Using Standard Generation Rules to Generate Test Data
Abstract

In Test Data Manager, create and assign standard generation rules to the target columns to generate test data. This article describes how to create and assign standard generate rules, create data generation plan, and run the workflow.

Supported Versions

- Test Data Management 9.6.0

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Overview

With Test Data Management (TDM), you can create realistic test data for testing environments. Create and use standard data generation rules in Test Data Manager. Create a data generation plan, and run the workflow to generate test data.

Scenario

You work for the testing department in an organization that has developed a software application. This application compares the prices of various brands of products in the market and suggests the best price to introduce a product into the market. To test this application, you need to generate data with product details such as product identification number, product name, product status, and product price.

To generate the test data, perform the following tasks:

1. Create a project and import target metadata.
2. Create standard data generation rules for string and numeric data types.
3. Add the standard data generation rules to the project.
4. Assign standard data generation rules to the target columns.
5. Create a data generation plan.
6. Generate and run the workflow.
Step 1. Create a Project and Import Target Metadata

In Test Data Manager, create a project folder to store the data generation components such as entities and tables. Import target metadata to the project. In this example, the target database is AutoTarget and the target table is PRODUCTS. The target columns are PRODUCT_ID, PRODUCT_LIST_PRICE, PRODUCT_NAME, and PRODUCT_STATUS in the PRODUCTS table.

1. In Test Data Manager, click **Projects** to access the projects.
   
   A list of projects appears.

2. Click **Actions > New**.

3. In the **Create Project** dialog box, enter the following project properties:
   
   **Name**
   
   Enter a name.

   **Description**
   
   Enter a description.

   **PowerCenter Repository**
   
   The default is the name of the PowerCenter repository.

   **Folder**
   
   The default is the project name.

   **Owner**
   
   The default is the name of the user that created the folder.

   The following image shows the properties of the project:

   ![New Project Dialog](image)

4. Click **OK**.

   View the properties of the project that you created.

5. Click **Actions > Import Metadata**.

   The **Import Metadata** dialog box appears.

6. To import metadata from a database, choose **Datasource Connection** and select the database.
The following image shows the options to import metadata:

7. Choose whether you want to review the metadata changes before you import the data sources. You can choose to skip the import options.
8. Click Next.
9. Select the metadata schema that you want to import from the database. You can filter folders by the folder name or the description.
10. Click Next.
11. Select the tables that you want to import.
12. Click Next.
13. To import the data source immediately, select Import Now.
14. Click Finish.

While the import is running, view the progress of the import job in the Monitor view. After the import job finishes, you can access the imported metadata through the Data Sources details view.

**Step 2. Create Standard Data Generation Rules**

You want to generate product details such as product identification number, product name, product status, and product price in the target database. Create standard generation rules that make use of predefined techniques to generate data with numeric and string data types.

To generate the test data in target columns, perform the following tasks:

- Create a sequence generation rule to generate product identification numbers.
- Create a random string generation rule to generate names.
- Create a set of values generation rule to generate product status.
- Create a random numeric generation rule to generate product price.

**Creating a Sequence Generation Rule**

Create a numeric sequence generation rule to generate product identification numbers in the target table.

1. In Test Data Manager, click Policies.
2. Click Actions > New > Generation Rule.
   
The Rule Wizard appears.
3. Enter a name and optional description for the rule.
4. Select the Numeric data type.
5. Choose Standard Rule and select Sequence.
6. To override generation parameters for a rule, select **Override Allowed**.

   The following image shows sequence generation rule properties:

   ![Sequence Generation Rule Properties](image1)

7. Click **Next**.

8. Configure the following parameters:

   **Start Value**
   
   Enter a minimum value to start the sequence.

   **Increment Value**
   
   Enter a value to increment after the start value.

   **Null Values**
   
   Optional. To generate null values, enter a percent.

   **Invalid Values**
   
   Optional. To generate values that are not valid, enter a percent.

   The following image shows the sequence generation parameters for the numeric data type:

   ![Sequence Generation Parameters for Numeric Data Type](image2)
9. Click Finish.
   The rule appears in the list of generation rules.

Creating a Random String Generation Rule

Create a random string generation rule to generate product names in the target table.

1. Click Policies.
2. Click Actions > New > Generation Rule.
   The Rule Wizard appears.
3. Enter a name and optional description for the rule.
4. Select the String data type.
5. Choose Standard Rule and select Random.
6. To override generation parameters for a rule, select Override Allowed.
7. Click Next.
8. Configure the following parameters:
   Minimum Length
   Enter the minimum length of the string.
   Maximum Length
   Enter the maximum length of the string.
   Null Values
   Optional. To generate null values, enter a percent.
   Invalid Values
   Optional. To generate values that are not valid, enter a percent.

The following image shows the random generation rule parameters for the string data type:

9. Click Finish.
   The rule appears in the list of generation rules.
Creating a Set of Values Generation Rule

Create a set of values generation rule to generate product status in the target table. The product status indicates the current status of the product in the market.

1. Click Policies.
2. Click Actions > New > Generation Rule.
   The Rule Wizard appears.
3. Enter a name and optional description for the rule.
4. Select the String data type.
5. Choose Standard Rule and select Set of Values.
6. To override generation parameters for a rule, select Override Allowed.
7. Click Next.
8. Enter a specific value and a distribution percent for each value. To add additional rows, click Add.
9. Optionally, enter a percent to generate null values.
10. Optionally, enter a percent to generate the values that are not valid.

The following image shows the set of values generation rule parameters:

11. Click Finish.

The rule appears in the list of generation rules.

Creating a Random Numeric Generation Rule

Create a random numeric generation rule to generate product prices in the target table.

1. Click Policies.
2. Click Actions > New > Generation Rule.
   The Rule Wizard appears.
3. Enter a name and optional description for the rule.
4. Select the Numeric data type.
5. Choose Standard Rule and select Random.
6. To override generation parameters for a rule, select the Override Allowed option.
7. Click Next.
8. Configure the following parameters:
Minimum Value
Enter the minimum value.

Maximum Value
Enter the maximum value.

Null Values
Optional. To generate null values, enter a percent.

Invalid Values
Optional. To generate values that are not valid, enter a percent.

The following image shows the random numeric generation rule parameters:

9. Click Finish.
   The rule appears in the list of generation rules.

**Step 3. Add Standard Data Generation Rules to the Project**

You must add the standard data generation rules to a project so that you can assign the generation rules to the target columns.

1. Click Projects.
   A list of projects appears.
2. Open the project that you created.
   The project window opens in another tab.
3. In the project, click Overview > Policies.
4. Click Actions > Add Additional Rules.
   The Add Additional Rules dialog box appears.
5. From the list, select all the standard generation rules that you created.
Step 4. Assign Standard Data Generation Rules

Assign the standard data generation rules to the target columns to generate the test data.

1. In the project, click Define > Data Generation.
2. In the target table, select the target column for the generated product identification numbers.
3. Click inside the Generation Rule column.
   A list of data generation rules available for the string data type appears.
4. Select the name of the sequence generation rule that you created.
   The following image shows a sample generation rule assignment for numeric data type:

5. To save the rule assignment, click Save.
6. Select the target column for the generated product names.
7. Click inside the Generation Rule column.
8. Select the random string generation rule that you created.

The following image shows a sample generation rule assignment for string data type:

![Image showing generation rule assignment for string data type]

9. To save the rule assignment, click Save.

10. Select the target column for the product status.

11. Click inside the Generation Rule column.

12. Select the set of values generation rule that you created.

13. To save the rule assignment, click Save.

14. Select the target column for the product price.

15. Click inside the Generation Rule column.

16. Select the random numeric generation rule that you created.

17. To save the rule assignment, click Save.

**Step 5. Create a Data Generation Plan**

To perform the data generation operation, you must create a plan. The plan includes data generation components that you need to generate a workflow.

1. In the project, click Execute.

2. Click New Plan.

3. In the New Plan dialog box, enter a name and optional description for the plan.

4. Click Next.

5. To skip adding the masking components, click Next.

6. To skip adding the subset components, click Next.

7. To add the data generation components, click Add Generation Components.

8. Select the target table to add to the plan.

9. Click OK.

   The target table appears in the list.

10. Click Next.
11. Review the data generation component and table criteria.
12. Click Next.
13. To generate the data, configure the following plan settings:
   - **Number of Records to Generate**
     - Enter the number of records that you want to generate.
   - **Target Connection**
     - Select **Relational**. Click **Select** and choose the target database.
   - **Truncate Tables**
     - To truncate the table before the data loads, select **Truncate Tables**.
   - **Disable Indexes**
     - To disable indexes for faster loading of data, select **Disable Indexes**.
   - **Disable Constraints**
     - To disable constraints before the data is loaded to the target database, select **Disable Constraints**.

The following image shows a sample data generation plan settings:

![Sample Data Generation Plan Settings]

14. Click Next.
15. Review the data source settings.
16. Click Finish.

**Step 6. Generate and Run the Workflow**

After you create the plan, you must run the workflow to generate the test data in the target table. You can monitor the progress of the workflow jobs. After the workflow job succeeds, the data is generated in the target table.

1. To access the plan in the project, click **Execute**.
2. Select the data generation plan that you created.
3. Click **Actions > Generate and Execute**.
   - The **Generate and Execute Plan** dialog box appears.
4. Select the PowerCenter Integration Service.
5. Select **Schedule Now**.
6. Click **Execute Workflow**.
7. To view the status of the workflow jobs, click **Monitor**.
8. To refresh the view, click **Auto Refresh On**.
9. To view the job details, select the job ID and click on the **Properties**, **Sessions**, and **Logs** tabs.

The following image shows the status of the sample workflow jobs:

![Workflow Jobs Status](image)

**Author**

Vinita Arun Kumar  
Senior Technical Writer

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