Key Features

SAS Decision Manager has been renamed SAS Intelligent Decisioning.

SAS Intelligent Decisioning 5.3 runs on SAS Viya 3.4 and includes several features designed to support inbound marketing campaigns.

New features and enhancements enable you to do the following:

- use treatments and treatment groups to define offers that can be presented to customers
- use record contact nodes to record audit information and information about the treatments that are returned by a decision
- create filtering rule sets to control which records are processed by a decision and to specify eligibility rules for specific treatments
- save test results for rule sets, models, and decisions in folders
- add custom Python code and SQL queries to decisions
- score a rule set or a model against a data grid
- add a decision flow as a node in another decision flow
- define column metadata for a data grid
- view the values of data grid variables in test results as a table and as a formatted JSON string in addition to the raw data view
- use the %DCM_DATAGRID_INTERFACE and %DCM_DATAGRID_IMPL macros to enable the use of data grids in SAS Studio
- use new function signatures that improve performance for data grid functions
- use macros to execute rule sets and decisions, to run rule-fired and path-tracking analyses, to retrieve subject contact history records, to retrieve specific versions of rule sets and decisions, and to update variable data types in rule sets
- export and import rule sets through the user interface
- specify a debugging variable in rule set tests and in decision tests
- retrieve values in a lookup table by using literal key values
Specify an initial value for variables

Author expressions that use LOOKUP and LOOKUPVALUE functions without invoking a separate editor

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**Define Treatments and Treatment Groups**

A treatment is a type of marketing communication, such as an offer of a discount on a new phone or a stay at a hotel. You can combine treatments into treatment groups and customize treatment attributes in each treatment group. You can add multiple treatment groups to a decision. When an application such as a call center application invokes the decision, the decision can arbitrate the treatments and determine which treatments a customer is likely to respond to. The decision returns a data grid that contains the treatments to the calling application.

For more information, see “Working with Treatments and Treatment Groups” in *SAS Intelligent Decisioning: User’s Guide*.

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**Add Record Contacts Nodes to Decisions**

A record contacts node creates a contact record in the subject contact history. You can specify whether the contact record includes the treatments that are returned to the calling application, which variables to include in the contact record, and whether the record is used in generating aggregate reports for the channel. Calling applications can generate and use response tracking codes to add additional information to the subject contact history. For example, the calling application might want to add records for the treatments to which the subject responds.

You can also use record contacts nodes to record variable values in the subject contact history even if you are not using treatments.

Two predefined lookup tables are provided for use with record contacts nodes: treatment channels and subject level.


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**Create Filtering Rule Sets**

A filtering rule set enables you to filter the records that are processed in a decision. Filtering rule sets contain only IF statements. Only the records for which the conditions in the IF statement evaluate to True are processed by the remaining objects in the decision.

Filtering rule sets also serve as eligibility rules for treatments. In a treatment, the eligibility rule set defines who is eligible to receive the offer that is defined in the treatment.

Add Custom Python Files and SQL Queries to a Decision

You can create custom Python or SQL query code files and add these files to a decision as a custom code node. You can define custom code files to do many things that are not possible in rules, models, or treatments. For example, you can define a code file that makes HTTP calls to REST APIs or queries a database. For more information, see “Using Custom Code Files” in SAS Intelligent Decisioning: User’s Guide.

Process Data Grids in a Rule Set or Model

You can specify that a rule set or model in a decision iterates through the rows in a data grid. The input and output of a rule set or of a model node in a decision can be a data grid. For more information, see “Mapping Data Grid Variables In A Rule Set or Model” in SAS Intelligent Decisioning: User’s Guide.

Edit Metadata for Data Grid Variables

You can add custom column definitions to a data grid. You can also import column definitions into a data grid from a data table. For more information, see “Editing Data Grid Variable Metadata” in SAS Intelligent Decisioning: Using Data Grids.

Work with Data Grids in SAS Studio

SAS Intelligent Decisioning provides two new macros that enable you to work with data grid variables and functions in SAS Studio. The %DCM_DATAGRID_IMPL macro compiles the code that enables you to create instances of the DCM_DATAGRID object. The %DCM_DATAGRID_INTERFACE macro makes the data grid functions available in SAS Studio. For more information, see “%DCM_DATAGRID_INTERFACE” in SAS Intelligent Decisioning: Using Data Grids and “%DCM_DATAGRID_IMPL” in SAS Intelligent Decisioning: Using Data Grids.

New Data Grid Functions

SAS Intelligent Decisioning 5.3 provides four new functions for working with data grids:

- **DATAGRID_CONFORM** adds the columns that are exclusive to dataGrid1 to dataGrid2, and adds the columns that are exclusive to dataGrid2 to dataGrid1.
- **DATAGRID_DELETECOLUMN** deletes the specified column from the specified data grid.
- **DATAGRID_DELETEROW** deletes the specified row from the specified data grid.
- **DATAGRID_RENAMECOLUMN** renames the specified column in the specified data grid.
New SAS Intelligent Decisioning Macros

SAS Intelligent Decisioning provides several macros for use in SAS Studio. SAS Intelligent Decisioning 5.3 adds the following macros:

- `%DCM_BUILD_SUBJECTCONTACT_AB T` reads the output tables that were produced by the `%DCM_GET_SUBJECTCONTACT_HISTORY` macro, and builds an analytical base table (ABT) using the data in those output tables. You can use the ABT as input for a modeling or reporting process in order to discover which attributes and variables are driving the decision process.

- `%DCM_DECISION_NODES_COUNTS` reads the tables that were produced by the `%DCM_DECISION_PATH_FREQUENCY` and `%DCM_DECISION_PATH_NODES` macros, and produces a table that documents how many times each node in the decision was traversed.

- `%DCM_DECISION_PATH_FREQUENCY` reads the output table that was produced by a rule set or decision, and produces a table that contains the unique set of paths that were traversed to produce the output and the number of times each path was taken.

- `%DCM_DECISION_PATH_NODES` reads the tables that were produced by the `%DCM_DECISION_PATH_FREQUENCY` macro and produces a table that documents the structure of the decision. The table shows the order and depth of the nodes that were traversed when the decision executed.

- `%DCM_EXECUTE_DECISION` generates and executes code for the specified decision.

- `%DCM_EXECUTE_RULESET` generates and executes code for the specified rule set.

- `%DCM_GET_REVISIONS` gets the metadata for all versions of the specified object type that match the specified filter and writes the information to the specified output table.

- `%DCM_GET_SUBJECTCONTACT_HISTORY` retrieves subject contact history information for the specified decision from the subjectContact microservice. The information that is retrieved depends on the information that is tracked with record contacts nodes.

- `%DCM_RULEFIRE_DETAIL` reads the output table that was produced by the specified rule set or decision and generates a rule-fired detail table.

- `%DCM_RULEFIRE_SUMMARY` reads the output table that was produced by the `%DCM_RULEFIRE_DETAIL` macro and generates a rule-fired summary table for the specified rule set or decision.

- `%DCM_UPDATE_RULESET_DATATYPE` updates the data types of the variables for the specified rule set.

New Data Grid Function Signatures

Several data grid functions have new signatures. The following functions now take a target data grid as an additional parameter. The previous signatures are still supported but using the new signatures improves performance.

- `DATAGRID_BOTTOM_N` populates the target data grid with the rows from the source data grid that contain the lowest `number` values in the specified column.

- `DATAGRID_COPY` copies the source data grid into the target data grid.

- `DATAGRID_FULLJOIN` performs a full join of two data grids and populates the target data grid with the results of the join.
- **DATAGRID_INNERJOIN** performs an inner join of two data grids and populates the target data grid with the results of the join.

- **DATAGRID_LEFTJOIN** performs a left join of two data grids, returns the resulting data grid, and populates the target data grid with the results of the join.

- **DATAGRID_RIGHTJOIN** performs a right join of two data grids, returns the resulting data grid, and populates the target data grid with the results of the join.

- **DATAGRID_SORT** populates the target data grid with a sorted copy of the source data grid.

- **DATAGRID_SUBSETBYVALUE** populates the target data grid with the rows from the source data grid for which the specified comparison evaluates to true.

- **DATAGRID_TOPN** populates the target data grid with the rows from the source data grid that contain the highest *number* values in the specified column.