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Genesys Rules Authoring Tool Help

Genesys Rules System 8.5.0

1/19/2022

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Rule packages are bundles of rules. Rule packages are used to group, manage, and deploy rules. The rules in a rule package provide a set of functionality (like an iWD solution). The Genesys Rules Authoring Tool (GRAT) allows you to create, edit, and delete rule packages.

Rule packages provide the following capabilities:

- The ability to partition rules and facts so that they are small, well-defined, and apply only to a particular application or use. This makes them easier to debug and understand. The fact model is a description of the data. It contains field names and types which are grouped into tables/classes. Facts are input/output to rule execution and are instances of the tables/classes defined in the fact model.
- The ability to isolate rule packages from one another when executing rules. This also improves performance because the Rules Engine has fewer candidates to examine during the evaluation.
- The ability to update individual rule packages without affecting other deployed packages.
- The ability to import and export an entire rule package containing the rule definitions, business calendars, and also the templates that the rule package is dependent on.
- A rule package contains one or more rules plus the fact model that is needed to support the rules. You deploy rule packages individually to the Rules Engine.

When you select an existing rule package in the Explorer Tree, four tabs are displayed in the Details Panel:

- The **General** tab displays the basic information for the rule package, such as name, type, and the associated templates.
- The **Rules** tab allows you to create, edit, and view rules. When you click the rule package node and then the Rules tab, you can create, edit and view rules at the global level for that package. Clicking on the other nodes (which represent various business contexts) enables you to modify the rules defined for that specific business context.
- The **Audit** Trail tab allows you to view the history of the individual rules, such as when they were updated or deployed, and by whom.
- The **Package History** tab allows you to view the history of a package and its versions and snapshots, including changes to rules, templates, calendars, test scenarios, imports/exports and deployments. History for all packages across one tenant can also be displayed at the tenant level.

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Summary

In order for rules to be invoked by Genesys applications, you must deploy the rule package to one or more Genesys Rules Engines (or for Genesys Web Engagement, to the GWEB backend server). The deployment process (whether you choose to deploy immediately or to schedule the deployment for later) attempts to compile the rule package and informs you of the result via the **Deployment Pending** pop-up message. You can check on the status of your deployment by looking at the **Deployment History** tab, which shows the status **Pending**. When deployment is in pending status, you will not be able to cancel or undo it.

This process enables you to correct any errors before deployment. In addition, if you attempt a deployment that would duplicate either;

- An already scheduled deployment or;
- An attribute of an already scheduled deployment, such as;
  - The same rule package
  - For the same snapshot
  - For the same destination server/cluster

an appropriate message is displayed. You can then either change the attributes of your deployment, or go to **Deployment History** and change/delete the scheduled deployment.

To use the deployment screen, you must have deploy permissions set up in Genesys Administrator.

To deploy a rule package:

1. Select the Tenant to which the rule package belongs from the drop-down list.
2. In the Explorer Tree, select the name of the rule package.
3. Under the rule package, select **Deploy Rules**. (The number of rules as yet not included in a snapshot appears in parentheses.) The **Details Panel** contains two tabs:

- The **Outstanding Deployments** tab allows you to select from a list of snapshots of the package including the LATEST version of the package (if configured by an administrator), create a new snapshot, export a snapshot (as an XML file downloadable to the user's local file system), delete a snapshot, deploy the rule package, schedule a deployment to occur at a future time, and show the source of the package. (**Show Package Source** displays the actual contents of the package snapshot you are deploying. The fact model, calendar definitions, and rule definitions will be coded into the rule language and displayed.)

> **Important**
>
> When you create a snapshot, you can choose to check the **Run as Background Task** option. For very large rule packages, it can take a long time to create a snapshot. When this option is checked, this operation will be completed in the background. This allows you to do other things or log off. When the snapshot is complete, it appears under **Package Snapshots**.
>
> Even if **Run as Background Task** is checked, the package will first be built and validated to ensure there are no errors. Once the validation is successful, the snapshot will be queued to a background task.
>
> You cannot delete the LATEST snapshot, and you cannot delete a snapshot for which there is a scheduled deployment.

- The **Deployment History** tab shows details about when the package snapshot was deployed in the past, and by whom. Failed deployments also appear in the list. In addition, the **Deployment History** displays scheduled deployments, and allows you to cancel or change the schedule of upcoming deployments.

To deploy the package immediately:

1. Select the package snapshot, or the LATEST version (if available).

   > **Important**
   >
   > The LATEST version is available only if configured in Genesys Administrator. Your organization may choose not to make it available because its contents may vary over time, for example between scheduled deployments.

2. Click **Deploy Now** in the **Outstanding Deployments** tab.
3. Select the **Location** to which the package snapshot will be deployed. Locations can include application clusters configured in Genesys Administrator, or the GWEB backend server for Genesys Web Engagement.
4. Enter some comments about the deployment (these will appear in the Deployment History).
5. Click **Deploy**.

A message will be displayed indicating whether the deployment was successful.

To deploy the package later:

1. Click **Schedule Deployment** in the **Outstanding Deployments** tab.

2. Select the **Location** (the name of the Rules Engine application or application cluster, or the GWEB backend server for Genesys Web Engagement) to which the package snapshot will be deployed.
3. Enter the date and time you would like the package snapshot to be deployed.
4. Enter some comments about the deployment (these will appear in the **Deployment History**).
5. Click **Schedule**.

A message will be displayed indicating whether the deployment was successfully scheduled.

If you wish to reschedule a previously scheduled deployment, or wish to cancel a scheduled deployment, you may do so from the **Deployment History** tab.

To refresh the display of a deployment history, click the **Refresh** button, or click in the relevant node in the Explorer Tree.

To display details of a deployment to a cluster:

If you are deploying to a cluster, you can now display a detailed report of the deployment, whether it succeeded or failed. This gives useful information on how a deployment has progressed: you can see, for example, whether a server connection was temporarily down at a critical moment, or whether a server timeout setting might need to be changed.

Important

When deploying to a cluster, GRAT uses a two-phase commit protocol to ensure that all GRE nodes running in the cluster are running the same version of the deployed rule package. If any of the nodes in the cluster fails during Phase 1, the Phase 2 is not committed.

- Phase 1 - (Deploy) All GREs in the cluster are notified about the new rule package. Each GRE downloads the new rule package and compiles it.
- Phase 2 - (Commit) Once all GREs have successfully completed Phase 1, GRAT notifies each GRE to activate and commit the new rule package.

The Deployment Status shows the detail of each node in the cluster and whether or not any errors occurred.

To show the report:

1. Click on the **Failed/Successful** link in the **Status** column.
2. The details of each deploy action to each server in the cluster are displayed, including:

- The GRE Server Name
- The server status
- The success or error message generated by the server

- The Phase 1 (and Phase 2) deployment times in seconds

> **Important**
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> The time zone for scheduled deployments is always the time zone of the server on which the Genesys Rules Authoring Tool is installed.

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A business rule is a piece of logic that defines, on a small scale, what a business does. For the Genesys Rules System, a rule is an external piece of logic that can be customized by business analysts, and invoked by applications. This allows you to tune specific business behaviors as needed.

Types of Rule

GRAT allows you to configure two types of rules:

Linear rules follow the following basic format:

```
WHEN {condition} THEN {action}
```

When the condition is true, the action will occur. This form of rule is best for simple actions, such as assigning a value to return back to the application. Note, however, that linear rules can have multiple conditions and actions, or only actions with no conditions. The conditions and actions that are available depend upon the rule templates that are included in the rule package.

Decision tables allow you to join a number of Linear Rules with the same set of conditions (when) and actions (then) to be used for a complex (structured) business case. Use decision tables to avoid dozens of linear rules with identical structure in the system.

Order of Execution

You can configure rules for various business contexts (nodes representing the various elements in your business structure hierarchy), or, for global rules, at the rule package level. In the Explorer panel, each business context within the configured business structure is represented at a different node level. The order of execution of rules within a rule package depends on the node level: rules execute first at package/global level, then at each level of the hierarchy in turn.

So if you have defined this hierarchy:

- Package
  - Sales Department
    - Finance

and during execution, you specify “Sales Department” / “Finance”, then the order of execution is:

1. Rules at Package level (according to priority)
2. Rules at Sales Department (according to priority)
3. Rules in Finance (according to priority)

Within a given node, you can modify the order of execution by using the up or down arrows on each rule.

Only rules on a particular node path are executed in any given rules run. The path of execution is determined by input to the Rules Engine on the execution request.

> **Important**
>
> The business structure is defined in Configuration Manager or Genesys Administrator.

> **Important**
>
> Before release 8.5.0, rules in Decision Tables were executed from the bottom up. From release 8.5.0, system administrators can configure rule execution to be "bottom-up" or "top-down". The **Rule Evaluation Order** indicator at the bottom of the screen shows you which of these is selected, and a ToolTip is available when you hover your cursor over this indicator. Any changes made to this configuration will apply dynamically, but only take effect after a restart or a browser refresh.

Locking of Rules

When you make any modifications to the body of a rule, you "lock" the rule, which prevents others from being able to make changes to the same rule at the same time. The unsaved changes icon  will appear on the **Rule Summary** to alert you that you need to save your changes. For any other user, the **Lock** icon  appears on the rule summary and the **Save** and **Cancel** buttons are disabled. In addition, other users are unable to make changes to the rule because it is marked "read only".

You can modify multiple rules at a time, without explicitly saving your changes as you move from one rule to the next. The **Rule Summary** will indicate whether there are any unsaved changes that need to be saved. Once the rule is saved, it is "unlocked" and other users will be able to modify it. You can also **Cancel** any unsaved changes, reverting the rule back to the last saved state.

If you log out of your session, you will be prompted if you have unsaved changes. You may then either go back and save your changes, or continue with the logout. In the latter case, the changes you made will be lost and not committed, and the rules will be unlocked.

Audit Trail

The **Audit Trail** tab allows you to view the history of the individual rules, such as when they were updated or deployed, and by whom. When accessed within a business context (a node on the Explorer Tree), the **Audit Trail** tab lists the rules that exist for that business context.

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Before deploying a rules package to the Genesys Rules Engine, subject to having the relevant permissions in Genesys Administrator, you can :

- Create, modify and run one or more test scenarios for each rule package
- Add input data, business context and phase data and expected results
- Review the test outcomes in plain language
- Import and export the test scenarios in the same way as with rules packages

These test features allow rules authors to test any changes made to existing rules packages before deploying them, in order to ensure that no errors are introduced.

The rule testing functionality is available via a new node in the navigation tree called **Test Scenarios**. Click this node to use the rule testing features.

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Rule packages can contain one or more Business Calendars. Business calendars define the working days and hours of the organization. They can also be associated with any rule in the package.

Calendars are out-of-the-box classes available in the Fact Model that can be used by Rules. A calendar contains:

- Name
- Time zone
- Week start day and time
- Week end day and time
- Holidays (one or more)
- Time Change (one or more)

A holiday is fixed, relative, or annual.

A fixed holiday contains the date of the holiday, including day, month, and year, such as 1/1/2010.

A relative holiday contains the month and weekday of the holiday and whether it is on the first, second, third, fourth, or last day of that month, such as the third Thursday of November.

An annual holiday contains the month and day of the holiday, such as July 4.

A time change indicates how the work hours can be adjusted on particular days; for example, defining a half day on a particular day of the work week. Like a holiday, a time change is fixed, relative, or annual and contains the same date definition as the corresponding holiday definition. In addition, the time change contains the start and end time for the defined date.

Business calendars are needed to be able to define rules based on work hours. For instance:

```
WHEN Task is idle for more than 3 Working Days THEN increase Priority by 20

WHEN Today is a holiday AND Task is urgent THEN Agent Group is “Urgent Care”
```

The bolded portions of the above examples use business calendar information.

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> **Important**
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