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SAS® Customer Link Analytics 6.5: Data Reference Guide

SAS® Documentation

The correct bibliographic citation for this manual is as follows: SAS Institute Inc. 2016. *SAS® Customer Link Analytics 6.5: Data Reference Guide*. Cary, NC: SAS Institute Inc.

SAS® Customer Link Analytics 6.5: Data Reference Guide

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June 2016

Contents

Part 1

Introduction

Chapter 1

Introduction to the Data Reference Guide

About the Data Reference Guide

This document contains the following parts:

Physical Data Model Diagrams
: This section gives the physical data model diagrams for SAS Customer Link Analytics.

Data Dictionary
: This section lists the application data tables and their columns. It also gives a list of business data tables, enrichment variables, and analytical variables.

Classification of Tables

The SAS Customer Link Analytics tables are classified as mentioned below:

Application data
: stores project-specific data and configuration details of the source data. Also, stores the summary of results that the SAS Customer Link Analytics solution produces when each workflow step is run. These results include information about communities, roles, and centrality measures.

  Application data also contains the configuration details that are required for running the data enrichment process.

Business data
: stores the final output that SAS Customer Link Analytics produces when all the workflow steps of a project are run. This output contains node-level information such as the role ID, community ID, and centrality values. In addition, business data contains data that SAS Customer Link Analytics produces when you run the data enrichment process.

  Business data also contains the intermediate tables that SAS Customer Link Analytics creates when the workflow steps are run.

Part 2

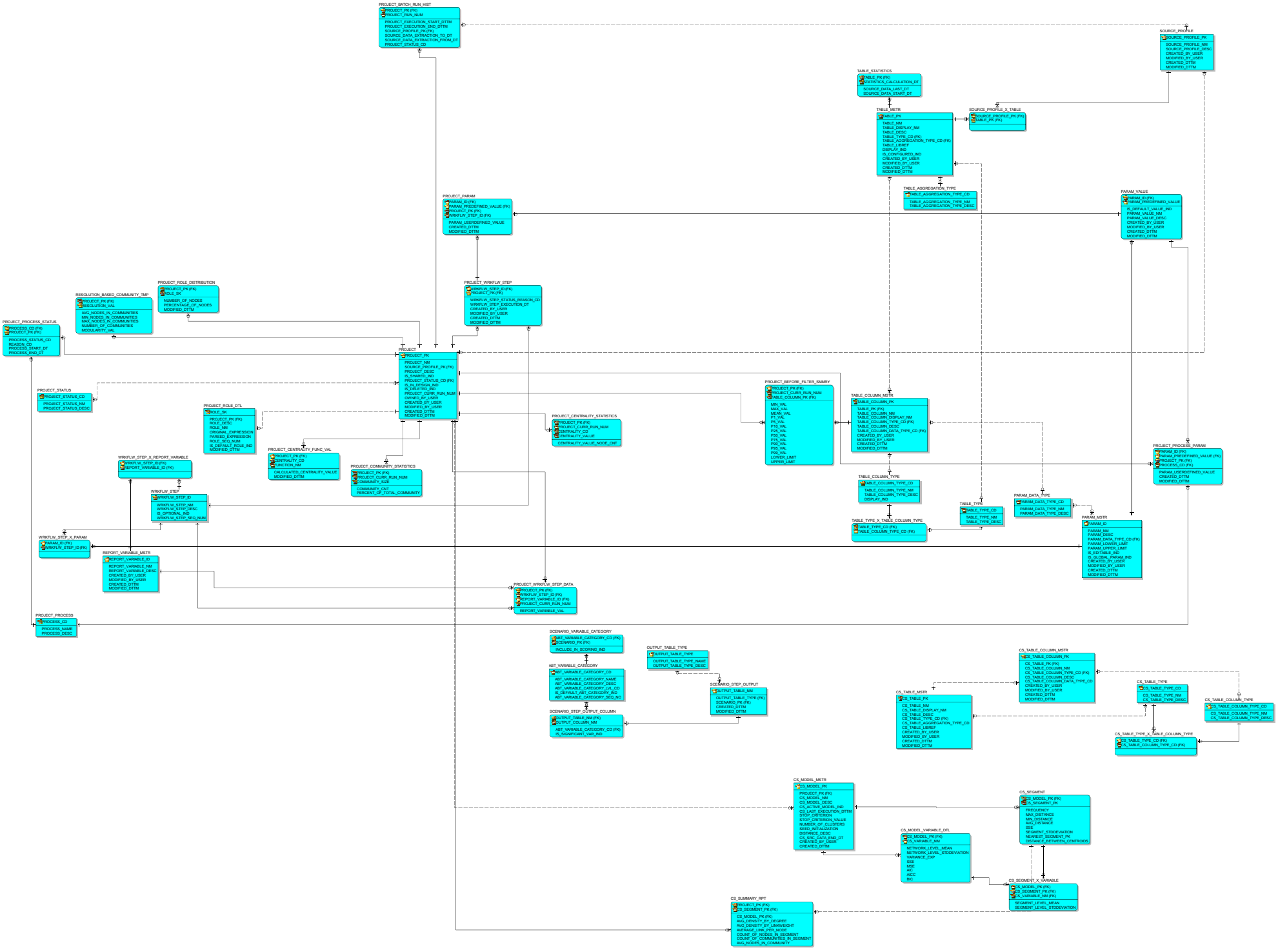
Data Model Diagrams

Chapter 2

Physical Data Model Diagram for Project-Specific Tables

Project-Specific Application Data Tables

The physical data model diagram for the project-specific application data tables is shown on the next page.



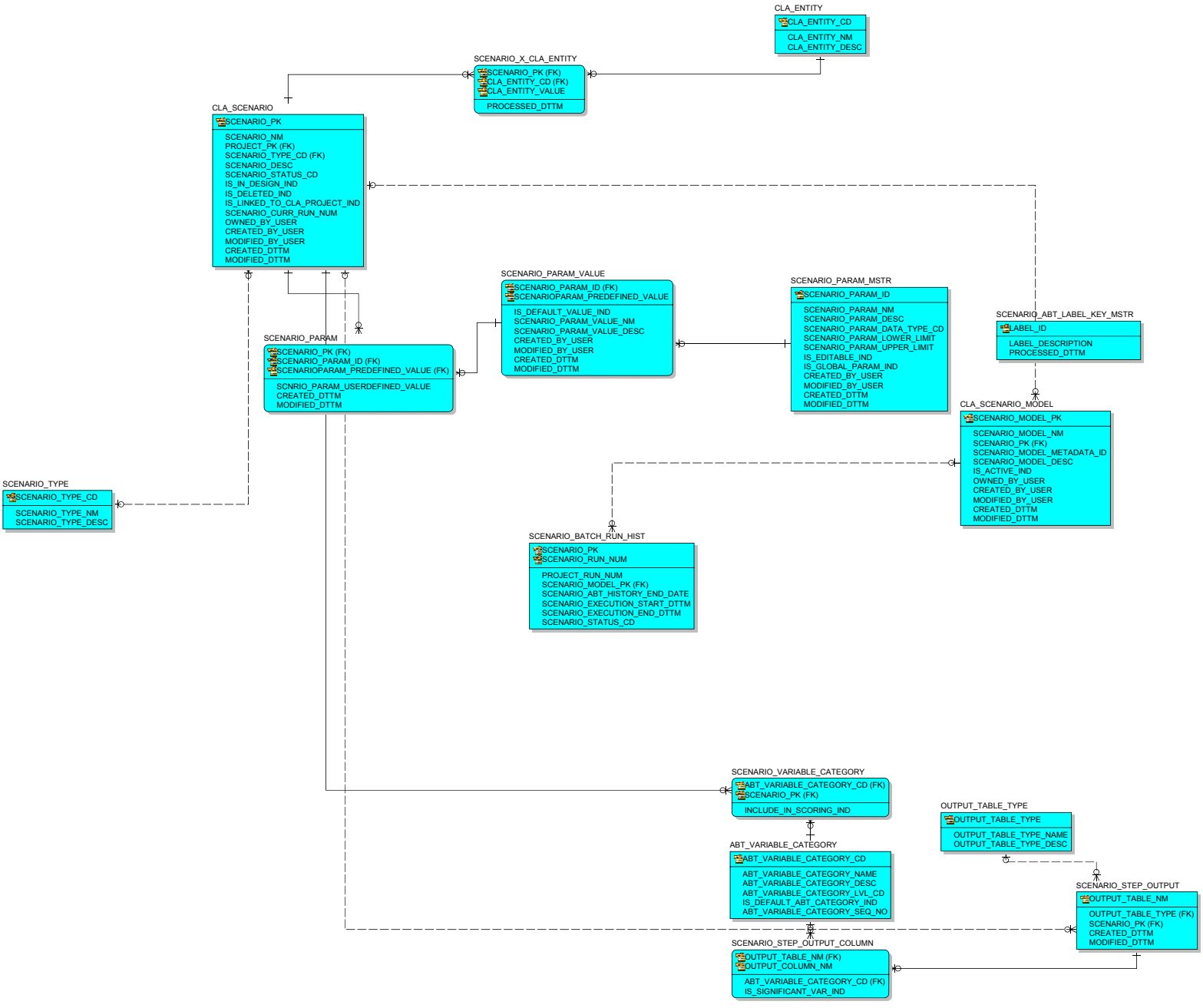
Chapter 3

Physical Data Model Diagram for Scenario-Specific Tables

Scenario-Specific Application Data Tables

The physical data model diagram for the scenario-specific application data tables is shown on the next page.

SAS® Customer Link Analytics 6.5: Application Data Tables



Part 3

Data Dictionary

Chapter 4

Application Data Tables

Descriptions of Application Data Tables

Table 4.1 *Project-Specific Tables*

Table Name	Table Description
CS_MODEL_MSTR	Master table that captures nformation about the segmentation model created for the community segmentation sub-step.
CS_MODEL_VARIABLE_DTL	Stores various statistics for each variable that is used in the community segmentation model. For example, the statistics can be Sum of Squared Error (SSE) or Mean Squared Error (MSE).
CS_SEGMENT	Captures details of the segments that are created using the community segmentation model. This table stores details only for the latest model.
CS_SEGMENT_X_VARIABLE	Stores the statistics for each variable that is used in the community segmentation model. This information is available for each segment.
CS_SUMMARY_RPT	Stores the data that is required for the summary report that is displayed on the **Community Segmentation Results** tab.
CS_TABLE_COLUMN_MSTR	List of columns present in the table. In this case, a record for the table should be available in the CS_TABLE_MSTR Table master.
CS_TABLE_COLUMN_TYPE	Reference table that stores the different types of columns. For example, column types can be dimension, from ID, to ID, date, and measure.

Table Name	Table Description
CS_TABLE_MSTR	Master table that captures the metadata of table that is used in the community segmentation sub-step.
CS_TABLE_TYPE	Reference table for the type of table. For example, the table type can be Transaction, Node attribute, Link attribute, Node inclusion list, and Link inclusion list.
CS_TABLE_TYPE_X_TABLE_COLUMN_TYPE	Association table that indicates the column types that are supported in a particular table type.
OUT_PUT_TABLE_TYPE	Stores the type of table that is created as a result of executing a workflow step or any other process such as enriching data and loading data into the SAS Customer Link Analytics LASR Analytic Server. For example, the table types can be a step output table or a LASR table.
PARAM_DATA_TYPE	Reference table for the parameter data type such as Date and Number.
PARAM_MSTR	Master table that stores all the parameters that SAS Customer Link Analytics uses for executing various processes. This table contains system-specific and user-specified parameters.
PARAM_VALUE	Stores the possible values that a parameter can have. This table also indicates the default value of a parameter.
PROJECT	Master table for storing project details. When a project is created, a record is added in this table.
PROJECT_BATCH_RUN_HIST	Captures historical information about the batch run of a particular project.
PROJECT_BEFORE_FILTER_SMMRY	Contains summary of source (transaction) data before the rule that is specified in the Link and Node filtering workflow step is applied to the data. This table is an input for the Link and Node Filtering page.
PROJECT_CENTRALITY_FUNC_VAL	Captures the function that is used on a centrality measure to assign a role to a node.
PROJECT_CENTRALITY_STATISTICS	Stores the results that are produced by the Centrality Measures Computation workflow step. This data is used to display the graph in the Centrality Measure Computation workflow step page. The graph indicates how many nodes have a particular centrality measure value.
PROJECT_COMMUNITY_STATISTICS	Stores the results that are produced by the Community Building workflow step. This data is used to generate the graph and the diameter summary results that are displayed on the **Results** tab of the Community Building workflow step.

Table Name	Table Description
PROJECT_PARAM	Parameter value that a user selects in a particular project is captured in this table.
PROJECT_PROCESS	Stores the master list of the processes that can be executed in SAS Customer Link Analytics.
PROJECT_PROCESS_PARAM	Stores the value of parameters that are used in a SAS Customer Link Analytics process.
PROJECT_PROCESS_STATUS	Captures the different states of various processes such as enriching data and loading data into the SAS Customer Link Analytics LASR Analytic Server that are run in SAS Customer Link Analytics. For example, the states can be enable, disable, or any other execution status.
PROJECT_ROLE_DISTRIBUTION	Input for the report that is displayed on the **Results** tab of the Role Assignment workflow step. The data in this table indicates how many nodes have a particular role.
PROJECT_ROLE_DTL	Stores the expressions that are used to define roles in the Role Assignment workflow step.
PROJECT_STATUS	Stores the reference data for the project status.
PROJECT_STEP_OUTPUT	Stores the name of the table that is created for a project when a workflow step is executed.
PROJECT_STEP_OUTPUT_COLUMN	Stores the name and details of the columns of the table that is created for a project when a workflow step is executed.
PROJECT_WRKFLW_STEP	Stores the execution status of each workflow step.
PROJECT_WRKFLW_STEP_DATA	Stores the value of report variables that are displayed in each workflow step.
PROJECT_X_VARIABLE_CATEGORY	Stores the enrichment categories that a user has selected for the data enrichment process.
REPORT_VARIABLE_MSTR	Stores the master list of reporting variables that are available for application reporting.
RESOLUTION_BASED_COMMUNITY_TMP	Stores the summary data when multiple values are used in a resolution list in the Community Building workflow step.
SOURCE_PROFILE	Collection of all tables that are used in a project.
SOURCE_PROFILE_X_TABLE	Association table of the source data profiles and source tables.
TABLE_AGGREGATION_TYPE	Reference data for the type of the aggregation that is supported in source data. For example, aggregation type can be monthly or fully.

Table Name	Table Description
TABLE_COLUMN_MSTR	List of columns present in the table. In this case, a record for the table should be available in the Table master.
TABLE_COLUMN_TYPE	Reference table for the different type of columns. For example, column types can be dimension, from ID, To ID, date, and measure.
TABLE_MSTR	Master table to capture the metadata of table such as a source call detail record (CDR) table that is used in a SAS Customer Link Analytics process.
TABLE_STATISTICS	Stores the statistics of source table. For example, date range for the data available in source table is stored in this table.
TABLE_TYPE	Reference table for the type of table. For example, the table type can be Transaction, Node attribute, Link attribute, Node inclusion list, and Link inclusion list.
TABLE_TYPE_X_TABLE_COLUMN_TYPE	Association table that indicates the column types that are supported in a particular table type.
VARIABLE_CATEGORY	Stores the master list of enrichment categories that can be selected for the data enrichment process.
WRKFLW_STEP	Reference table for workflow step that each project has in a SAS Customer Link Analytics workflow.
WRKFLW_STEP_STATUS	Reference table for the different statuses that are applicable for a workflow step.
WRKFLW_STEP_X_PARAM	Reference list for parameters that are defined a workflow step.
WRKFLW_STEP_X_REPORT_VARIABLE	Reference list for reports that are defined in a workflow step.

Table 4.2 *Scenario-Specific Tables*

Table Name	Table Description
ABT_VARIABLE_CATEGORY	Master table for ABT variable categories. These categories can be selected for the ABT-building process.
CLA_ENTITY	Reference table for the SAS Customer Link Analytics entity (project). This entity is used in scenario creation.
CLA_SCENARIO	Master table for scenario definition. When a user defines a scenario for a particular project, a record is added in this table.

Table Name	Table Description
CLA_SCENARIO_MODEL	Master table that stores information about the analytical model that SAS Rapid Predictive Modeler creates for a scenario.
OUTPUT_TABLE_TYPE	Stores the type of table that is created as a result of executing a workflow step or any other process such as enriching data and loading data into the SAS Customer Link Analytics LASR Analytic Server. For example, the table type can be a step output table or a LASR table.
SCENARIO_ABT_LABEL_KEY_MSTR	Master table that stores the value of key and description. This information is used to generate meaningful labels for the columns of the scenario ABT.
SCENARIO_BATCH_RUN_HIST	Stores historical information about the batch run of a particular scenario.
SCENARIO_PARAM	Stores parameter values that a user has selected in a particular scenario.
SCENARIO_PARAM_MSTR	Master table that stores all the parameters that are used for processing scenarios. This table contains system-specific and user-specified parameters.
SCENARIO_PARAM_VALUE	Stores the possible values that a scenario-related parameter can have. This table also indicates the default value of a parameter.
SCENARIO_STEP_OUTPUT	Stores the name of the table that is created for a project when a scenario step is executed.
SCENARIO_STEP_OUTPUT_COLUMN	Stores the name and details of the columns of the table that is created for a project when a scenario step is executed.
SCENARIO_TYPE	Reference table for the different types of scenarios. For example, a scenario type can be churn or product adoption.
SCENARIO_VARIABLE_CATEGORY	Stores the categories of variables that are created during the ABT-building process.
SCENARIO_X_CLA_ENTITY	Stores the association of a scenario with a project.

Chapter 5

Column Descriptions of Application Data Tables

Column Descriptions of Project-Specific Tables

Table 5.1 *CS_MODEL_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_MODEL_PK	A sequence number that is generated for the community segmentation model.	INTEGER	NOT NULL	Yes
CS_MODEL_NM	The name of the community segmentation model.	VARCHAR(40)	NULL	No
CS_MODEL_DESC	A description for a community segmentation model.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the model is created.	TIMESTAMP(0)	NULL	No
CREATED_BY_USER	The user ID of the user who created the model.	VARCHAR(100)	NULL	No
CS_ACTIVE_MODEL_IND	Indicates whether the model is active for the project.	CHAR(1)	NULL	No
CS_LAST_EXECUTION_DTTM	The date on which the model was last executed.	TIMESTAMP(0)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
STOP_CRITERION	Stores the type of stopping criterion for the model.	VARCHAR(100)	NULL	No
STOP_CRITERION_VALUE	Stores the value of stopping criteria for the model.	NUMERIC(8,2)	NULL	No
NUMBER_OF_CLUSTERS	A user-defined parameter that specifies the number of clusters that should be created during segmentation.	NUMERIC(10)	NULL	No
SEED_INITIALIZATION	Specifies a positive integer for the pseudo random number generator that is used for randomly selecting the initial cluster centroids from the input data set.	CHAR(18)	NULL	No
DISTANCE_DESC	Specifies the distance measure for similarity that is used for the numeric interval input variable.	VARCHAR(100)	NULL	No
PROJECT_PK	A sequence number that is generated for a project.	INTEGER	NULL	No
CS_SRC_DATA_END_DT	The end date for the data that is used in community segmentation	TIMESTAMP(0)	NULL	No

Table 5.2 *CS_MODEL_VARIABLE_DTL Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_MODEL_PK	A sequence number that is generated for a community segmentation model.	INTEGER	NOT NULL	Yes
CS_VARIABLE_NM	The name of the variable that is used in community segmentation.	VARCHAR(40)	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
NETWORK_LEVEL_MEAN	The network-level mean for the variable.	NUMERIC(9,4)	NULL	No
NETWORK_LEVEL_STDDEVIATION	The network-level standard deviation for the variable.	NUMERIC(9,4)	NULL	No
VARIANCE_EXP	The fraction of the total variance explained after selecting a particular variable.	NUMERIC(9,4)	NULL	No
SSE	The value of the error sum of squares for each selected variable.	NUMERIC(9,4)	NULL	No
MSE	The value of the mean squared error for each selected variable.	NUMERIC(9,4)	NULL	No
AIC	The value of Akaike's information criterion for each selected variable.	NUMERIC(9,4)	NULL	No
AICC	The value of corrected Akaike's information criterion for each selected variable.	NUMERIC(9,4)	NULL	No
BIC	The value of Schwarz Bayesian information criterion for each selected variable.	NUMERIC(9,4)	NULL	No

Table 5.3 *CS_SEGMENT Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_MODEL_PK	A sequence number that is generated for a community segmentation model.	INTEGER	NOT NULL	Yes
CS_SEGMENT_PK	A sequence number that is generated for a segment created during the community segmentation process.	INTEGER	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
FREQUENCY	The total number of communities that belong to the segment.	NUMERIC(10)	NULL	No
MAX_DISTANCE	The maximum distance from the cluster centroid to the observations in the cluster.	NUMERIC(9,4)	NULL	No
MIN_DISTANCE	The minimum distance from the cluster centroid to the observations in the cluster.	NUMERIC(9,4)	NULL	No
SSE	The sum of squares errors between the observations and the closest cluster centroids to them.	NUMERIC(9,4)	NULL	No
AVG_DISTANCE	The average distance from the cluster centroid to the observations in the cluster.	NUMERIC(9,4)	NULL	No
DISTANCE_BETWEEN_CENTROIDS	The distance between the cluster centroid of the current cluster and the nearest cluster.	NUMERIC(9,4)	NULL	No
NEAREST_SEGMENT_PK	The nearest cluster (the ID of the cluster whose centroid is closest to the current cluster’s centroid).	INTEGER	NULL	No
SEGMENT_STDDEVIATION	The root mean square distances between the observations and the cluster centroids that are closest to them.	NUMERIC(9,4)	NULL	No

Table 5.4 *CS_SEGMENT_X_VARIABLE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_MODEL_PK	A sequence number that is generated for a community segmentation model.	INTEGER	NOT NULL	Yes
CS_SEGMENT_PK	A sequence number that is generated for a segment created during the community segmentation process.	INTEGER	NOT NULL	Yes
CS_VARIABLE_NM	The name of the variable used in community segmentation.	VARCHAR(40)	NOT NULL	Yes
SEGMENT_LEVEL_MEAN	The segment-level mean of the variable.	NUMERIC(9,4)	NULL	No
SEGMENT_LEVEL_STDDEVIATION	The segment-level standard deviation of the variable.	NUMERIC(9,4)	NULL	No

Table 5.5 *CS_SUMMARY_RPT Table*

Column Name	Column Description	Data Type	Null Option	Is PK
AVG_DENSITY_BY_DEGREE	The average density of the communities in the segment. This value is computed based on degree values.	NUMERIC(9,4)	NULL	No
AVG_DENSITY_BY_LINKWEIGHT	The average density of the communities in the segment. This value is computed based on link-weight values.	NUMERIC(9,4)	NULL	No
AVERAGE_LINK_PER_NODE	The average number of links per node in the communities of the segment.	NUMERIC(9,4)	NULL	No
CS_MODEL_PK	A sequence number that is generated for a community segmentation model.	INTEGER	NOT NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
CS_SEGMENT_PK	A sequence number that is generated for a segment created during the community segmentation process.	INTEGER	NOT NULL	Yes
PROJECT_PK	A sequence number that is generated for a segment created during the community segmentation process.	INTEGER	NOT NULL	Yes
COUNT_OF_NODES_IN_SEGMENT	The number of nodes in the segment.	NUMERIC(10)	NULL	No
COUNT_OF_COMMUNITIES_IN_SEGMENT	The number of communities in the segment.	NUMERIC(10)	NULL	No
AVG_NODES_IN_COMMUNITY	The average number of nodes in the community of the segment.	NUMERIC(9,4)	NOT NULL	No

Table 5.6 *CS_TABLE_COLUMN_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_TABLE_COLUMN_TYPE_CD	The code that is assigned for a column type. For example, column types can be dimension, from ID, to ID, date, and measure.	VARCHAR(10)	NOT NULL	Yes
CS_TABLE_COLUMN_TYPE_NM	The name of the column type.	VARCHAR(40)	NULL	No
CS_TABLE_COLUMN_TYPE_DESC	A description of the column type.	VARCHAR(100)	NULL	No

Table 5.7 *CS_TABLE_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_TABLE_PK	A sequence number that is generated for a table.	INTEGER	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
CS_TABLE_NM	The name of the table that is registered in SAS Customer Link Analytics.	VARCHAR(40)	NULL	No
CS_TABLE_DESC	A description of the table as specified by the user.	VARCHAR(100)	NULL	No
CREATED_BY_USER	The user ID of the user who created the table.	VARCHAR(100)	NULL	No
MODIFIED_BY_USER	The user ID of the user who modified the table.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the table is created.	TIMESTAMP(0)	NULL	No
MODIFIED_DTTM	The date on which the table is modified.	TIMESTAMP(0)	NULL	No
CS_TABLE_TYPE_CD	The code that is assigned for the type of table. For example, table types can be Transactional, Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(10)	NULL	No
CS_TABLE_LIBREF	The library reference of the table.	VARCHAR(10)	NULL	No
CS_TABLE_AGGREGATION_TYPE_CD	The aggregation type of the table.	VARCHAR(10)	NULL	No
CS_TABLE_DISPLAY_NM	The display name of the table as specified by the user.	VARCHAR(40)	NULL	No

Table 5.8 *CS_TABLE_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_TABLE_TYPE_CD	The code that is assigned for the type of table. For example, table types can be Transactional, Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(10)	NOT NULL	Yes
CS_TABLE_TYPE_NM	The name of the type of table.	VARCHAR(40)	NULL	No
CS_TABLE_TYPE_DESC	A description of the type of table.	VARCHAR(100)	NULL	No

Table 5.9 *CS_TABLE_TYPE_X_TABLE_COLUMN_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CS_TABLE_TYPE_CD	The code that is assigned for the type of table. For example, table types can be Transactional, Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(10)	NOT NULL	Yes
CS_TABLE_COLUMN_TYPE_CD	The code that is assigned for a column type. For example, column types can be dimension, from ID, to ID, date, and measure.	VARCHAR(10)	NOT NULL	Yes

Table 5.10 *OUT_PUT_TABLE_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
OUT_PUT_TABLE_TYPE_TYPE	The type of output table. For example, the table type can be LASR Data or Core Data.	VARCHAR(10)	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
OUT_PUT_TABLE_TYPE_DESC	The description of the type of output table.	VARCHAR(100)	NULL	No
OUT_PUT_TABLE_TYPE_NAME	The name of the type of output table.	VARCHAR(40)	NULL	No

Table 5.11 *PARAM_DATA_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PARAM_DATA_TYPE_CD	Code that is assigned to a parameter data type. For example, the data type can be Date, Number, and so on.	VARCHAR(10)	NOT NULL	Yes
PARAM_DATA_TYPE_DESC	Description of a parameter data type. For example, the data type can be Date, Number, and so on.	VARCHAR(100)	NULL	No
PARAM_DATA_TYPE_NM	Name of a parameter data type. For example, the data type can be Date, Number, and so on.	VARCHAR(40)	NULL	No

Table 5.12 *PARAM_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_EDITABLE_IND	Indicates whether the parameter is editable.	CHAR(1)	NULL	No
IS_GLOBAL_PARAM_IND	Indicates whether the parameter is a global parameter.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
PARAM_DATA_TYPE_CD	Code that is assigned to a parameter data type. For example, the data type can be Date, Number, and so on.	VARCHAR(10)	NULL	No
PARAM_DESC	Description of the parameter.	VARCHAR(100)	NULL	No
PARAM_ID	Unique identifier of the parameter.	VARCHAR(32)	NOT NULL	Yes
PARAM_LOWER_LIMIT	Lower limit of the parameter.	NUMERIC(15,3)	NULL	No
PARAM_NM	Name of the parameter.	VARCHAR(40)	NULL	No
PARAM_UPPER_LIMIT	Upper limit of the parameter.	NUMERIC(15,3)	NULL	No

Table 5.13 *PARAM_VALUE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_DEFAULT_VALUE_IND	Indicates whether the parameter value is default.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
PARAM_ID	Unique identifier of the parameter.	VARCHAR(32)	NOT NULL	Yes
PARAM_PREDEFINED_VALUE	Predefined value of the parameter.	VARCHAR(100)	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
PARAM_VALUE_DESC	Description of the parameter value.	VARCHAR(100)	NULL	No
PARAM_VALUE_NM	Name for the parameter value.	VARCHAR(40)	NULL	No

Table 5.14 *PROJECT Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_DELETED_IND	Indicates whether the project is deleted.	CHAR(1)	NULL	No
IS_IN_DESIGN_IND	Indicates whether the scenario is in design or batch mode.	CHAR(1)	NULL	No
IS_SHARED_IND	Indicates whether the project is shared.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
OWNED_BY_USER	User ID of the owner of the project.	VARCHAR(100)	NULL	No
PROJECT_CURR_RUN_NUM	Current run number of the project.	NUMERIC(10)	NULL	No
PROJECT_DESC	Description of the project that a user has specified.	VARCHAR(200)	NULL	No
PROJECT_NM	Name that a user has specified for a project.	VARCHAR(40)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	SERIAL	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
PROJECT_STATUS_CD	A code that is assigned for the project status.	VARCHAR(10)	NULL	No
SOURCE_PROFILE_PK	A sequence number that is generated for the source profile.	INTEGER	NULL	No

Table 5.15 *PROJECT_BATCH_RUN_HIST Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PROJECT_EXECUTION_START_DTTM	The start date of project execution.	TIMESTAMP	NULL	No
PROJECT_EXECUTION_END_DTTM	The end date of project execution.	TIMESTAMP	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
PROJECT_RUN_NUM	Run number of the project.	NUMERIC(10)	NOT NULL	Yes
PROJECT_STATUS_CD	A code that is assigned for the project status.	VARCHAR(10)	NULL	No
SOURCE_DATA_EXTRACTION_FROM_DT	End date for extracting data from the source data.	TIMESTAMP(0)	NULL	No
SOURCE_DATA_EXTRACTION_TO_DT	Start date for extracting data from the source data.	TIMESTAMP(0)	NULL	No
SOURCE_PROFILE_PK	A sequence number that is generated for the source profile.	INTEGER	NULL	No

Table 5.16 *PROJECT_BEFORE_FILTER_SMMRY Table*

Column Name	Column Description	Data Type	Null Option	Is PK
LOWER_LIMIT	Lower limit for filtering links and nodes.	NUMERIC(15,3)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
MAX_VAL	The maximum value of the measure.	NUMERIC(15,3)	NULL	No
MEAN_VAL	The mean value of the measure.	NUMERIC(15,3)	NULL	No
MIN_VAL	The minimum value of the measure.	NUMERIC(15,3)	NULL	No
P1_VAL	One percentile value of the measure.	NUMERIC(15,3)	NULL	No
P10_VAL	10 percentile value of the measure	NUMERIC(15,3)	NULL	No
P25_VAL	25 percentile value of the measure.	NUMERIC(15,3)	NULL	No
P5_VAL	Five percentile value of the measure.	NUMERIC(15,3)	NULL	No
P50_VAL	50 percentile value of the measure.	NUMERIC(15,3)	NULL	No
P75_VAL	75 percentile value of the measure.	NUMERIC(15,3)	NULL	No
P90_VAL	90 percentile value of the measure.	NUMERIC(15,3)	NULL	No
P95_VAL	95 percentile value of the measure.	NUMERIC(15,3)	NULL	No
P99_VAL	99 percentile value of the measure.	NUMERIC(15,3)	NULL	No
PROJECT_CURR_RUN_NUM	Current run number of the project.	NUMERIC(10)	NOT NULL	Yes
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
TABLE_COLUMN_PK	A sequence number that is generated for a table registered in SAS Customer Link Analytics.	INTEGER	NOT NULL	Yes
UPPER_LIMIT	Upper limit for filtering links and nodes.	NUMERIC(15,3)	NULL	No

Table 5.17 *PROJECT_CENTRALITY_FUNC_VAL Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CALCULATED_CENTRALITY_VALUE	Calculated value of centrality	NUMERIC(15,3)	NULL	No
CENTRALITY_CD	A unique code that is assigned to the centrality measure.	VARCHAR(10)	NOT NULL	Yes
FUNCTION_NM	Name of the function that is applied on the centrality .	VARCHAR(40)	NOT NULL	Yes
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes

Table 5.18 *PROJECT_CENTRALITY_STATISTICS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CENTRALITY_CD	A unique code that is assigned to the centrality measure.	VARCHAR(10)	NOT NULL	Yes
CENTRALITY_VALUE	Value of the centrality measure.	NUMERIC(8,2)	NOT NULL	Yes
CENTRALITY_VALUE_NODE_CNT	Number of nodes for a particular centrality value.	NUMERIC(6)	NULL	No
PROJECT_CURR_RUN_NUM	Current run number of the project.	NUMERIC(10)	NOT NULL	Yes
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes

Table 5.19 *PROJECT_COMMUNITY_STATISTICS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
COMMUNITY_CNT	Number of communities that have a particular size.	NUMERIC(6)	NULL	No
COMMUNITY_SIZE	Size of the community. It indicates the number of nodes in a community.	NUMERIC(10)	NOT NULL	Yes
PERCENT_OF_TOTAL_COMMUNITY	Percentage of community out of total community	NUMERIC(9,4)	NOT NULL	No
PROJECT_CURR_RUN_NUM	Current run number of the project.	NUMERIC(10)	NOT NULL	Yes
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes

Table 5.20 *PROJECT_PARAM Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
PARAM_ID	Unique identifier of the parameter.	VARCHAR(32)	NOT NULL	Yes
PARAM_PREDEFINED_VALUE	Predefined value of the parameter.	VARCHAR(100)	NOT NULL	Yes
PARAM_USERDEFINED_VALUE	User-defined value of the parameter.	VARCHAR(1000)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
WRKFLW_STEP_ID	Unique identifier of the workflow step	VARCHAR(32)	NOT NULL	Yes

Table 5.21 *PROJECT_PROCESS_PARAM Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
PARAM_ID	A unique identifier of the parameter that is used in a project process.	VARCHAR(32)	NOT NULL	Yes
PARAM_PREDEFINED_VALUE	A predefined value that can be assigned to a parameter.	VARCHAR(100)	NOT NULL	Yes
PARAM_USERDEFINED_VALUE	A user-defined value that can be assigned to a parameter.	VARCHAR(100)	NULL	No
PROCESS_CD	The code that is assigned to the process that can be run in SAS Customer Link Analytics. For example, the process can be enriching data or loading data into the SAS Customer Link Analytics LASR Analytic Server.	VARCHAR(10)	NOT NULL	Yes
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes

Table 5.22 *PROJECT_PROCESS_STATUS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PROCESS_CD	The code that is assigned to the process that can be run in SAS Customer Link Analytics. For example, the process can be enriching data or loading data into the SAS Customer Link Analytics LASR Analytic Server.	VARCHAR(10)	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
PROCESS_END_DT	The end date on which a process is run.	TIMESTAMP(0)	NULL	No
PROCESS_START_DT	The start date on which a process is run.	TIMESTAMP(0)	NULL	No
PROCESS_STATUS_CD	The code that is assigned to the execution status of a project. For example, the execution status can be Successful or Executed with error.	VARCHAR(10)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
REASON_CD	The code that is assigned to the reason that indicates the failed status of a process or project.	VARCHAR(10)	NULL	No

Table 5.23 *PROJECT_PROCESS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PROCESS_CD	The code that is assigned to the process that can be run in SAS Customer Link Analytics. For example, the process can be enriching data or loading data into the SAS Customer Link Analytics LASR Analytic Server.	VARCHAR(10)	NOT NULL	Yes
PROCESS_DESC	The description of the process that can be run in SAS Customer Link Analytics. For example, the process can be enriching data or loading data into the SAS Customer Link Analytics LASR Analytic Server.	VARCHAR(100)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
PROCESS_NAME	The name of the process that can be run in SAS Customer Link Analytics. For example, the process can be enriching data or loading data into the SAS Customer Link Analytics LASR Analytic Server.	VARCHAR(40)	NULL	No

Table 5.24 *PROJECT_ROLE_DISTRIBUTION Table*

Column Name	Column Description	Data Type	Null Option	Is PK
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
NUMBER_OF_NODES	The number of nodes that have a particular role.	NUMERIC(10)	NULL	No
PERCENTAGE_OF_NODES	Percentage of nodes that a particular role to the total number of nodes.	NUMERIC(9,4)	NOT NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
ROLE_SK	A sequence number that is generated for the role.	INTEGER	NOT NULL	Yes

Table 5.25 *PROJECT_ROLE_DTL Table*

Column Name	Column Description	Data Type	Null Option	Is PK
IS_DEFAULT_ROLE_IND	Indicates whether this is a default role.	CHAR(1)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
ORIGINAL_EXPRESSION	The expression that a user has created for role definition.	VARCHAR(1000)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
PARSED_EXPRESSION	Expression that a user creates for a role definition.	VARCHAR(1000)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	No
ROLE_DESC	Description of the role that a user specifies in a role definition.	VARCHAR(100)	NULL	No
ROLE_NM	Name of the role that a user specifies in a role definition.	VARCHAR(40)	NULL	No
ROLE_SEQ_NUM	Sequence number that indicates the priority of a role.	INTEGER	NOT NULL	No
ROLE_SK	A sequence number that is generated for the role.	SERIAL	NOT NULL	Yes

Table 5.26 *PROJECT_STATUS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PROJECT_STATUS_CD	A code that is assigned for the project status.	VARCHAR(10)	NOT NULL	Yes
PROJECT_STATUS_DESC	Description of the status.	VARCHAR(100)	NULL	No
PROJECT_STATUS_NM	Name of the project status.	VARCHAR(40)	NULL	No

Table 5.27 *PROJECT_STEP_OUTPUT Table*

Column Name	Column Description	Data Type	Null Value	Is PK
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No

Column Name	Column Description	Data Type	Null Value	Is PK
OUT_PUT_TABLE_NM	The name of the output table that is created when a workflow step or a process is run.	VARCHAR(30)	NOT NULL	Yes
OUT_PUT_TABLE_TYPE	The type of output table. For example, the table type can be LASR Data or Core Data.	VARCHAR(10)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NULL	No
WRKFLW_STEP_ID	A unique identifier of the workflow step.	VARCHAR(32)	NULL	No

Table 5.28 *PROJECT_STEP_OUTPUT_COLUMN Table*

Column Name	Column Description	Data Type	Null Value	Is PK
OUT_PUT_COLUMN_NM	The name of the column in the output table.	VARCHAR(30)	NOT NULL	Yes
OUT_PUT_TABLE_NM	The name of the output table that is created when a workflow step or a process is run.	VARCHAR(30)	NOT NULL	Yes
VARIABLE_CATEGORY_CD	The code that is assigned to the enrichment category that you select for the data enrichment process.	VARCHAR(10)	NULL	No

Table 5.29 *PROJECT_WRKFLW_STEP Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
WRKFLW_STEP_EXECUTION_DT	Execution date of the workflow step.	TIMESTAMP(0)	NULL	No
WRKFLW_STEP_ID	Unique identifier of the workflow step	VARCHAR(32)	NOT NULL	Yes
WRKFLW_STEP_STATUS_CD	Code that is assigned for the workflow step status.	VARCHAR(10)	NULL	No
WRKFLW_STEP_STATUS_REASON_CD	Code that indicates the reason why a workflow step failed.	VARCHAR(10)	NULL	No

Table 5.30 *PROJECT_WRKFLW_STEP_DATA Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PROJECT_CURR_RUN_NUM	Current run number of the project.	NUMERIC(10)	NOT NULL	Yes
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
REPORT_VARIABLE_ID	Unique identifier of the report variable.	VARCHAR(32)	NOT NULL	Yes
REPORT_VARIABLE_VAL	Value of the reporting variable.	NUMERIC(15,3)	NULL	No
WRKFLW_STEP_ID	Unique identifier of the workflow step	VARCHAR(32)	NOT NULL	Yes

Table 5.31 *PROJECT_X_VARIABLE_CATEGORY Table*

Column Name	Column Description	Data Type	Null Value	Is PK
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
VARIABLE_CATEGORY_CD	The code that is assigned to the enrichment category that you select for the data enrichment process.	VARCHAR(10)	NOT NULL	Yes

Table 5.32 *REPORT_VARIABLE_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
REPORT_VARIABLE_DESC	Description of the reporting variable.	VARCHAR(100)	NULL	No
REPORT_VARIABLE_ID	Unique identifier of the report variable.	VARCHAR(32)	NOT NULL	Yes
REPORT_VARIABLE_NM	Name of the reporting variable.	VARCHAR(40)	NULL	No

Table 5.33 *RESOLUTION_BASED_COMMUNITY_TMP Table*

Column Name	Column Description	Data Type	Null Option	Is PK
AVG_NODES_IN_COMMUNITIES	The average number of nodes in a community .	NUMERIC(10)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
MAX_NODES_IN_COMMUNITIES	The maximum number of nodes in a community.	NUMERIC(10)	NULL	No
MIN_NODES_IN_COMMUNITIES	The minimum number of nodes in a community.	NUMERIC(10)	NULL	No
MODULARITY_VAL	Modularity value.	NUMERIC(15,3)	NULL	No
NUMBER_OF_COMMUNITIES	Number of communities.	NUMERIC(10)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	Yes
RESOLUTION_VAL	Value of the resolution list.	NUMERIC(20,8)	NOT NULL	Yes

Table 5.34 *SOURCE_PROFILE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
SOURCE_PROFILE_DESC	Description of source profile that is specified by the user.	VARCHAR(100)	NULL	No
SOURCE_PROFILE_NM	Name of the source profile that is specified by the user.	VARCHAR(40)	NULL	No
SOURCE_PROFILE_PK	A sequence number that is generated for the source profile.	SERIAL	NOT NULL	Yes

Table 5.35 *SOURCE_PROFILE_X_TABLE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
SOURCE_PROFILE_PK	A sequence number that is generated for the source profile.	INTEGER	NOT NULL	Yes
TABLE_PK	A sequence number that is generated for a table.	INTEGER	NOT NULL	Yes

Table 5.36 *TABLE_AGGREGATION_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_AGGREGATION_TYPE_CD	A code that is assigned for the data aggregation level. For example, data can be monthly, daily, or fully aggregated.	VARCHAR(10)	NOT NULL	Yes
TABLE_AGGREGATION_TYPE_DESC	Description of data aggregation level. For example, data can be monthly, daily, or fully aggregated.	VARCHAR(100)	NULL	No
TABLE_AGGREGATION_TYPE_NM	Name of the data aggregation level . For example, data can be monthly, daily, or fully aggregated.	VARCHAR(40)	NULL	No

Table 5.37 *TABLE_COLUMN_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_COLUMN_DATA_TYPE_CD	Code that is assigned to a column data type. For example, column data type can Date, Number, and so on.	VARCHAR(10)	NULL	No
TABLE_COLUMN_DESC	Description of the table column.	VARCHAR(100)	NULL	No
TABLE_COLUMN_DISPLAY_NM	Display name of the column.	VARCHAR(40)	NULL	No
TABLE_COLUMN_NM	Name of the registered column.	VARCHAR(40)	NULL	No
TABLE_COLUMN_PK	A sequence number that is generated for a table registered in SAS Customer Link Analytics.	SERIAL	NOT NULL	Yes
TABLE_COLUMN_TYPE_CD	Code that is assigned for a column type. For example, column types can be dimension, from ID, To ID, date, and measure.	VARCHAR(10)	NULL	No
TABLE_PK	A sequence number that is generated for a table.	INTEGER	NOT NULL	No

Table 5.38 *TABLE_COLUMN_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
DISPLAY_IND	Indicates whether the column type is available for selection in the UI.	CHAR(1)	NULL	No
TABLE_COLUMN_TYPE_CD	Code that is assigned for a column type. For example, column types can be dimension, from ID, To ID, date, and measure.	VARCHAR(10)	NOT NULL	Yes
TABLE_COLUMN_TYPE_DESC	Description of the column type	VARCHAR(100)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_COLUMN_TYPE_NM	Name of the column type.	VARCHAR(40)	NULL	No

Table 5.39 *TABLE_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
DISPLAY_IND	Indicates whether the table type is available for selection in the UI.	CHAR(1)	NULL	No
IS_CONFIGURED_IND	Indicates whether the table is completely configured.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
TABLE_AGGREGATION_TYPE_CD	A code that is assigned for the data aggregation level. For example, data can be monthly, daily, or fully aggregated.	VARCHAR(10)	NULL	No
TABLE_DESC	Description of the table as specified by the user.	VARCHAR(100)	NULL	No
TABLE_DISPLAY_NM	Display name of the table as specified by the user.	VARCHAR(40)	NULL	No
TABLE_LIBREF	Library reference of the table.	VARCHAR(10)	NULL	No
TABLE_NM	Name of the table that is registered in SAS Customer Link Analytics.	VARCHAR(40)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_PK	A sequence number that is generated for a table.	SERIAL	NOT NULL	Yes
TABLE_TYPE_CD	Code that is assigned for the type of table. For example, table types can be Transactional , Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(10)	NULL	No

Table 5.40 *TABLE_STATISTICS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
SOURCE_DATA_LAST_DT	The latest date for which the data available in the source system.	TIMESTAMP(0)	NULL	No
SOURCE_DATA_START_DT	The earliest date for which the data available in the source system.	TIMESTAMP(0)	NULL	No
STATISTICS_CALCULATION_DT	The date on which statistics of the source table are calculated.	TIMESTAMP(0)	NOT NULL	Yes
TABLE_PK	A sequence number that is generated for a table.	INTEGER	NOT NULL	Yes

Table 5.41 *TABLE_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_TYPE_CD	Code that is assigned for the type of table. For example, table types can be Transactional , Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(10)	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_TYPE_DESC	Description of the type of table. For example, table types can be Transactional , Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(100)	NULL	No
TABLE_TYPE_NM	Name of the type of table. For example, table types can be Transactional , Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(40)	NULL	No

Table 5.42 *TABLE_TYPE_X_TABLE_COLUMN_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
TABLE_COLUMN_TYPE_CD	Code that is assigned for a column type. For example, column types can be dimension, from ID, To ID, date, and measure.	VARCHAR(10)	NOT NULL	Yes
TABLE_TYPE_CD	Code that is assigned for the type of table. For example, table types can be Transactional , Node attribute, Link attribute, Node inclusion list, and Link inclusion list.	VARCHAR(10)	NOT NULL	Yes

Table 5.43 *VARIABLE_CATEGORY Table*

Column Name	Column Description	Data Type	Null Option	Is PK
IS_DEFAULT_CATEGORY_IND	The code that indicates whether the enrichment category is selected by default.	CHAR(1)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
VARIABLE_CATEGORY_CD	The code that is assigned to the enrichment category that you select for the data enrichment process.	VARCHAR(10)	NOT NULL	Yes
VARIABLE_CATEGORY_DESC	The description of the enrichment category that you select for the data enrichment process.	VARCHAR(100)	NULL	No
VARIABLE_CATEGORY_LEVEL_CD	The level of the enrichment category. The possible values can be link level or node level.	VARCHAR(10)	NULL	No
VARIABLE_CATEGORY_NAME	The name of the enrichment category that you select for the data enrichment process.	VARCHAR(40)	NULL	No
VARIABLE_CATEGORY_SEQUENCE_NO	The sequence number that indicates the order in which the data enrichment process is run and the results are produced for the enrichment category.	NUMERIC(10)	NULL	No

Table 5.44 *WRKFLW_STEP Table*

Column Name	Column Description	Data Type	Null Option	Is PK
IS_OPTIONAL_IND	Indicates whether the workflow step if optional.	CHAR(1)	NULL	No
WRKFLW_STEP_DESC	Description of the workflow step.	VARCHAR(100)	NULL	No
WRKFLW_STEP_ID	Unique identifier of the workflow step	VARCHAR(32)	NOT NULL	Yes
WRKFLW_STEP_NM	Name of the workflow step.	VARCHAR(40)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
WRKFLW_STEP_SEQ_NUM	The sequence in which the workflow steps are to be executed.	NUMERIC(10)	NULL	No

Table 5.45 *WRKFLW_STEP_STATUS Table*

Column Name	Column Description	Data Type	Null Option	Is PK
WRKFLW_STEP_STATUS_CD	Code that is assigned for the workflow step status.	VARCHAR(10)	NOT NULL	Yes
WRKFLW_STEP_STATUS_DESC	Description of the status of a workflow step.	VARCHAR(100)	NULL	No
WRKFLW_STEP_STATUS_NM	Name of the status of a workflow step.	VARCHAR(40)	NULL	No

Table 5.46 *WRKFLW_STEP_X_PARAM Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PARAM_ID	Unique identifier of the parameter.	VARCHAR(32)	NOT NULL	Yes
WRKFLW_STEP_ID	Unique identifier of the workflow step	VARCHAR(32)	NOT NULL	Yes

Table 5.47 *WRKFLW_STEP_X_REPORT_VARIABLE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
REPORT_VARIABLE_ID	Unique identifier of the report variable.	VARCHAR(32)	NOT NULL	Yes
WRKFLW_STEP_ID	Unique identifier of the workflow step	VARCHAR(32)	NOT NULL	Yes

Column Descriptions of Scenario-Specific Tables

Table 5.48 *ABT_VARIABLE_CATEGORY Table*

Column Name	Column Description	Data Type	Null Option	Is PK
ABT_VARIABLE_CATEGORY_CD	Stores the code that is assigned to the ABT variable category.	VARCHAR(10)	NOT NULL	Yes
ABT_VARIABLE_CATEGORY_DESC	Stores the description of the ABT variable category.	VARCHAR(100)	NULL	No
ABT_VARIABLE_CATEGORY_LVL_CD	Stores the level of the variable category. The valid values for the level can be link or node.	VARCHAR(10)	NULL	No
ABT_VARIABLE_CATEGORY_NAME	Stores the name of the ABT variable category.	VARCHAR(40)	NULL	No
ABT_VARIABLE_CATEGORY_SEQ_NO	Stores the sequence number that indicates the order in which the data variable process is run and results are produced for the variable category.	NUMERIC(10)	NULL	No
IS_DEFAULT_ABT_CATEGORY_IND	Indicates whether the variable category is selected by default.	CHAR(1)	NULL	No

Table 5.49 *CLA_ENTITY Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CLA_ENTITY_CD	Stores the code for the SAS Customer Link Analytics entity that is linked to a scenario.	VARCHAR(10)	NOT NULL	Yes
CLA_ENTITY_DESC	Stores the description of the SAS Customer Link Analytics entity that is linked to a scenario.	VARCHAR(100)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
CLA_ENTITY_NM	Stores the name of the SAS Customer Link Analytics entity that is linked to a scenario.	VARCHAR(40)	NULL	No

Table 5.50 *CLA_SCENARIO Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_DELETED_IND	Indicates whether the scenario is deleted.	CHAR(1)	NULL	No
IS_IN_DESIGN_IND	Indicates whether the scenario is in design or batch mode.	CHAR(1)	NULL	No
IS_LINKED_TO_CLA_PROJECT_IND	Indicates whether a scenario is linked to a project.	CHAR(1)	NOT NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
OWNED_BY_USER	User ID of the owner of the scenario.	VARCHAR(100)	NULL	No
PROJECT_PK	A unique sequence number that is generated for a project.	INTEGER	NOT NULL	No
SCENARIO_CURR_RUN_NUM	Current run number of the scenario.	NUMERIC(10)	NULL	No
SCENARIO_DESC	Description of the scenario as specified by the user.	VARCHAR(200)	NULL	No
SCENARIO_NM	Name of the scenario as specified by the user	VARCHAR(40)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
SCENARIO_PK	A sequence number that is generated for a scenario.	SERIAL	NOT NULL	Yes
SCENARIO_STATUS_CD	Code that is assigned for the scenario status.	VARCHAR(10)	NULL	No
SCENARIO_TYPE_CD	Stores the type of scenario. For example, the scenario type can be churn or product adoption.	VARCHAR(10)	NOT NULL	No

Table 5.51 *CLA_SCENARIO_MODEL Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_ACTIVE_IND	Indicates whether the scenario model is active.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
OWNED_BY_USER	User ID of the owner of the scenario model.	VARCHAR(100)	NULL	No
SCENARIO_MODEL_DESC	Description of the scenario model.	VARCHAR(200)	NULL	No
SCENARIO_MODEL_METADATA_ID	Unique identifier for the scenario model. This value is fetched from the SAS metadata.	VARCHAR(32)	NOT NULL	No
SCENARIO_MODEL_NM	Name of the scenario model.	VARCHAR(40)	NOT NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
SCENARIO_MODEL_PK	A unique sequence number that is generated for a model.	SERIAL	NOT NULL	Yes
SCENARIO_PK	A sequence number that is generated for a scenario.	INTEGER	NULL	No

Table 5.52 *OUTPUT_TABLE_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
OUTPUT_TABLE_TYPE	Stores the type of output table. For example, the table type can be LASR Data or Core Data.	VARCHAR(10)	NOT NULL	Yes
OUTPUT_TABLE_TYPE_DESC	Stores a description of the type of output table.	VARCHAR(100)	NULL	No
OUTPUT_TABLE_TYPE_NAME	Stores the name of the type of output table.	VARCHAR(40)	NULL	No

Table 5.53 *SCENARIO_ABT_LABEL_KEY_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
LABEL_DESCRIPTION	Description of the label.	VARCHAR(100)	NULL	No
LABEL_ID	Unique identifier of the label.	VARCHAR(32)	NOT NULL	Yes
PROCESSED_DTTM	The date on which the record is processed.	TIMESTAMP(0)	NULL	No

Table 5.54 *SCENARIO_BATCH_RUN_HIST Table*

Column Name	Column Description	Data Type	Null Option	Is PK
PROJECT_RUN_NUM	Run number of the project.	NUMERIC(10)	NULL	No

Column Name	Column Description	Data Type	Null Option	Is PK
SCENARIO_ABT_HISTORY_END_DATE	End date of the historical data in scenario ABT.	TIMESTAMP(0)	NULL	No
SCENARIO_EXECUTION_END_DTTM	End date of the scenario execution	TIMESTAMP	NULL	No
SCENARIO_EXECUTION_START_DTTM	Start date of the scenario execution.	TIMESTAMP	NULL	No
SCENARIO_MODEL_PK	A unique sequence number that is generated for a model.	INTEGER	NULL	No
SCENARIO_PK	A sequence number that is generated for a scenario.	INTEGER	NOT NULL	Yes
SCENARIO_RUN_NUM	Run number of the scenario.	NUMERIC(10)	NOT NULL	Yes
SCENARIO_STATUS_CD	Code that is assigned for the scenario status.	VARCHAR(10)	NULL	No

Table 5.55 *SCENARIO_PARAM Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
SCENARIO_PARAM_ID	Unique identifier of the scenario parameter.	VARCHAR(32)	NOT NULL	Yes
SCENARIO_PK	A sequence number that is generated for a scenario.	INTEGER	NOT NULL	Yes
SCENARIOPARAM_PREDEFINED_VALUE	Predefined value of the scenario parameter.	VARCHAR(250)	NOT NULL	Yes
SCNRIO_PARAM_USERDEFINED_VALUE	User-defined value of the scenario parameter.	VARCHAR(250)	NULL	No

Table 5.56 *SCENARIO_PARAM_MSTR Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_EDITABLE_IND	Indicates whether the parameter is editable.	CHAR(1)	NULL	No
IS_GLOBAL_PARAM_IND	Indicates whether the parameter is a global parameter.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
SCENARIO_PARAM_DATA_TYPE_CD	Code that is assigned for the data type of column. For example, the date type can be Date, Number, and so on.	VARCHAR(10)	NULL	No
SCENARIO_PARAM_DESC	Description of the scenario parameter.	VARCHAR(100)	NULL	No
SCENARIO_PARAM_ID	Unique identifier of the scenario parameter.	VARCHAR(32)	NOT NULL	Yes
SCENARIO_PARAM_LOWER_LIMIT	The permissible lower limit for a scenario parameter value.	NUMERIC(15,3)	NULL	No
SCENARIO_PARAM_NM	Name of the parameter that is used in a scenario.	VARCHAR(40)	NULL	No
SCENARIO_PARAM_UPPER_LIMIT	The permissible upper limit for a scenario parameter value.	NUMERIC(15,3)	NULL	No

Table 5.57 *SCENARIO_PARAM_VALUE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_BY_USER	User ID of the user who created the record.	VARCHAR(100)	NULL	No
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
IS_DEFAULT_VALUE_IND	Indicates whether the parameter value is default.	CHAR(1)	NULL	No
MODIFIED_BY_USER	User ID of the user who modified the record.	VARCHAR(100)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
SCENARIO_PARAM_ID	Unique identifier of the scenario parameter.	VARCHAR(32)	NOT NULL	Yes
SCENARIO_PARAM_VALUE_DESC	Description of the value of the scenario parameter.	VARCHAR(100)	NULL	No
SCENARIO_PARAM_VALUE_NM	Name of the value of the scenario parameter.	VARCHAR(40)	NULL	No
SCENARIOPARAM_PREDEFINED_VALUE	Predefined value of the scenario parameter.	VARCHAR(250)	NOT NULL	Yes

Table 5.58 *SCENARIO_STEP_OUTPUT Table*

Column Name	Column Description	Data Type	Null Option	Is PK
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NULL	No
MODIFIED_DTTM	The date on which the record is modified.	TIMESTAMP(0)	NULL	No
OUTPUT_TABLE_NM	The name of the output table that is created when a workflow step or a process is run.	VARCHAR(30)	NOT NULL	Yes

Column Name	Column Description	Data Type	Null Option	Is PK
OUTPUT_TABLE_TYPE	The type of output table. For example, the table type can be LASR Data or Core Data.	VARCHAR(10)	NULL	No
SCENARIO_PK	A sequence number that is generated for a scenario.	INTEGER	NULL	No

Table 5.59 *SCENARIO_STEP_OUTPUT_COLUMN Table*

Column Name	Column Description	Data Type	Null Option	Is PK
ABT_VARIABLE_CATEGORY_CD	The code that is assigned to the variable category that you select for the data variable process.	VARCHAR(10)	NULL	No
IS_SIGNIFICANT_VAR_IND	Indicates whether the variable is significant for the analytical model and needed for scoring.	CHAR(1)	NULL	No
OUTPUT_COLUMN_NM	The name of the column in the output table.	VARCHAR(30)	NOT NULL	Yes
OUTPUT_TABLE_NM	The name of the output table that is created when a workflow step or a process is run.	VARCHAR(30)	NOT NULL	Yes

Table 5.60 *SCENARIO_TYPE Table*

Column Name	Column Description	Data Type	Null Option	Is PK
SCENARIO_TYPE_CD	Stores the type of scenario. For example, the scenario type can be churn or product adoption. .	VARCHAR(10)	NOT NULL	Yes
SCENARIO_TYPE_DESC	Stores a description of the scenario type.	VARCHAR(100)	NULL	No
SCENARIO_TYPE_NM	Stores the name of the scenario type.	VARCHAR(40)	NULL	No

Chapter 6

Business Data Tables

Business Data Tables

The results that are produced by each workflow step are stored in project-specific business data tables. A separate table is created for each project. Therefore, each table name includes the project ID, a sequence number that uniquely identifies each project.

Similarly, the output data of viral effect analysis is stored in scenario-specific table.

Table 6.1 *Project-Specific Business Data Tables*

Workflow Step or Process	Table Name	Table Description
Data Extraction	cla_de_p1_<*project ID*>	Contains fully aggregated transactional data.
	cla_de_p2_<*project ID*>	Contains degree-in and degree-out details for all nodes.
Link and Node Processing	cla_lnf_p1_<*project ID*>	Contains filtered directed graph transactional data with the link weight.
	cla_lnf_p2_<*project ID*>	Contains filtered undirected graph transactional data with the link weight.
	cla_lnf_p3_<*project ID*>	Contains filtered undirected reciprocal graph transactional data with the link weight. This table is created if SAS Customer Link Analytics operates in distributed mode.

Workflow Step or Process	Table Name	Table Description
Community Building	cla_cd_p1_<*project ID*>	Contains the community ID of each node. This table is created if SAS Customer Link Analytics operates in non-distributed mode.
	cla_cd_p2_<*project ID*>	Contains links between communities. This table is created for the bottom-up approach if the sia_comm_links_ds_flag global parameter is set to Yes.
	cla_cd_p3_<*project ID*>	Contains community information at different resolution levels.
	cla_cd_p4_<*project ID*>	Describes the intensity of each node that belongs to multiple communities. This table is created if the sia_comm_overlap_ds_flag global parameter is set to Yes.
	cla_cd_p5_<*project ID*>	Contains links within each community. This table is created if SAS Customer Link Analytics operates in distributed mode.
	cla_cd_p6_<*project ID*>	Contains filtered directed graph transactional data with the link weight and the community ID of each link. This table is created if SAS Customer Link Analytics operates in distributed mode.
Centrality Measures Computation	cla_cm_p1_<*project ID*>	Contains filtered undirected graph transactional data with the link weight and the community ID of each link. This table is created if SAS Customer Link Analytics operates in non-distributed mode.
	cla_cm_p2_<*project ID*>	Contains centrality measures of all nodes with their community ID if centralities are computed by community.
Role Assignment	cla_ra_p1_<*project ID*>	Contains centrality measures of all nodes with their roles and community IDs if centralities are computed by community. This is the final output table of SAS Customer Link Analytics.

Workflow Step or Process	Table Name	Table Description
Data Enrichment	cla_dp_node_lvl_*<project ID>*	Contains the node-level enriched data of a project.
	cla_dp_link_lvl_*<project ID>*	Contains the link-level enriched data of a project.
Loading Data to SAS Customer Link Analytics LASR Analytic Server	cla_nd_lvl_lasr_*<project ID>*	Contains the node-level enriched data that is copied to the SAS Customer Link Analytics LASR Analytic Server.

Table 6.2 *Scenario-Specific Business Data Table*

Table Name	Description
SCENARIO_SCORE_WRITEBACK	Stores history of scores that are predicted for a particular combination of model and scenario.

Table 6.3 *Columns of SCENARIO_SCORE_WRITEBACK Table*

Column Name	Column Description	Data Type	Null Option
CREATED_DTTM	The date on which the record is created.	TIMESTAMP(0)	NOT NULL
NODE_ID	A unique ID that is assigned to a node.	VARCHAR(32)	NOT NULL
SCENARIO_MODEL_PK	A unique sequence number that is generated for the model that is built for a scenario. This is the unique identifier of the model for which the scoring is performed.	INTEGER	NOT NULL
SCENARIO_PK	A sequence number that is generated for a scenario.	INTEGER	NOT NULL
SCENARIO_SCORE	Predicted scores of the event under consideration.	NUMERIC(17,3)	NOT NULL

Chapter 7

Enrichment Variables

Node-Level Enrichment Variables

In the data enrichment process, the node-level enrichment variables are populated in the CLA_DP_NODE_LVL_<*Project PK*> output table depending on the node-level enrichment categories that you choose. For more information, see *SAS Customer Link Analytics: User's Guide*.

Table 7.1 *Node-Level Enrichment Variables in the CLA_DP_NODE_LVL_<Project PK> Table*

Column Name	Column Description	Column Data Type
Variable Category Code: NAGR **Variable Category Description:** Aggregated transactional data		
max_inc_msr<*j*>	The maximum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes.	Numeric
max_out_msr<*j*>	The maximum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes.	Numeric
min_inc_msr<*j*>	The minimum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes.	Numeric
min_out_msr<*j*>	The minimum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes.	Numeric
tot_inc_msr<*j*>	The total incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes.	Numeric

Column Name	Column Description	Column Data Type
tot_out_msr<*j*>	The total outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes	Numeric
Variable Category Code: NATR **Variable Category Description:** Node attributes		
cust_type_cd	The value of the first node attribute for a node.	Numeric, Varchar, or Date
payment_dt	The value of the second node attribute for a node.	Numeric, Varchar, or Date
subscrp_type_cd	The value of the third node attribute for a node.	Numeric, Varchar, or Date
Variable Category Code: NCLA **Variable Category Description:** Roles and communities		
authority_val	The value of the Authority centrality measure for a node.	Numeric
between_val	The value of the Betweenness centrality measure for a node.	Numeric
close_val	The value of the Closeness centrality measure for a node.	Numeric
closein_val	The value of the Closeness-in centrality measure for a node.	Numeric
closeout_val	The value of the Closeness-out centrality measure for a node.	Numeric
clustcoef_val	The value of the Clustering coefficient centrality measure for a node.	Numeric
community_id	The unique ID of the community to which a node belongs.	Numeric
degree_val	The value of the Degree centrality measure for a node.	Numeric
degreein_val	The value of the Degree-in centrality measure for a node.	Numeric
degreeout_val	The value of the Degree-out centrality measure for a node.	Numeric

Column Name	Column Description	Column Data Type
eigen_val	The value of the Eigenvector centrality measure for a node.	Numeric
entity_role_nm	The name of the role that is assigned to the node.	Numeric
hub_val	The value of the Hub centrality measure for a node.	Numeric
influence1_val	The value of the Influence 1 centrality measure for a node.	Numeric
influence2_val	The value of the Influence 2 centrality measure for a node.	Numeric
node_id	The unique value that identifies a node. This column is the grain of the table that is enriched.	Numeric
Variable Category Code: NCMP **Variable Category Description:** Roles and communities over time		
prev_authority_val	The value of the Authority centrality measure for a node for the previous run of a project.	Numeric
prev_between_val	The value of the Betweenness centrality measure for a node for the previous run of a project.	Numeric
prev_close_val	The value of the Closeness centrality measure for a node for the previous run of a project.	Numeric
prev_closein_val	The value of the Closeness-in centrality measure for a node for the previous run of a project.	Numeric
prev_closeout_val	The value of the Closeness-out centrality measure for a node for the previous run of a project.	Numeric
prev_clustcoef_val	The value of the Clustering coefficient for a node for the previous run of a project.	Numeric
prev_community_id	The unique ID of the community to which a node belonged to in the previous run of a project.	Numeric
prev_degree_val	The value of the Degree centrality measure for a node for the previous run of a project.	Numeric
prev_degreein_val	The value of the Degree-in centrality measure for a node for the previous run of a project.	Numeric
prev_degreeout_val	The value of the Degree-out centrality measure for a node for the previous run of a project.	Numeric
prev_eigen_val	The value of the Eigenvector centrality measure for a node for the previous run of a project.	Numeric

Column Name	Column Description	Column Data Type
prev_entity_role_nm	The role name that is assigned to a node for the previous run of a project.	Numeric
prev_hub_val	The value of the Hub centrality measure for a node for the previous run of a project.	Numeric
prev_influence1_val	The value of the Influence 1 centrality measure for a node for the previous run of a project.	Numeric
prev_influence2_val	The value of the Influence 2 centrality measure for a node for the previous run of a project.	Numeric
Variable Category Code: NCMV **Variable Category Description:** Community-level statistics		
agcinc_msr<*j*>_rl<*k*>	The average incoming value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the ratio of two values. The numerator is the sum of total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have a role *k*. The denominator is the total number of nodes of the community under consideration that have a role *k*.	Numeric
agcmlvl_inc_msr<*j*>	The average incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the ratio of two values. The numerator is the sum of total incoming value of a transaction measure with PK value *j* for all the nodes that belong to community under consideration. The denominator is the total number of nodes that belong to the community under consideration.	Numeric
agcmlvl_out_msr<*j*>	The average outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the ratio of two variables. The numerator is the sum of total outgoing value of a transaction measure *j* for all nodes that belong to the community under consideration. The denominator is the total number of nodes that belong to the community under consideration.	Numeric
agcout_msr<*j*>_rl<*k*>	The average outgoing value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as ratio of two values. The numerator is the sum of total outgoing value of a transaction measure *j* for all the nodes that have a role *k* that belong to community under consideration. the denominator is the total number of nodes that have a role *k* that belong to community under consideration.	Numeric

Column Name	Column Description	Column Data Type
mncmlvl_inc_msr<*j*>	The minimum incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the minimum of total incoming value of a transactional measure with PK value *j* for all the nodes that belong to community under consideration.	Numeric
mncmlvl_out_msr<*j*>	The minimum outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as minimum of total outgoing value of a transactional measure with PK value *j* for all the nodes that belong to the community under consideration.	Numeric
mxcmlvl_inc_msr<*j*>	The maximum incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the maximum of total incoming value of a transactional measure with PK value *j* for all the nodes that belong to the community under consideration.	Numeric
mxcmlvl_out_msr<*j*>	The maximum outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the maximum of total outgoing value of a transactional measure with PK value *j* for all the nodes that belong to the community under consideration.	Numeric
tocminc_msr<*j*>_rl<*k*>	The total incoming value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the sum of the total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have a role *k*.	Numeric
tocmlvl_inc_msr<*j*>	The total incoming value of a transactional measure with PK value *j* for a community. This variable is computed as sum of total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration.	Numeric
tocmlvl_out_msr<*j*>	The total outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the sum of total outgoing value of a transactional measure with PK value *j* for all the nodes of the community under consideration.	Numeric
tocmout_msr<*j*>_rl<*k*>	The total outgoing value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the sum of the total outgoing value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have role *k*.	Numeric

Column Name	Column Description	Column Data Type
Variable Category Code: NCQR **Variable Category Description:** Churn and acquisition indicators		
acq_ind	The code that indicates whether the node is acquired for the current execution of a project. For example, this variable is assigned a value 1 if the node is available for the first time in an execution of the project and 0 otherwise.	Numeric
churn_ind	The code that indicates whether the node has churned for the current execution of a project. For example, this variable is assigned a value 1 if the node does not appear in an execution of the project and 0 otherwise.	Numeric
Variable Category Code: NDER **Variable Category Description:** Relation with churned and acquired nodes		
conct_acq_cnt	The number of newly acquired nodes that are connected to a node.	Numeric
conct_acq_rl<*k*>	The number of newly acquired nodes with a specific role *k* that are connected to a node.	Numeric
conct_chn_cnt	The number of churned nodes that were connected to a node.	Numeric
conct_chn_rl<*k*>	The number of churned nodes with a specific role *k* that were connected to a node.	Numeric
pct_chng_inc_lnk_wt	The percentage change in the link weight of a node for incoming links.	Numeric
pct_chng_inc_msr<*j*>	The percentage change in the incoming value of a transactional measure with PK value *j*.	Numeric
pct_chng_out_lnk_wt	The percentage change in the link weight of a node for outgoing links.	Numeric
pct_chng_out_msr<*j*>	The percentage change in the outgoing value of a transactional measure with PK value *j*.	Numeric
role_change_ind	The code that identifies whether the role of a node has changed as compared to the previous run of the project.	Numeric
tot_inc_link_wt	The total link weight of a node for incoming links.	Numeric
tot_out_link_wt	The total link weight of a node for outgoing links.	Numeric

Column Name	Column Description	Column Data Type
Variable Category Code: NRLV **Variable Category Description:** Associations with neighboring roles		
mnin_msr<*j*>_fmrl<*k*>	The minimum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes that have a specific role *k*.	Numeric
mnog_msr<*j*>_torl<*k*>	The minimum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.	Numeric
mxin_msr<*j*>_fmrl<*k*>	The maximum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes that have a specific role *k*.	Numeric
mxog_msr<*j*>_torl<*k*>	The maximum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.	Numeric
toic_msr<*j*>_fmrl<*k*>	The total incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes that have a specific role *k*.	Numeric
toog_msr<*j*>_torl<*k*>	The total outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.	Numeric
tot_no_of_conct_rl<*k*>	The total number of nodes that have a specific role *k* that are connected to the node under consideration.	Numeric

Link-Level Enrichment Variables

In the data enrichment process, the link-level enrichment variables are populated in the CLA_DP_LINK_LVL_<*Project PK*> output table depending on the node-level enrichment categories that you choose. For more information, see *SAS Customer Link Analytics: User's Guide*.

Table 7.2 *Link-Level Enrichment Variables in CLA_DP_LINK_LVL_<Project PK> Table*

Column Name	Column Description	Column Data Type
Variable Category Code: LATR **Variable Category Description:** Node attributes		
from_cust_type_cd	The value of the first node attribute for a node that is a From Node of the link under consideration.	Numeric, Varchar, or Date

Column Name	Column Description	Column Data Type
from_payment_dt	The value of the second node attribute for a node that is a From Node of the link under consideration.	Numeric, Varchar, or Date
from_subscrp_type_cd	The value of the third node attribute for a node that is a From Node of the link under consideration.	Numeric, Varchar, or Date
to_cust_type_cd	The value of the first node attribute for a node that is a To Node of the link under consideration.	Numeric, Varchar, or Date
to_payment_dt	The value the second node attribute for a node that is a To Node of the link under consideration.	Numeric, Varchar, or Date
to_subscrp_type_cd	The value of the third node attribute for a node that is a To Node of the link under consideration.	Numeric, Overcharge, or Date
Variable Category Code: LCLA **Variable Category Description:** Roles and communities		
authority_val	The value of the Authority centrality measure for a node that is a To Node of the link under consideration.	Numeric
clustcoef_val	The value of the Clustering coefficient centrality measure for a node that is a To Node of the link under consideration.	Numeric
from_authority_val	The value of the Authority centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_between_val	The value of the Betweenness centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_close_val	The value of the Closeness centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_closein_val	The value of the Closeness-in centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_closeout_val	The value of the Closeness-out centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_clustcoef_val	The value of the Clustering coefficient centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_community_id	The unique ID of the community to which a node belongs. This node is a From Node of the link under consideration.	Numeric
from_degree_val	The value of the Degree centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_degreein_val	The value of the Degree-in centrality measure for a node that is a From Node of the link under consideration.	Numeric

Column Name	Column Description	Column Data Type
from_degreeout_val	The value of the Degree-out centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_eigen_val	The value of the Eigenvector centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_entity_role_nm	The name of the role that is assigned to the node that is a From Node of the link under consideration.	Numeric
from_hub_val	The value of the Hub centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_influence1_val	The value of the Influence 1 centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_influence2_val	The value of the Influence 2 centrality measure for a node that is a From Node of the link under consideration.	Numeric
from_node	The unique value that identifies a From Node in a link.	Numeric
hub_val	The value of the Hub centrality measure for a node that is a To Node of the link under consideration.	Numeric
link_weight_val	The value of the link weight of the link under consideration.	Numeric
to_between_val	The value of the Betweenness centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_close_val	The value of the Closeness centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_closein_val	The value of the Closeness-in centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_closeout_val	The value of the Closeness-out centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_community_id	The unique ID of the community to which a node belongs. This node is a To Node of the link under consideration.	Numeric
to_degree_val	The value of the Degree centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_degreein_val	The value of the Degree-in centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_degreeout_val	The value of the Degree-out centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_eigen_val	The value of the Eigenvector centrality measure for a node that is a To Node of the link under consideration.	Numeric

Column Name	Column Description	Column Data Type
to_entity_role_nm	The name of the role that is assigned to the node that is a To Node of the link under consideration.	Numeric
to_influence1_val	The value of the Influence 1 centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_influence2_val	The value of the Influence 2 centrality measure for a node that is a To Node of the link under consideration.	Numeric
to_node	The unique value that identifies a To Node of a link.	Numeric
Variable Category Code: LDER **Variable Category Description:** Churn and acquisition indicators		
from_acq_ind	The code that identifies whether the From Node of the link under consideration is an acquired node.	Numeric
from_churn_ind	The code that identifies whether the From Node of the link under consideration has churned out.	Numeric
link_acq_ind	The code that identifies whether the link under consideration is newly acquired.	Numeric
link_churn_ind	The code that identifies whether the link under consideration has churned out.	Numeric
to_acq_ind	The code that identifies whether the To Node of the link under consideration is an acquired node.	Numeric
to_churn_ind	The code that identifies whether the To Node of the link under consideration has churned out.	Numeric

Chapter 8

ABT Variables

ABT Variables for Viral Effect Analysis

The analytical base table (ABT) that is built for viral effect analysis contains variables that are important for scenario analysis. These variables are called *ABT variables*. For more information about building an ABT and defining a scenario, see *SAS Customer Link Analytics: User's Guide*.

The analytical variables are generated depending on the business problem (churn or product adoption) that you analyze through your scenario definition. Also, these variables are generated depending on how you have configured the workflow steps of the project that is associated with the scenario.

Table 8.1 *ABT Variables: Viral Analysis*

Variable Name	Description	Variable Data Type	Variable Type
Variable Type: Roles and communities enrichment category			
node_id	A unique value that identifies a node. This column is the grain of the model that is built.	Numeric or Character	ID
community_id	The unique ID of the community to which a node belongs.	Numeric	Input
degree_val	The value of Degree centrality measure for a node.	Numeric	Input
degreein_val	The value of Degree-in centrality measure for a node.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
degreeout_val	The value of Degree-out centrality measure for a node.	Numeric	Input
role_nm	The name of the role that is assigned to the node.	Numeric	Input
influence1_val	The value of Influence 1 centrality measure for a node.	Numeric	Input
influence2_val	The value of Influence 2 centrality measure for a node.	Numeric	Input
close_val	The value of Closeness centrality measure for a node.	Numeric	Input
closein_val	The value of Closeness-in centrality measure for a node.	Numeric	Input
closeout_val	The value of Closeness-out centrality measure for a node.	Numeric	Input
clustcoef_val	The value of Clustering coefficient for a node.	Numeric	Input
eigen_val	The value of Eigenvector centrality measure for a node.	Numeric	Input
hub_val	The value of Hub centrality measure for a node.	Numeric	Input
Variable Type: Aggregated Transactional Data enrichment category			
max_inc_msr<*j*>	The maximum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes.	Numeric	Input
max_out_msr<*j*>	The maximum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
min_inc_msr<*j*>	The minimum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes.	Numeric	Input
min_out_msr<*j*>	The minimum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes.	Numeric	Input
tot_inc_msr<*j*>	The total incoming value of a transactional measure with PK value j for a node from its neighboring nodes.	Numeric	Input
tot_out_msr<*j*>	The total outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes	Numeric	Input
Variable Type: Relationship with neighboring roles enrichment category			
agcinc_msr<*j*>_rl<*k*>	The average incoming value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the ratio of two values. The numerator is the sum of total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have a role *k*. The denominator is the total number of nodes of the community under consideration that have a role *k*.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
agcmlvl_inc_msr<*j*>	The average incoming value of a transactional measure with PK value j for a community. This variable is computed as the ratio of two values. The numerator is the sum of total incoming value of a transaction measure with PK value *j* for all the nodes that belong to community under consideration. The denominator is the total number of nodes that belong to the community under consideration.	Numeric	Input
agcmlvl_out_msr<*j*>	The average outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the ratio of two variables. The numerator is the sum of total outgoing value of a transaction measure j for all nodes that belong to the community under consideration. The denominator is the total number of nodes that belong to the community under consideration.	Numeric	Input
agcout_msr<*j*>_rl<*k*>	The average outgoing value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as ratio of two values. The numerator is the sum of total outgoing value of a transaction measure j for all the nodes that have a role k that belong to community under consideration. the denominator is the total number of nodes that have a role k that belong to community under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mncmlvl_inc_msr<*j*>	The minimum incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the minimum of total incoming value of a transactional measure with PK value *j* for all the nodes that belong to community under consideration.	Numeric	Input
mncmlvl_out_msr<*j*>	The minimum outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as minimum of total outgoing value of a transactional measure with PK value *j* for all the nodes that belong to the community under consideration.	Numeric	Input
mxcmlvl_inc_msr4	The maximum incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the maximum of total incoming value of a transactional measure with PK value j for all the nodes that belong to the community under consideration.	Numeric	Input
mxcmlvl_out_msr4	The maximum outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the maximum of total outgoing value of a transactional measure with PK value *j* for all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
tocminc_msr<*j*>_rl<*k*>	The total incoming value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the sum of the total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have a role *k*.	Numeric	Input
tocmlvl_inc_msr<*j*>	The total incoming value of a transactional measure with PK value *j* for a community. This variable is computed as sum of total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration.	Numeric	Input
tocmlvl_out_msr<*j*>	The total outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the sum of total outgoing value of a transactional measure with PK value *j* for all the nodes of the community under consideration.	Numeric	Input
tocmout_msr<*j*>_rl<*k*>	The total outgoing value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the sum of the total outgoing value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have role *k*.	Numeric	Input
Variable Type: Associations with neighboring roles enrichment category			
mnin_msr<*j*>_fmrl<*k*>	The minimum incoming value of a transactional measure with PK value j for a node from its neighboring nodes that have a specific role k.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mnog_msr<*j*>_torl<*k*>	The minimum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.	Numeric	Input
mxin_msr<*j*>_fmrl<*k*>	The maximum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes that have a specific role *k*.	Numeric	Input
mxog_msr<*j*>_torl<*k*>	The maximum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.	Numeric	Input
toic_msr<*j*>_fmrl<*k*>	The total incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes that have a specific role *k*.	Numeric	Input
toog_msr<*j*>_torl<*k*>	The total outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.	Numeric	Input
tot_no_of_conct_rl<*k*>	The total number of nodes that have a specific role *k* that are connected to the node under consideration.	Numeric	Input
Variable Type: Node Attributes enrichment category			
attrib1	The value of the first node attribute for a node.	Numeric, Varchar, or Date	Input
attrib2	The value of the second node attribute for a node.	Numeric, Varchar, or Date	Input
Variable Type: Event Indicators			

Variable Name	Description	Variable Data Type	Variable Type
churn_flg (for churn event product_adopt_flg (for Product Adoption event)	Event Indicator for performance window. This variable indicates whether the event occurred in the time-frame of the performance window. For example, this variable is assigned a value 1 if the node churns in the period of the performance window and 0 otherwise. This variable is created for a modeling ABT.	Numeric	Target
Variable Type: Event-Based Count Variables (for Churn scenario)			
totno_conct_chnrrl<*k*>	Total number of churned nodes having role k that are linked to the node under consideration.	Numeric	Input
totno_conct_nochrl<*k*>	Total number of non-churned nodes having role k that are linked to the node under consideration.	Numeric	Input
Variable Type: Event-Based Usage Measures (for Churn scenario)			
mnicmr<*j*>_fnchrl<*k*>	The minimum incoming value received by a node for transactional measure *j* from all the connected non-churned nodes having role *k*. For example, this variable is computed as the minimum number of incoming SMS text messages received by the node under consideration from all the non-churned nodes having role k that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mnicmr<*j*>_frchrl<*k*>	The minimum incoming value received by a node for transactional measure *j* from all the connected churned nodes having role *k*. For example, this variable computes the minimum number of incoming text messages received by the node under consideration from all the churned nodes having role k that are connected to the node under consideration.	Numeric	Input
mnogmr<*j*>_tnchrl<*k*>	The minimum outgoing value made by a node for transactional measure *j* to all the connected non-churned nodes having role *k*. For example, this variable computes the minimum number of outgoing text message made by the node under consideration to all the non-churned nodes having role k that are connected to the node under consideration.	Numeric	Input
mnogmr<*j*>_tochrl<*k*>	The minimum outgoing value made by a node for transactional measure j to all the connected churned nodes having role *k*. For example, this variable computes the minimum number of outgoing text message made by the node under consideration to all the churned nodes having role k that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mxicmr<*j*>_fnchrl<*k*>	The maximum incoming value received by a node for transactional measure *j* from all the connected non-churned nodes having role *k*. For example, this variable computes the maximum number of incoming text message received by the node under consideration from all the non-churned nodes having role *k* that are connected to it.	Numeric	Input
mxicmr<*j*>_frchrl<*k*>	Maximum of incoming value received by a node for transactional measure *j* from all the connected churned nodes having role *k*. For example, this variable computes the maximum number of incoming text message received by the node under consideration from all the churned nodes having role *k* that are connected to it.	Numeric	Input
mxogmr<*j*>_tnchrl<*k*>	Maximum of outgoing value made by a node for transactional measure j to all the connected non-churned nodes. For example, this variable computes the maximum number of outgoing text message sent by the node under consideration to all the non-churned nodes that are connected to it.	Numeric	Input
mxogmr<*j*>_tochrl<*k*>	Maximum of outgoing value made by a node for transactional measure *j* to all the connected churned nodes. For example, this variable computes the maximum number of outgoing text message made by the node under consideration to all the churned nodes that are connected to it.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
to_og_mr<*j*>_to_ch_nd	Total outgoing value made by a node for transactional measure j to all the connected churned nodes. For example, this variable computes the total number of outgoing text messages made by the node under consideration to all the churned nodes that are connected to the node under consideration.	Numeric	Input
to_og_mr<*j*>_tonch_nd	Total outgoing value made by a node for transactional measure *j* to all the connected non-churned nodes. For example, this variable computes the total number of outgoing text messages made by the node under consideration to all the non-churned nodes that are connected to the node under consideration.	Numeric	Input
toic_mr<*j*>_fm_nch_nd	Total incoming value for transactional measure *j* from all the connected non-churned nodes to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the non-churned nodes that are connected to the node under consideration.	Numeric	Input
toic_mr<*j*>_fmchn_nd	Total incoming value for transactional measure *j* from all the connected churned nodes to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the churned nodes that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
toicmr<*j*>_fnchrl<*k*>	Total incoming value for transactional measure *j* from all the connected non-churned nodes having role k to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the non-churned nodes with a leader role that are connected to the node under consideration.	Numeric	Input
toicmr<*j*>_frchrl<*k*>	Total incoming value for transactional measure *j* from all the connected churned nodes having role k to the node under consideration. For example, this variable computes the total number of incoming text message received by the node under consideration from all the churned nodes with a leader role and that are connected to the node under consideration.	Numeric	Input
toogmr<*j*>_tnchrl<*k*>	Total outgoing value made by a node for transactional measure *j* to all the connected non-churned nodes having role *k*. For example, this variable computes the total number of outgoing text message sent by the node under consideration to all the non-churned nodes with leader role that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
toogmr<*j*>_tochrl<*k*>	Total outgoing value of a node for transactional measure *j* sent to all the connected churned nodes having role *k*. For example, this variable computes the total number of outgoing text messages sent by the node under consideration to all the churned nodes with a leader role that are connected to the node under consideration.	Numeric	Input
Variable Type: Event-Based Count Variables (for Product Adoption scenario)			
totno_conct_panrrl<*k*>	Total number of nodes that adopted a specific product having role *k* that are linked to the node under consideration.	Numeric	Input
totno_conct_noparl<*k*>	Total number of nodes that did not buy a specific product having role k that are linked to the node under consideration.	Numeric	Input
Variable Type: Event-Based Usage Measures (for Product Adoption scenario)			
mnicmr<*j*>_fnparl<*k*>	The minimum incoming value received by a node for transactional measure *j* from all the connected nodes having role k that did not adopt the product. For example, this variable is computed as the minimum number of incoming text message received by the node under consideration from all the nodes having role k that did not adopt the product having role *k* that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mnicmr<*j*>_frparl<*k*>	The minimum incoming value received by a node for transactional measure *j* from all the connected nodes having role k that adopted the product. For example, this variable computes the minimum number of incoming text message received by the node under consideration from all the nodes having role *k* that adopted the product that are connected to the node under consideration.	Numeric	Input
mnogmr<*j*>_tnparl<*k*>	The minimum outgoing value made by a node for transactional measure j to all the connected nodes having role k that did not adopt the product . For example, this variable computes the minimum number of outgoing text message made by the node under consideration to all the nodes having role *k* that did not adopt the product that are connected to the node under consideration.	Numeric	Input
mnogmr<*j*>_toparl<*k*>	The minimum outgoing value made by a node for transactional measure j to all the connected nodes that adopted the product. For example, this variable computes the minimum number of outgoing text message made by the node under consideration to all the nodes that adopted the product that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mxicmr<*j*>_fnparl<*k*>	The maximum incoming value received by a node for transactional measure *j* from all the connected nodes that did not adopt the product . For example, this variable computes the maximum number of incoming text message received by the node under consideration from all the nodes that did not adopt the product that are connected to it.	Numeric	Input
mxicmr<*j*>_frparl<*k*>	Maximum of incoming value received by a node for transactional measure *j* from all the connected nodes that adopted the product. For example, this variable computes the maximum number of incoming text message received by the node under consideration from all the nodes that adopted the product that are connected to it.	Numeric	Input
mxogmr<*j*>_tnparl<*k*>	Maximum of outgoing value made by a node for transactional measure *j* to all the connected nodes having role *k* that did not adopt the product. For example, this variable computes the maximum number of outgoing text message sent by the node under consideration to all the nodes having role k that did not adopt the product that are connected to it.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
mxogmr<*j*>_toparl<*k*>	Maximum of outgoing value made by a node for transactional measure *j* to all the connected nodes having role *k* that adopt the product. For example, this variable computes the maximum number of outgoing text message made by the node under consideration to all the nodes having role k that adopted the product that are connected to it.	Numeric	Input
to_og_mr<*j*>_to_pa_nd	Total outgoing value made by a node for transactional measure *j* to all the connected nodes that adopt the product. For example, this variable computes the total number of outgoing text messages made by the node under consideration to all the nodes that adopted the product that are connected to the node under consideration.	Numeric	Input
to_og_mr<*j*>_tonpa_nd	Total outgoing value made by a node for transactional measure *j* to all the connected nodes that did not adopt the product. For example, this variable computes the total number of outgoing text messages made by the node under consideration to all the nodes that did not adopt the product that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
toic_mr<*j*>_fm_npa_nd	Total incoming value for transactional measure *j* from all the connected nodes that did not adopt the product to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the nodes that did not adopt the product that are connected to the node under consideration.	Numeric	Input
toic_mr<*j*>_fmpan_nd	Total incoming value for transactional measure *j* from all the connected nodes that adopted the product to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the nodes that adopted the product that are connected to the node under consideration.	Numeric	Input
toicmr<*j*>_fnparl<*k*>	Total incoming value for transactional measure *j* from all the connected nodes having role k that did not adopt the product to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the nodes having role k that did not adopt the product with a leader role that are connected to the node under consideration.	Numeric	Input

Variable Name	Description	Variable Data Type	Variable Type
toicmr<*j*>_frparl<*k*>	Total incoming value for transactional measure *j* from all the connected nodes having role k that adopted the product to the node under consideration. For example, this variable computes the total number of incoming text messages received by the node under consideration from all the nodes having role *k* that adopted the product with a leader role and that are connected to the node under consideration.	Numeric	Input
toogmr<*j*>_tnparl<*k*>	Total outgoing value made by a node for transactional measure *j* to all the connected having role k nodes that did not adopt the product . For example, this variable computes the total number of outgoing text messages sent by the node under consideration to all the nodes having role k that did not adopt the product with leader role that are connected to the node under consideration.	Numeric	Input
toogmr<*j*>_toparl<*k*>	Total outgoing value of a node for transactional measure j sent to all the connected nodes having role *k* that adopted the product. For example, this variable computes the total number of outgoing text messages sent by the node under consideration to all the nodes having role k that adopted the product with a leader role that are connected to the node under consideration.	Numeric	Input

ABT Variables for Community Segmentation

The following table indicates the ABT variables that are produced for community segmentation. For more information about community segmentation, see the *SAS Customer Link Analytics: User's Guide*.

Table 8.2 *Community Segmentation: ABT Variables*

Variable Name	Variable Description	Data Type	Variable Type
community_id	The unique value that identifies a community. This column is the grain of the model that is built.	Numeric	ID
node_cnt	Total number of nodes that belong to the community under consideration.	Numeric	Input
Variables based on centrality measures			
avg_AUTHORITY	Average Authority centrality measure at community level. This variable is computed as the total of the Authority centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_BETWEEN	Average Betweenness centrality measure at community level. This variable is computed as the total of the Betweenness centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
avg_CLOSE	Average Closeness centrality measure at community level. This variable is computed as the total of the Closeness centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_CLOSEIN	Average Closeness-in centrality measure at community level. This variable is computed as the total of the Closeness-in centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_CLOSEOUT	Average Closeness-out centrality measure at community level. This variable is computed as the total of the Closeness-out centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_CLUSTCOEF	Average Clustering coefficient centrality measure at community level. This variable is computed as the total of the Clustering coefficient centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
avg_DEGREE	Average Degree centrality measure at community level. This variable is computed as the total of the Degree centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_DEGREEIN	Average Degree-in centrality measure at community level. This variable is computed as the total of the Degree-in centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_DEGREEOUT	Average Degree-out centrality measure at community level. This variable is computed as the total of the Degree-out centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_EIGEN	Average Eigenvector centrality measure at community level. This variable is computed as the total of the Eigenvector centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
avg_HUB	Average Hub centrality measure at community level. This variable is computed as the total of the Hub centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_INFLUENCE1	Average Influence 1 centrality measure at community level. This variable is computed as the total of the Influence 1 centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_INFLUENCE2	Average Influence 2 centrality measure at community level. This variable is computed as the total of the Influence 2 centrality measure of all the nodes that belong to the community under consideration divided by the total number of nodes in that community.	Numeric	Input
max_AUTHORITY	Maximum Authority centrality measure at community level. This variable is computed as the maximum of the Authority centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_BETWEEN	Maximum Betweenness centrality measure at community level. This variable is computed as the maximum of the Betweenness centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
max_CLOSE	Maximum Closeness centrality measure at community level. This variable is computed as the maximum of the Closeness centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_CLOSEIN	Maximum Closeness-in centrality measure at community level. This variable is computed as the maximum of the Closeness-in centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_CLOSEOUT	Maximum Closeness-out centrality measure at community level. This variable is computed as the maximum of the Closeness-out centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_CLUSTCOEF	Maximum Clustering coefficient centrality measure at community level. This variable is computed as the maximum of the Clustering coefficient centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_DEGREE	Maximum Degree centrality measure at community level. This variable is computed as the maximum of the Degree centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
max_DEGREEIN	Maximum Degree-in centrality measure at community level. This variable is computed as the maximum of the Degree-in centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_DEGREEOUT	Maximum Degree-out centrality measure at community level. This variable is computed as the maximum of the Degree-out centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_EIGEN	Maximum Eigenvector centrality measure at community level. This variable is computed as the maximum of the Eigenvector centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_HUB	Maximum Hub centrality measure at community level. This variable is computed as the maximum of the Hub centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
max_INFLUENCE1	Maximum Influence 1 centrality measure at community level. This variable is computed as the maximum of the Influence 1 centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
max_INFLUENCE2	Maximum Influence 2 centrality measure at community level. This variable is computed as the maximum of the Influence 2 centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_AUTHORITY	Minimum Authority centrality measure at community level. This variable is computed as the minimum of the Authority centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_BETWEEN	Minimum Betweenness centrality measure at community level. This variable is computed as the minimum of the Betweenness centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_CLOSE	Minimum Closeness centrality measure at community level. This variable is computed as the minimum of the Closeness centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_CLOSEIN	Minimum Closeness-in centrality measure at community level. This variable is computed as the minimum of the Closeness-in centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
min_CLOSEOUT	Minimum Closeness-out centrality measure at community level. This variable is computed as the minimum of the Closeness-out centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_CLUSTCOEF	Minimum Clustering coefficient centrality measure at community level. This variable is computed as the minimum of the Clustering coefficient centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_DEGREE	Minimum Degree centrality measure at community level. This variable is computed as the Minimum of the Degree centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_DEGREEIN	Minimum Degree-in centrality measure at community level. This variable is computed as the Minimum of the Degree-in centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_DEGREEOUT	Minimum Degree-out centrality measure at community level. This variable is computed as the Minimum of the Degree-out centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
min_EIGEN	Minimum Eigenvector centrality measure at community level. This variable is computed as the Minimum of the Eigenvector centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_HUB	Minimum Hub centrality measure at community level. This variable is computed as the Minimum of the Hub centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_INFLUENCE1	Minimum Influence 1 centrality measure at community level. This variable is computed as the Minimum of the Influence 1 centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
min_INFLUENCE2	Minimum Influence 2 centrality measure at community level. This variable is computed as the Minimum of the Influence 2 centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_AUTHORITY	Total Authority centrality measure at community level. This variable is computed as the total of the Authority centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
tot_BETWEEN	Total Betweenness centrality measure at community level. This variable is computed as the total of the Betweenness centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_CLOSE	Total Closeness centrality measure at community level. This variable is computed as the Total of the Closeness centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_CLOSEIN	Total Closeness-in centrality measure at community level. This variable is computed as the total of the Closeness-in centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_CLOSEOUT	Total Closeness-out centrality measure at community level. This variable is computed as the total of the Closeness-out centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_CLUSTCOEF	Total Clustering coefficient centrality measure at community level. This variable is computed as the total of the Clustering coefficient centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
tot_DEGREE	Total Degree centrality measure at community level. This variable is computed as the total of the Degree centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_DEGREEIN	Total Degree-in centrality measure at community level. This variable is computed as the total of the Degree-in centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_DEGREEOUT	Total Degree-out centrality measure at community level. This variable is computed as the total of the Degree-out centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_EIGEN	Total Eigenvector centrality measure at community level. This variable is computed as the total of the Eigenvector centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_HUB	Total Hub centrality measure at community level. This variable is computed as the total of the Hub centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
tot_INFLUENCE1	Total Influence 1 centrality measure at community level. This variable is computed as the total of the Influence 1 centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
tot_INFLUENCE2	Total Influence 2 centrality measure at community level. This variable is computed as the total of the Influence 2 centrality measure of all the nodes that belong to the community under consideration.	Numeric	Input
Variables based on transactional measures			
agcmlvl_inc_msr<**j**>	The average incoming value of a transactional measure with PK value **<j>** for a community. This variable is computed as the ratio of two values. The numerator is the sum of total incoming value of a transaction measure with PK value j for all the nodes that belong to the community under consideration. The denominator is the total number of nodes that belong to the community under consideration.	Numeric	Input
agcmlvl_out_msr<**j**>	The average outgoing value of a transactional measure with PK value <**j**> for a community. This variable is computed as the ratio of two variables. The numerator is the sum of total outgoing value of a transaction measure j for all the nodes that belong to the community under consideration. The denominator is the total number of nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
mncmlvl_inc_msr<**j**>	The minimum incoming value of a transactional measure with PK value <**j**> for a community. This variable is computed as the minimum of total incoming value of a transactional measure with PK value j for all the nodes that belong to the community under consideration.	Numeric	Input
mncmlvl_out_msr<**j**>	The minimum outgoing value of a transactional measure with PK value <**j**> for a community. This variable is computed as the minimum of total outgoing value of a transactional measure with PK value j for all the nodes that belong to the community under consideration.	Numeric	Input
mxcmlvl_inc_msr<**j**>	The maximum incoming value of a transactional measure with PK value <**j**> for a community. This variable is computed as the maximum of total incoming value of a transactional measure with PK value j for all the nodes that belong to the community under consideration.	Numeric	Input
mxcmlvl_out_msr<**j**>	The maximum outgoing value of a transactional measure with PK value <**j**> for a community. This variable is computed as the maximum of total outgoing value of a transactional measure with PK value j for all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
tocmlvl_inc_msr<**j**>	The total incoming value of a transactional measure with PK value <**j**> for a community. This variable is computed as the sum of total incoming value of a transactional measure with PK value <**j**> for all the nodes of the community under consideration.	Numeric	Input
tocmlvl_out_msr<**j**>	The total outgoing value of a transactional measure with PK value <**j**> for a community. This variable is computed as the sum of total outgoing value of a transactional measure with PK value <**j**> for all the nodes of the community under consideration.	Numeric	Input
Variables based on link weights			
avg_inc_link_wt	The average value of incoming link weight for a community. This variable is computed as the sum of total incoming value of link weight for all the nodes of the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_out_link_wt	The average value of outgoing link weight for a community. This variable is computed as the sum of total outgoing value of link weight for all the nodes of the community under consideration divided by the total number of nodes in that community.	Numeric	Input
avg_tot_link_wt	The average value of total link weight for a community. This variable is computed as the sum of total value of link weight for all the nodes of the community under consideration divided by the total number of nodes in that community.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
max_inc_link_wt	The maximum value of incoming link weight for a community. This variable is computed as the maximum of total incoming link weight for all the nodes that belong to the community under consideration.	Numeric	Input
max_out_link_wt	The maximum value of outgoing link weight for a community. This variable is computed as the maximum of total outgoing link weight for all the nodes that belong to the community under consideration.	Numeric	Input
max_tot_link_wt	The maximum value of total link weight for a community. This variable is computed as the maximum of total link weight for all the nodes that belong to the community under consideration.	Numeric	Input
min_inc_link_wt	The minimum value of incoming link weight for a community. This variable is computed as the minimum of total incoming link weight for all the nodes that belong to the community under consideration.	Numeric	Input
min_out_link_wt	The minimum value of outgoing link weight for a community. This variable is computed as the minimum of total outgoing link weight for all the nodes that belong to the community under consideration.	Numeric	Input
min_tot_link_wt	The minimum value of total link weight for a community. This variable is computed as the minimum of total link weight for all the nodes that belong to the community under consideration.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
tot_inc_link_wt	Total incoming link weight for a community. This variable is computed as the total of total incoming link weight for all the nodes that belong to the community under consideration.	Numeric	Input
tot_link_wt	Total link weight for a community. This variable is computed as the total of total link weight for all the nodes that belong to the community under consideration.	Numeric	Input
tot_out_link_wt	Total outgoing link weight for a community. This variable is computed as the total of total outgoing link weight for all the nodes that belong to the community under consideration.	Numeric	Input
avg_links_per_node	Average links per node for a community. This variable is computed as the total number of incoming and outgoing links for all the nodes that belong to the community under consideration divided by the total number nodes in that community.	Numeric	Input
Variables based on diameter and density of community			
density	This variable is computed only for non-distributed mode. This variable is computed as the number of links in a community divided by the maximum possible number of links in the community.	Numeric	Input
density_1	Density of the community using degree as a measure of density. This variable is computed as the ratio of average degree for a community over the average degree for the entire network.	Numeric	Input

Variable Name	Variable Description	Data Type	Variable Type
density_2	Density of the community using link weight as a measure of density. This variable is computed as the ratio of average link weight for a community over the average link weight for the entire network.	Numeric	Input
diameter_approx_wt	This variable is computed only for non-distributed mode. The diameter is computed according to the approach that you select when you configure the Community Building workflow step. For example, diameter could either be computed based on Cumulative sum of in-between link weights or Number of in-between links.	Numeric	Input

Chapter 9

Reporting Variables

Reporting Variables for Viral Effect Analysis

The following table indicates the sample reporting variables that are produced for viral effect analysis for the churn scenario type. Similar variables are created for the product adoption scenario type.

Note:

- The significant variables that are produced differ depending on the analytical model that is built for viral effect analysis.
- If a project completes two or more runs, then two sets of variables are produced for the node-level ABT variable category, **Roles and communities,** for the current and previous runs. In this case, the variables of the previous run are suffixed with PREV.

For more information about viral effect analysis, see the *SAS Customer Link Analytics: User's Guide*.

Table 9.1 *Sample Reporting Variables for Viral Effect Analysis: Churn Scenario Type*

Variable Name	Description
Variables for the node-level enrichment category, **Roles and communities**	
node_id	A unique value that identifies a node.
authority_val	The value of the Authority centrality measure for a node.
between_val	The value of the Betweenness centrality measure for a node.
close_val	The value of the Closeness centrality measure for a node.

Variable Name	Description
closein_val	The value of the Closeness-in centrality measure for a node.
closeout_val	The value of the Closeness-out centrality measure for a node.
clustcoef_val	The value of the Clustering coefficient for a node.
community_id	The unique ID of the community to which a node belongs.
degree_val	The value of the Degree centrality measure for a node.
degreein_val	The value of the Degree-in centrality measure for a node.
degreeout_val	The value of the Degree-out centrality measure for a node.
eigen_val	The value of the Eigenvector centrality measure for a node.
entity_role_nm	The name of the role that is assigned to the node.
hub_val	The value of the Hub centrality measure for a node.
influence1_val	The value of the Influence 1 centrality measure for a node.
influence2_val	The value of the Influence 2 centrality measure for a node.
cs_segment_pk	The unique segment ID of the community to which the node under consideration belongs. *Note:* This variable is produced only if you have run community segmentation for the project.
Significant variables of the model	

Variable Name	Description
agcinc_msr<*j*>_rl<*k*>	The average incoming value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the ratio of two values. The numerator is the sum of the total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have a role *k*. The denominator is the total number of nodes of the community under consideration that have a role *k*.
max_inc_msr<*j*>	The maximum incoming value of a transactional measure with PK value *j* for a node from its neighboring nodes.
mnicmr<*j*>_fnchrl<*k*>	The minimum incoming value received by a node for transactional measure *j* from all the connected non-churned nodes having role *k*. For example, this variable is computed as the minimum number of incoming SMS text messages received by the node under consideration from all the non-churned nodes having role *k* that are connected to the node under consideration.
mnog_msr<*j*>_torl<*k*>	The minimum outgoing value of a transactional measure with PK value *j* for a node to its neighboring nodes that have a specific role *k*.
to_og_mr<*j*>_tonch_nd	The total outgoing value made by a node for transactional measure *j* to all the connected non-churned nodes. For example, this variable computes the total number of outgoing SMS text messages made by the node under consideration to all the non-churned nodes that are connected to the node under consideration.
tocminc_msr<*j*>_rl<*k*>	The total incoming value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the sum of the total incoming value of a transactional measure with PK value j for all the nodes of the community under consideration that have a role *k*.
tocmlvl_inc_msr<*j*>	The total incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the sum of the total incoming value of a transactional measure with PK value *j* for all the nodes of the community under consideration.

Variable Name	Description
tocmlvl_out_msr<*j*>	The total outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the sum of the total outgoing value of a transactional measure with PK value *j* for all the nodes of the community under consideration.
tocmout_msr<*j*>_rl<*k*>	The total outgoing value of a transactional measure with PK value *j* for nodes of a community that have a role *k*. This variable is computed as the sum of the total outgoing value of a transactional measure with PK value *j* for all the nodes of the community under consideration that have role *k*.
Scnenario-specific score	
scenario_score	For the churn scenario type, the scores indicate the probability of a node to churn from the network based on whether its neighboring nodes have churned from the network.

Reporting Variables for Community Segmentation

The following table indicates the sample reporting variables that are produced for community segmentation.

Note:

- The significant variables that are produced differ depending on the analytical model that is built for community segmentation.
- If a project completes two or more runs, then two sets of community-level variables are generated for the current and previous runs. In this case, the variables of the previous run are suffixed with PREV.

For more information about community segmentation, see the *SAS Customer Link Analytics: User's Guide*.

Table 9.2 *Community Segmentation: Reporting Variables*

Variable Name	Description
Default variables	
node_id	A unique value that identifies a node.
degree	The value of the Degree centrality measure for a node.

degreein	The value of the Degree-in centrality measure for a node.
degreeout	The value of the Degree-out centrality measure for a node.
influence1	The value of the Influence 1 centrality measure for a node.
influence2	The value of the Influence 2 centrality measure for a node.
Community-level variables for the current run of the project	
avg_degree	Average Degree centrality measure at the community level. This variable is computed as the total of the Degree centrality measure of all the nodes that belong to the community to which the node under consideration belongs divided by the total number of nodes in that community.
avg_degreein	Average Degree-in centrality measure at the community level. This variable is computed as the total of the Degree-in centrality measure of all the nodes that belong to the community to which the node under consideration belongs divided by the total number of nodes in that community.
avg_degreeout	Average Degree-out centrality measure at the community level. This variable is computed as the total of the Degree-out centrality measure of all the nodes that belong to the community to which the node under consideration belongs divided by the total number of nodes in that community.
avg_inc_link_wt	Average incoming link weight for a community. This variable is computed as the sum of the total incoming value of link weight for all the nodes of the community to which the node under consideration belongs divided by the total number of nodes in that community.
avg_influence1	Average Influence 1 centrality measure at the community level. This variable is computed as the total of the Influence 1 centrality measure of all the nodes that belong to the community to which the node under consideration belongs divided by the total number of nodes in that community.

avg_influence2	Average Influence 2 centrality measure at the community level. This variable is computed as the total of the Influence 2 centrality measure of all the nodes that belong to the community to which the node under consideration belongs divided by the total number of nodes in that community.
avg_links_per_node	Average links per node for a community. This variable is computed as total number of incoming and outgoing links for all the nodes that belong to community to which the node under consideration belongs divided by the total number of nodes in that community.
avg_out_link_wt	Average outgoing link weight for a community. This variable is computed as the sum of total outgoing value of link weight for all the nodes of the community to which the node under consideration belongs divided by the total number of nodes in that community.
community_id	The unique value of the community to which the node under consideration belongs.
density_1	Density of the community using degree as a measure of density. This variable is computed as the ratio of average degree for a community to which the node under consideration belongs over the average degree for the entire network.
density_2	Density of the community using link weight as a measure of density. This variable is computed as the ratio of average link weight for a community to which the node under consideration belongs over the average link weight for the entire network.
node_cnt	Number of nodes that belong to community to which the node under consideration belongs.
tot_degree	Total Degree centrality measure at the community level. This variable is computed as the total of the Degree centrality measure of all the nodes that belong to the community to which the node under consideration belongs.

tot_degreein	Total Degree-in centrality measure at the community level. This variable is computed as the total of the Degree-in centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
tot_degreeout	Total Degree-out centrality measure at the community level. This variable is computed as the total of the Degree-out centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
tot_inc_link_wt	Total link weight for a community. This variable is computed as the total of total link weight for all the nodes that belong to the community to which the node under consideration belongs.
tot_influence1	Total Influence 1 centrality measure at the community level. This variable is computed as the total of the Influence 1 centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
tot_influence2	Total Influence 2 centrality measure at the community level. This variable is computed as the total of the Influence 2 centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
tot_link_wt	Total link weight for a community. This variable is computed as the total of total link weight for all the nodes that belong to the community to which the node under consideration belongs.
tot_out_link_wt	Total outgoing link weight for a community. This variable is computed as the total of total outgoing link weight for all the nodes that belong to the community to which the node under consideration belongs.
Significant variables	

agcmlvl_inc_msr<*j*>	Average incoming transactional measure with PK value j for a community. This variable is computed as the ratio of two values. The numerator is the sum of the total incoming value of a transaction measure with PK value *j* for all the nodes that belong to the community to which the node under consideration belongs. The denominator is the total number of nodes that belong to the community to which the node under consideration belongs.
agcmlvl_out_msr<*j*>	Average outgoing transactional measure with PK value *j* for a community. This variable is computed as the ratio of two variables. The numerator is the sum of total outgoing value of a transaction measure *j* for all nodes that belong to the community to which the node under consideration belongs. The denominator is the total number of nodes that belong to the community to which the node under consideration belongs.
avg_BETWEEN	Maximum Betweenness centrality measure at the community level. This variable is computed as the maximum of the Betweenness centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
avg_CLUSTCOEF	Maximum Clustering coefficient centrality measure at the community level. This variable is computed as the maximum of the Clustering coefficient centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
density	This variable is computed only in case of non-distributed mode. This variable is computed as the number of links in a community to which the node under consideration belongs divided by the maximum possible number of links in the community.
max_DEGREE	Maximum Degree centrality measure at the community level. This variable is computed as the maximum of the Degree centrality measure of all the nodes that belong to the community to which the node under consideration belongs.

min_AUTHORITY	Minimum Authority centrality measure at the community level. This variable is computed as the minimum of the Authority centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
min_CLOSEOUT	Minimum Closeness-out centrality measure at the community level. This variable is computed as the minimum of the Closeness-out centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
min_DEGREE	Minimum Degree centrality measure at the community level. This variable is computed as the Minimum of the Degree centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
min_DEGREEIN	Minimum Degree-in centrality measure at the community level. This variable is computed as the Minimum of the Degree-in centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
min_inc_link_wt	Minimum incoming link weight for a community. This variable is computed as the minimum of total incoming link weight for all the nodes that belong to the community to which the node under consideration belongs.
min_out_link_wt	Minimum outgoing link weight for a community. This variable is computed as the minimum of total outgoing link weight for all the nodes that belong to the community to which the node under consideration belongs.
min_tot_link_wt	Minimum total link weight for a community. This variable is computed as the minimum of total link weight for all the nodes that belong to the community to which the node under consideration belongs.

mncmlvl_inc_msr<*j*>	Minimum incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the minimum of total incoming value of a transactional measure with PK value *j* for all the nodes that belong to the community to which the node under consideration belongs.
mncmlvl_out_msr<*j*>	Minimum outgoing value of a transactional measure with PK value *j* for a community. This variable is computed as the minimum of total outgoing value of a transactional measure with PK value *j* for all the nodes that belong to the community to which the node under consideration belongs.
mxcmlvl_inc_msr<*j*>	Maximum incoming value of a transactional measure with PK value *j* for a community. This variable is computed as the maximum of total incoming value of a transactional measure with PK value *j* for all the nodes that belong to the community to which the node under consideration belongs.
tot_AUTHORITY	Total Authority centrality measure at the community level. This variable is computed as the total of the Authority centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
tot_CLOSE	Total Closeness centrality measure at the community level. This variable is computed as the Total of the Closeness centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
tot_HUB	Total Hub centrality measure at the community level. This variable is computed as the total of the Hub centrality measure of all the nodes that belong to the community to which the node under consideration belongs.
cs_segment_pk	Unique segment identifier Indicates the segment ID of the community to which the node under consideration belongs.

Recommended Reading

- *SAS Customer Link Analytics: Administrators's Guide*
- *SAS Customer Link Analytics: Upgrade and Migration Guide*
- *SAS Customer Link Analytics: User's Guide*

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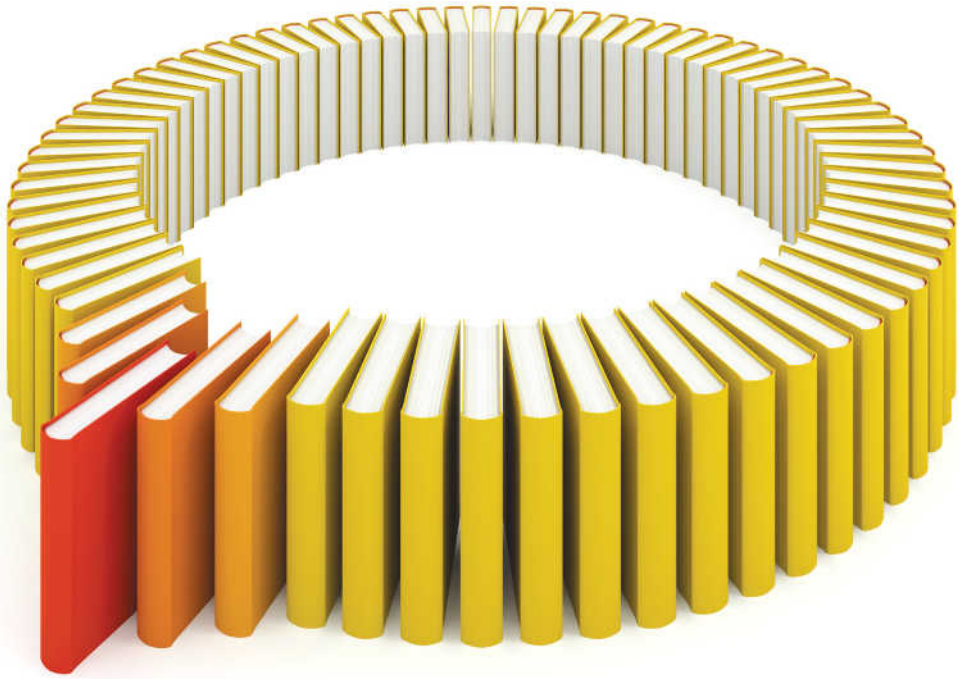

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