

Informatica PowerCenter

**Lesson 11: Mapping Parameter And Mapping Variable**

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## Lesson Objectives

- In this Lesson you will learn about:
- Mapping Parameter and Variable Overview
  - Mapping Parameters
  - Mapping Variables



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11.1:Mapping Parameters and Variables  
**Overview**

- In the Designer, you can use mapping parameters and variables to make mappings more flexible
- Mapping parameters and variables represent values in mappings and mapplets
- If you declare mapping parameters and variables in a mapping, you can reuse a mapping by altering the parameter and variable values of the mapping in the session
- This can reduce the overhead of creating multiple mappings when only certain attributes of a mapping need to be changed

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II.1: Mapping Parameters and Variables  
**Overview**

- You can create mapping parameters and variables in the Mapping Designer or Mapplet Designer.
- Once created, mapping parameters and variables appear on the Variables tab of the Expression Editor.
- You can use them in any expression in the mapplet or mapping.
- The Designer validates mapping parameters and variables in the Expression Editor of mapplets and mappings.

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You can use mapping parameters and variables in a source qualifier in a mapplet or mapping. When you use mapping parameters and variables in a Source Qualifier transformation, the Designer expands them before passing the query to the source database for validation. This allows the source database to validate the query.

You cannot use mapping parameters and variables interchangeably between a mapplet and a mapping. Mapping parameters and variables declared for a mapping cannot be used within a mapplet. Similarly, you cannot use a mapping parameter or variable declared for a mapplet in a mapping.

11.11 Mapping Parameters and Variables  
**Initial And Default Values**

- When you declare a mapping parameter or variable in a mapping or a mapplet, you can enter an initial value.
- The Integration Service uses the configured initial value for a mapping parameter when the parameter value is not defined in the parameter file.
- Similarly, the Integration Service uses the configured initial value for a mapping variable when the variable value is not defined in the parameter file, and there is no saved variable value in the repository

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When the Integration Service needs an initial value, and you did not declare an initial value for the parameter or variable, the Integration Service uses a default value based on the data type of the parameter or variable. The following table lists default Values for Mapping Parameters and Variables Based on Data type

Data	Default Value
String	Empty string
Numeric	0
Datetime	1/1/1753 A.D. or 1/1/1 * when Integration Service is configured for compatibility with 4.0.

**11.2:Mapping Parameter Information**

- A mapping parameter represents a constant value that you can define before running a session.
- A mapping parameter retains the same value throughout the entire session.
- When you use a mapping parameter, you declare and use the parameter in a mapping or mapplet.
- Then define the value of the parameter in a parameter file.
- During the session, the Integration Service evaluates all references to the parameter to that value.

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For example, you want to use the same session to extract transaction records for each of your customers individually. Instead of creating a separate mapping for each customer account, you can create a mapping parameter to represent a single customer account. Then you can use the parameter in a source filter to extract only data for that customer account. Before running the session, you enter the value of the parameter in the parameter file.

To reuse the same mapping to extract records for other customer accounts, you can enter a new value for the parameter in the parameter file and run the session.

11.2: Mapping Parameter Information

- In the Designer, you can create a mapping parameter in a mapplet or mapping.
- After you create a parameter, it appears in the Expression Editor.
- You can then use the parameter in any expression in the mapplet or mapping.
- You can also use parameters in a source qualifier filter, user-defined join, or extract override, and in the Expression Editor of reusable transformations.

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Before you run a session, define the mapping parameter value in a parameter file for the session. You can use any constant value. During the session, the Integration Service evaluates all references to the parameter to the specified value. If the parameter is not defined in the parameter file, the Integration Service uses the user-defined initial value for the parameter.

**11.2:Mapping Parameter Information**

- When you want to use the same value for a mapping parameter each time you run the session, use the same parameter file for each session run.
- When you want to change the value of a mapping
  - Update the parameter file between sessions.
  - Create a different parameter file and configure the session to use the new file.
  - Remove the parameter file from the session properties so that the session uses the configured initial value of the parameter in the mapping.

11.2: Mapping Parameter  
**Demo**



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To use a mapping parameter, perform the following steps:

1. Create a mapping parameter
2. Use the parameter
3. Define the parameter val

#### Step 1. Create a Mapping Parameter

In the Mapping Designer, choose Mappings-Parameters and Variables. Or to create parameters for a mapplet, in the Maplet Designer, choose Maplet-Parameters and Variables.

Click the **Add** button

Enter the Name of the Mapping parameter, select the type as Parameter, select the appropriate datatype and precision for the Mapping parameter.

- Step 2. Use a Mapping Parameter

After you create a parameter, you can use it in the Expression Editor of any transformation in a mapping or mapplet. You can also use it in Source Qualifier transformations and reusable transformations.

- Step 3. Define a Parameter Value

Before you run a session, define values for mapping parameters in the parameter file. When you do not define a parameter value, the Integration Service uses the initial value for the parameter. If the initial value is not defined, the Integration Service uses the default value for the parameter data type.

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**11.3: Mapping Variable Information**

- Unlike a mapping parameter, a mapping variable represents a value that can change through the session.
- The Integration Service saves the value of a mapping variable to the repository at the end of each successful session run and uses that value the next time you run the session.
- When you use a mapping variable, you declare the variable in the mapping or mapplet, and then use a variable function in the mapping to change the value of the variable.

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Mapping variables can be used to perform incremental reads of a source. For example, suppose the customer accounts in the mapping parameter example above are numbered from 001 to 065, incremented by one. Instead of creating a mapping parameter, you can create a mapping variable with an initial value of 001. In the mapping, use a variable function to increase the variable value by one. The first time the Integration Service runs the session, it extracts the records for customer account 001. At the end of the session, it increments the variable by one and saves that value to the repository. The next time the Integration Service runs the session, it extracts the data for the next customer account, 002. It also increments the variable value so the next session extracts and looks up data for customer account 003.

**11.3: Mapping Variable Information**

- At the beginning of a session, the Integration Service evaluates references to a variable to its start value
- At the end of a successful session, the Integration Service saves the final value of the variable to the repository
- The next time you run the session, the Integration Service evaluates references to the variable to the saved value

11.3: Mapping Variable Information

- In the Designer, you can create mapping variables in a mapping or mapplet
- After you create a mapping variable, it appears in the Expression Editor
- You can then use it in any expression in the mapping or mapplet
- You can also use mapping variables in a source qualifier filter, user-defined join, or extract override, and in the Expression Editor of reusable transformations

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You might use a mapping variable to perform an incremental read of the source. For example, you have a source table containing timestamped transactions and you want to evaluate the transactions on a daily basis. Instead of manually entering a session override to filter source data each time you run the session, you can create a mapping variable, `$$IncludeDateTime`. In the source qualifier, create a filter to read only rows whose transaction date equals `$$IncludeDateTime`, such as:

`TIMESTAMP = $$IncludeDateTime`

In the mapping, you can use a variable function to set the variable value to increment one day each time the session runs. If you set the initial value of `$$IncludeDateTime` to 9/1/2000, the first time the Integration Service runs the session, it reads only rows dated 9/1/2000. During the session, the Integration Service sets `$$IncludeDateTime` to 9/2/2000. It saves 9/2/2000 to the repository at the end of the session. The next time it runs the session, it reads only rows from September 2, 2000.

11.3: Mapping Variable  
**Variable Values**

➤ The Integration Service holds two different values for a mapping variable during a session run:

- Start value of a mapping variable
- Current value of a mapping variable

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### Start Value

The start value is the value of the variable at the start of the session. The Integration Service looks for the start value in the following order:

- Value in parameter file
- Value in pre-session variable assignment
- Value saved in the repository
- Initial value
- Default value

For example, you create a mapping variable in a mapping or mapplet and enter an initial value, but you do not define a value for the variable in a parameter file. The first time the Integration Service runs the session, it evaluates the start value of the variable to the configured initial value. The next time the session runs, the Integration Service evaluates the start value of the variable to the value saved in the repository.

### Current Value

The current value is the value of the variable as the session progresses. When a session starts, the current value of a variable is the same as the start value. As the session progresses, the Integration Service calculates the current value using a variable function that you set for the variable. The current value can change as the Integration Service evaluates the current value of a variable as each row passes through the mapping. The final current value for a variable is saved to the repository at the end of a successful session. When a session fails to complete, the Integration Service does not update the value of the variable in the repository.

11.3: Mapping Variable

## Variable Datatype And Aggregation Type

- When you declare a mapping variable in a mapping, you need to configure the datatype and aggregation type for the variable.

- You can create a variable with the following aggregation types:
  - Count
  - Max
  - Min

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You can configure a mapping variable for a Count aggregation type when it is an Integer or Small Integer. You can configure mapping variables of any datatype for Max or Min aggregation types. To keep the variable value consistent throughout the session run, the Designer limits the variable functions you can use with a variable based on aggregation type. For example, you can use the SetMaxVariable function for a variable with a Max aggregation type, but not with a variable with a Min aggregation type.

11.3: Mapping Variable  
**Variable Functions**

- Variable functions determine how the Integration Service calculates the current value of a mapping variable in a pipeline.
- You can use variable functions in an expression to set the value of a mapping variable for the next session run.
- The transformation language provides the following variable functions to use in a mapping:
  - SetMaxVariable
  - SetMinVariable
  - SetCountVariable

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**SetMaxVariable.** Sets the variable to the maximum value of a group of values. To use the SetMaxVariable with a mapping variable, the aggregation type of the mapping variable must be set to Max.

**SetMinVariable.** Sets the variable to the minimum value of a group of values. To use the SetMinVariable with a mapping variable, the aggregation type of the mapping variable must be set to Min.

**SetCountVariable.** Increments the variable value by one. In other words, it adds one to the variable value when a row is marked for insertion, and subtracts one when the row is marked for deletion. To use the SetCountVariable with a mapping variable, the aggregation type of the mapping variable must be set to Count.

## Summary

➤ This Lesson gives knowledge of:

- Mapping Parameter and Mapping Variable Overview
- Mapping Parameter
- Mapping Variable



### Review Question

- Question 1: A \_\_\_\_\_ represents a constant value that you can define before running a session.
- Question 2: A \_\_\_\_\_ represents a value that can change through the session.

