Optional Matching Overview

Introduction

When a call arrives at a Transformation Table, the incoming message contains a number of Informational Elements (IEs). These IEs include important call information such as: Called Address/Number, Called Extension, Calling Name, Redirecting Number and others.

Each Informational Element is processed row by row in the Transformation Table.
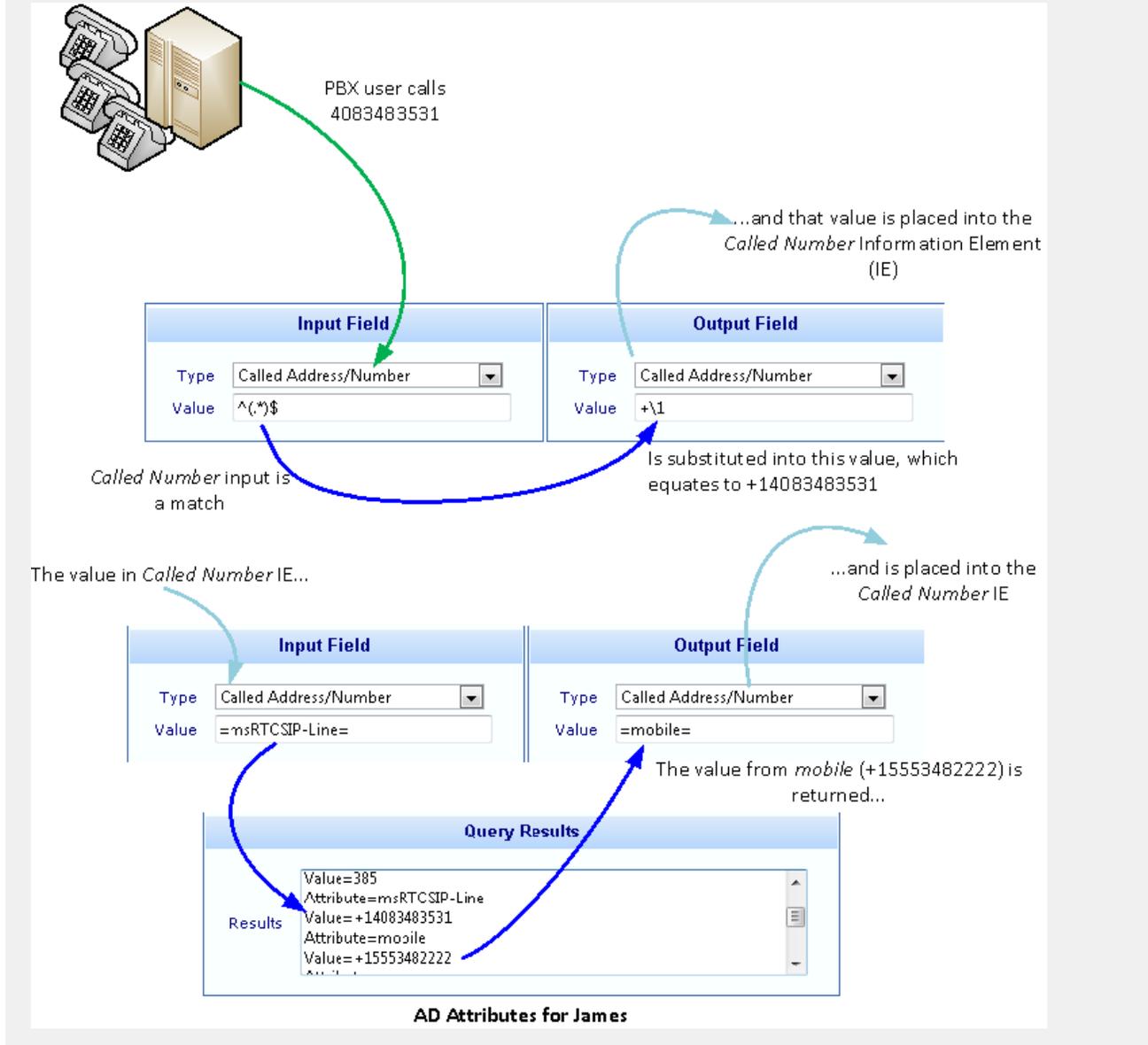
Figure 1: Transformation Table

	Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value
▷ 🖳☐ ✅		Called Address/Number	5551212	Called Address/Number	4881234
▷ 🖳☐ ✅		Calling Address/Number	+1(.*)	Calling Address/Number	\1
▷ 🖳☐ ✅		Calling Name	(.*)	Calling Name	Switchboard

In an incoming call processed by the above transformation table:

- If the Called Number is 5551212, it is transformed to 4881234
- If the Calling Number begins with +14085559876, the +1 is stripped and the Calling Number becomes 4085559876.
- The Calling Name is set to Switchboard.

˅ Click here to see a diagram of how the transformations take place

Figure 2: Transformation Diagram

Once all the transformations are complete, the Mandatory/Optional Match Type determines if the Transformation Table, and by extension the Call Route, is successful or failed.

The Mandatory/Optional Match Type

The Mandatory/Optional Match Type configuration determines whether a particular transformation is critical to the success of the Transformation Table/Call Route.   Any single transformation entry which is deemed critical to successfully routing a call should be marked Mandatory, the remainder should be marked Optional.

⚠ It is important to note that the Mandatory/Optional Match Type configuration works on a per Input Field Type basis. The Mandatory/Optional settings for Called Number are evaluated separately from Redirecting Number. We show some examples below to highlight this very important distinction.

Examples

Mandatory Matching

Single Mandatory Entry

The most basic scenario is the scenario in which a Transformation Table contains only one entry, and that entry is a mandatory entry, as shown here.

Figure 3: Single Mandatory Entry

	Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type	Description	Primary Key
		Called Address/Number	John Doe	Called Address/Number	John Doe	Mandatory (Must Match)	Calling Name	1

When the Called Number is processed against this single transformation, the Called Number must match the regex value in the Input Field Value.   If the Input Field Value does not match the Called Number, this transformation will fail, and so will the route entry that called this transformation table.

Multiple Mandatory Entries

When there are multiple mandatory entries in a transformation table, each *Input Field Type* is evaluated independently for its *Match Type*.

Figure 4: Multiple Mandatory Entries

	Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type	Description	Primary Key
		Calling Address/Number	+1510574912	Called Extension	5228	Mandatory	Mult-Mandatory	1
		Calling Name	John Doe	Calling Name	Doe, John	Mandatory	Mandatory Name	2

In the case above, the first transformation entry, Calling Address/Number, has its *Match Type* set to *Mandatory.*   The second transformation entry, Calling Name, also has its *Match Type* set to *Mandatory*. Both of these transformations must match: The calling number must be +15105744912 and the Calling Name must be John Doe, otherwise, the table fails.

> ⚠ Each Input Field Type is evaluated independently.   In the case above, the Mandatory setting for Calling Address/Number is evaluated separately from Calling Name.

Optional Matching

As with Mandatory matching, Optional matches are performed *per Input Field Type*. At least ONE row *for EACH Input Field Type* must match, otherwise the table fails (see the figure below).

Single Input Field Type

Figure 5: Single Input Field Type

		Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type	Description	Primary Key
Optional Entry Matching								February 07, 2015 02:12:22	
✓ ⊘ + ×		Total 3 Transformation Entry Rows							
▶ ☐			Calling Name	John Doe	Called Extension	2558	Optional	John Doe	1
▶ ☐			Calling Name	Mary Kay	Called Extension	2558	Optional	Mary Kay	2
▶ ☐			Calling Name	Bill Smith	Called Extension	5115	Optional	Bill Smith	3

In this example, if the Calling Name is John Doe, Mary Kay, or Bill Smith, the table is true (passed).

> ⚠ If a Transformation Table only contains multiple entries for a single Input Field Type (e.g. Calling Name above), and all of entries have a Match Type of Optional, then the table is true if any one of the transformations succeed.

Multiple Input Field Types

Figure 6: Multiple Input Field Type

		Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type	Description	Primary Key
▶ ☐			Calling Name	John Doe	Called Extension	2001	Optional	Calling Name John Do...	1
▶ ☐			Calling Name	Mary Francis	Called Extension	2501	Optional	CN Mary Francis	2
▶ ☐			Calling Extension	5255	Called Extension	7175	Optional	Back Door	3
▶ ☐			Calling Address/Number	6900 Paseo Padre Parkway	Calling Address/Number	FMT Office	Optional	Harry Houdini	4

Notice that there are three different Input Field Types; Calling Name, Calling Extension, and Calling Address/Number. At least one of EACH Input Field Types must match, otherwise the table fails. In order for this transformation table to be true:

- The Calling Name must either be Joe Doe or Mary Francis
- The Calling Extension must be 5255
- The Calling Address/Number must be 6900

> ⚠ In the example above, there is only one transformational entry for Calling Extension and Calling Address/Number Input Field Types. If there is only one transformation for a particular Input Field Type, then the Match Type setting for that entry is irrelevant. *Each Input Field Type must have at least one successful transformation.* If there is only one transformation entry for a particular Input Field Type, like the Calling Extension above, then that transformation **must** be successful. In this case of a sole Input Field Type, the configuration of the Match Type, either Mandatory or Optional, has no bearing: that tranformation must succeed or the tranformation table will be false (failed).

Mixed Mandatory and Optional Matching

When a Transformation table has a mixture of both Optional and Mandatory matching criteria:

- *All transformations with a Mandatory Match Type must be successful* in order for the tranformation table to be true, regardless of any Optional entries.
- If any Input Field Type has only Optional Match Types, then at least one of those transformations must be successful in order for the transformation table to be true.

Figure 7: Optional and Mandatory Matching Criteria

	Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type
▶ ☐ ☑		Called Address/Number	==telephoneNumber==	Called Address/Number	=msRTCSIP-Line=	Optional
▶ ☐ ☑		Called Address/Number	==mobile==	Called Address/Number	=msRTCSIP-Line=	Optional
▶ ☐ ☑		Called Address/Number	==msRTCSIP-Line==	Called Address/Number	=msRTCSIP-Line=	Optional
▶ ☐ ☑		Called Address/Number	\+.*(\d{4})	Redirecting Number	\1	Optional
▶ ☐ ☑		Redirecting Number	(.*)	Called Address/Number	\1	Mandatory

In the example above, the Redirecting Number transformation must be successful because it is the only translation entry for the Redirecting Number Input Field Type; the Match Type for Redirecting Number is irrelevant.

There are several transformation entries for Called Address/Number Input Field Type and those all have a Match Type set to Optional. In addtion to the outcome evaluation of the Redirecting Number, at least one of the Called Number transformations must be successful for the translation table to be true (passed).

The table below is the same as the table above, with an additional Called Number transformation entry at the bottom of the table.

Figure 8: Additional Called Number

	Admin State	Input Field Type	Input Field Value	Output Field Type	Output Field Value	Match Type
▶ ☐ ☑		Called Address/Number	==telephoneNumber==	Called Address/Number	=msRTCSIP-Line=	Optional
▶ ☐ ☑		Called Address/Number	==mobile==	Called Address/Number	=msRTCSIP-Line=	Optional
▶ ☐ ☑		Called Address/Number	==msRTCSIP-Line==	Called Address/Number	=msRTCSIP-Line=	Optional
▶ ☐ ☑		Called Address/Number	\+.*(\d{4})	Redirecting Number	\1	Optional
▶ ☐ ☑		Redirecting Number	(.*)	Called Address/Number	\1	Mandatory
▶ ☐ ☑		Called Address/Number	(.*)	Called Address/Number	9989	Mandatory

The additional Mandatory Called Address/Number means only the Mandatory translation must match the transformation table to possibly be true, with respect to the other Called Number Optional translation entries. Of course, the Redirecting Number transformation entry must also be evaluated in order to determine whether the transformation table will be ultimately true (pass) or false (fail).