer Profile, only the first 2.5 million rows are stored and the rest are discarded. A warning message appears on the Customer Profile **Uploads** tab specifying how many rows were discarded. The **Append** button is disabled until you delete some rows from the Customer Profile.
- If you have the maximum number of rows in the Customer Profile, you can perform uploads that update existing fields but that do not add to the total number of records.

See View the Customer Profile schema for a description of how the GPR web application displays the Customer Profile schema.

Add Data to the Customer Profile

You can add data to the Customer Profile in either of two ways: by adding single fields, or by uploading additional CSV files. You can also create a custom field that is a expression built from existing Customer Profile fields.

To add single fields:

1. Scroll to the bottom of the list of Customer Profile fields and click **Add New Field**. If you click in the text box, any fields you previously removed are listed. You can select them to be added back into the Customer Profile.
2. To add an entirely new field, type a new field name and press **Enter**. The custom field value must be an expression constructed from arithmetic operations, Python 3 built-in functions, and fields already included in the Customer Profile.
 - To access the built-in functions, press the **SHIFT+@** shortcut.
3. Configure the desired field parameters, then click **Save Schema** (at the bottom of the window).

To add data using a CSV file:

The image shows a pop-up window titled "Append Data" with a close button (X) in the top right corner. Inside the window, there is a label "Source File" with a red asterisk. To its right is a large dashed rectangular box containing the text "Drop *.csv files here or click to open file picker." Below this box, there is a label "Separator" followed by a radio button and the text "Comma". At the bottom left of the window is a "Cancel" button, and at the bottom right is an "Append" button.

Select CSV file to append

1. On the **Settings** menu **Customer Profile** tab, click **Upload Data**. The **Append Data** pop-up window opens.

2. Select the desired CSV file. It must comply with the schema for the Customer Profile. If you append a CSV file containing more columns than appear in the original schema, the extra columns are automatically discarded.

Upload Agent Profile data

Contents

- [1 Create an Agent Profile](#)
- [2 Verify the schema](#)
- [3 Add new data to the Agent Profile schema](#)
- [4 Skills in Agent Profile data](#)

Instructions for uploading agent data from a CSV file to the Agent Profile using the GPR web application. Note that this upload functionality is deprecated in favor of uploads using Data Loader.

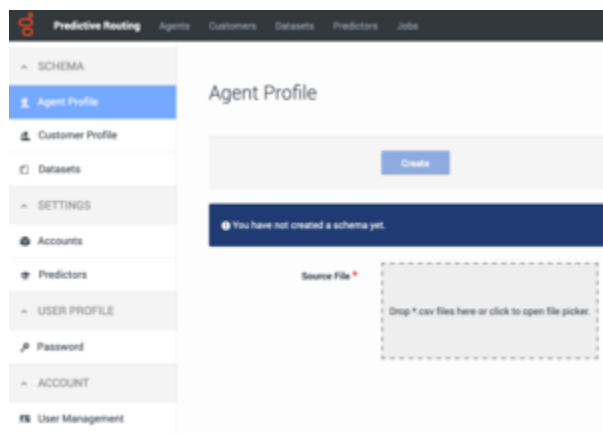
Related pages:

-

WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.


- Functionality in this section is enabled only when data anonymization in the Cloud is enabled.

Create an Agent Profile



Select CSV file to upload data

To start creating your Agent Profile:

1. Compile a CSV file containing the desired data in a consistent schema. See Set up data for import for data requirements and recommendations.
2. Click the **Settings** gear icon , located on the right side of the top menu bar, to open the **Settings** menu (appears on the left side of the window).
3. Click the **Agent Profile** tab to open the Agent Profile window.
4. Click the **Source File** text box to browse for your CSV file, or drag and drop it into the text box.

The GPR web application automatically determines the separator type and reads the schema.

NOTES:

- If the number of agent features (columns) included in your CSV file is larger than the limit configured for your account, GPR generates an error message and does not upload the CSV file.
- You must reload this page to view updates made using the Predictive Routing API, such as appending data to the Agent Profile.

Verify the schema

At this stage, before the data is uploaded, review and configure your Agent Profile schema.

Customer Profile

Create

Source File: PML_CSV_test.csv (252 bytes)

Separator: Comma

ID Field: None Selected

PI Fields: Business type, CustomerID

	Type
AgentID	Numeric
Business type	String
CustomerID	String
Date	Timestamp
Interaction ID	Numeric

Verify Agent Profile Schema and Set ID

1. Scroll down the list of fields and ensure that the datatypes have been discovered correctly. If any are incorrect, select the correct datatype from the **Type** drop-down list.
 - GPR supports the following datatypes: Boolean, Numeric, List, String, Timestamp, and Dict. See Set up data for import for how to correctly prepare your data, including characters that are unsupported or need special handling.
2. Click the **X** in a row to remove it from the Agent Profile. If you change your mind before you upload your data (that is, before you click the **Create** button on the window), scroll to the bottom of the list of fields and click in the **None Selected** text box. Choose the field to be restored, and click **Add Back**.
3. Set the **ID Field**, which is used as a key when joining customer with interaction data. The drop-down list contains all fields with the String datatype.
NOTE: ID Fields with a numeric datatype are not supported.
4. (Optional) Click in the **PII Fields** text box to select the fields that contain personally identifiable or sensitive information, such as Social Security numbers, passwords, names and addresses, phone numbers, and so on. Data in these fields is anonymized when you create the Agent Profile. See data anonymization for important information about how data is anonymized. Note that you cannot anonymize the **ID Field**.
5. Click **Create** to upload the data.

- If you try to upload a file that contains more than the number of features (columns) configured for your account, GPR generates an error message. Cancel out of the upload procedure, edit your CSV file to reduce the number of columns, and then repeat the upload procedure.
- If you try to upload a file with too many columns using the GPR API, the error message appears in the Agent Profile **Description** field in the GPR application.
- If you try to upload more than 20,000 rows to an Agent Profile, only the first 20,000 rows are stored and the rest are discarded. A warning message appears on the Agent Profile **Uploads** tab specifying how many rows were discarded. The **Append** button is disabled until you delete some rows from the Agent Profile.
- If you have the maximum number of rows in the Customer Profile, you can perform uploads that update existing fields but that do not add to the total number of records.

When data upload is completed, see View the Agent Profile schema for a description of how the GPR web application displays the fields discovered in your data, along with their data types and cardinality values.

- To delete your Agent Profile schema, click the trash can icon next to the **Agent Profile** page title.

Add new data to the Agent Profile schema

You can add data to the Agent Profile in either of two ways: by adding single fields, or by uploading additional CSV files. You can also create a custom field that is an expression built from existing Agent Profile fields.

To add single fields:

1. Scroll to the bottom of the list of Agent Profile fields and click **Add New Field**. If you click in the text box, any fields you previously removed are listed. You can select them to be added back into the Agent Profile.
2. To add an entirely new field, type a new field name and press **Enter**. The custom field value must be an expression constructed from arithmetic operations, Python 3 built-in functions, and fields already included in the Agent Profile.
 - To access the built-in functions, press the **SHIFT+@** shortcut.
3. Configure the desired field parameters, then click **Save Schema** (at the bottom of the window).

To add data using a CSV file:

A screenshot of the 'Append Data' dialog box. It has a title bar with a close button (X). Inside, there's a 'Source File' label with a red asterisk next to it. Below this is a large dashed rectangular box containing the text 'Drop *.csv files here or click to open file picker.' Below the dashed box is a 'Separator' label with a dropdown menu currently showing 'Comma'. At the bottom left is a 'Cancel' button, and at the bottom right is an 'Append' button.

Select CSV file to append

1. On the **Settings** menu **Agent Profile** tab, click **Upload Data**. The **Append Data** pop-up window opens.
2. Select the desired CSV file. It must comply with the schema for the Agent Profile. If you append a CSV file containing more columns than appear in the original schema, the extra columns are automatically discarded.

Skills in Agent Profile data

The Genesys configuration layer allows Skills and Groups to have the same name. There should be no impact on either Data Loader or scoring due to the same group name/skill name.

- Groups are stored in the groupNames list in the Agent Profile.
- Skills are stored in a skills dictionary.

As a result, there is no collision between the names.

For example, an Agent can be assigned to the Group "Complaints" and at the same time be assigned the Skill "Complaints" with a skill level of 2. This does not negatively affect GPR performance.

Upload interaction and other data

Contents

- [1 Upload a dataset from a CSV file](#)
- [2 Append data to a dataset](#)

Predictive Routing datasets can include a broad range of data used to create Predictors and to train and test Models. This topic explains how to upload this data using the GPR web application.

Related pages:

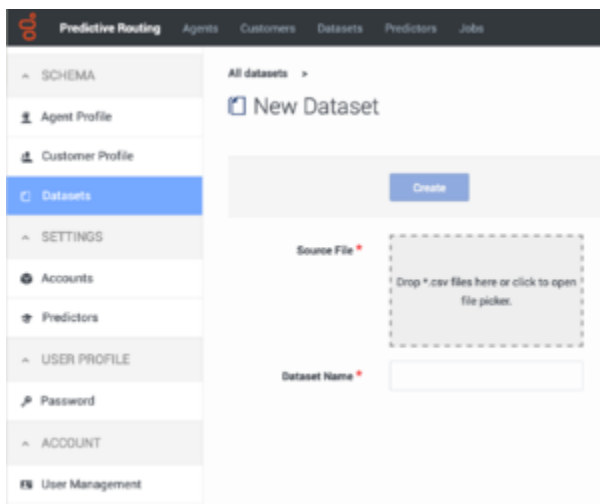
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WARNING: Although the Predictive Routing web application includes data upload functionality, its use is deprecated in favor of data uploads using Data Loader. If you upload from the GPR web application, note that using both Data Loader and the UI to upload data creates conflicts and presents a high risk of data corruption.

- Functionality in this section is enabled only when data anonymization in the Cloud is enabled.


Upload a dataset from a CSV file

Predictive Routing supports datasets containing interaction and outcome data, and any other data available in your environment relevant to the metrics you intend to optimize.



Select CSV file to upload data

To upload this data, use the following procedure:

1. Create a CSV file containing the desired data, collected into a consistent schema. See Set up data for import for data requirements and recommendations.
2. To open the configuration menu, click the **Settings** gear icon, located on the right side of the top menu bar: .

3. Click the **Datasets** tab, then click **Create Dataset**. The **Create Dataset** window opens.
4. Click in the **Source File** box, then navigate to your CSV file and select it.

GPR reads the CSV file, determines the separator type and the schema, and displays the results. To continue creating the dataset, follow these steps:

1. Enter a name for your dataset.
2. Scroll down the list of fields and ensure that the datatypes have been discovered correctly. If any are incorrect, select the correct datatype from the **Type** drop-down list.
 - GPR supports the following datatypes: Boolean, Numeric, List, String, Timestamp, and Dict. See Set up data for import for how to correctly construct a Dictionary field.
3. Click the **X** in a row to remove it from the dataset. If you change your mind before you upload your data (that is, before you click the Create button on the window), scroll to the bottom of the list of fields and click in the None Selected text box. Choose the field to be restored, and click **Add Back**.
4. Set the **Created At** field, which determines the time the record was created or the time the interaction occurred, depending on the values stored in the field you select. The drop-down list contains all fields with the Timestamp datatype.
5. Set the **Interaction ID** field to specify which field contains data from the INTERACTION_ID field in the Genesys Info Mart database. If you do not specify an Interaction ID field, you cannot use the **KPI Outcome** or **Model Accuracy** tabs on the **Predictors** window because they depend on this ID to connect data from various sources.
6. (Optional) Click in the **PII Fields** text box to select the fields that contain personally identifiable or sensitive information, such as Social Security numbers, passwords, names and addresses, phone numbers, and so on. Data in these fields is anonymized when you create the dataset. See Data Anonymization for important information about how data is anonymized. Note that you cannot anonymize the **Created At** timestamp field.
7. Click **Create** to upload the data.
 - If you try to upload a file that contains more than 100 columns, GPR generates an error message. Cancel out of the upload procedure, edit your CSV file to reduce the number of columns, and then repeat the upload procedure.
 - If you try to upload a file with too many columns using the GPR API, the error message appears in the dataset **Description** field in the GPR application.
 - If you try to upload more than 2.5 million rows to a dataset, only the first 2.5 million rows are stored and the rest are discarded. A warning message appears on the dataset **Uploads** tab specifying how many rows were discarded. The **Append** button is disabled until you delete some rows from the dataset.

See View uploaded datasets for a description of how the GPR we application displays datasets, fields within datasets, and individual dataset uploads.

Append data to a dataset

To add more data to an existing dataset:



Select CSV file to append

1. Open the **Schema** tab for a specific dataset.
2. Click **Append Data**. The **Append Data** pop-up window opens.
3. Select the desired CSV file. It must comply with the schema for the existing dataset.
 - If your appended CSV file has errors, a red banner appears with a notification message. This message contains a link to open a pop-up window where you can view the specific errors. Also, the **Missing Values** and **Invalid Values** columns in the dataset **Schema** table are updated to display the number and percentage of errors for each dataset field.
 - If you append a CSV file containing more columns than appear in the original schema, the extra columns are automatically discarded.