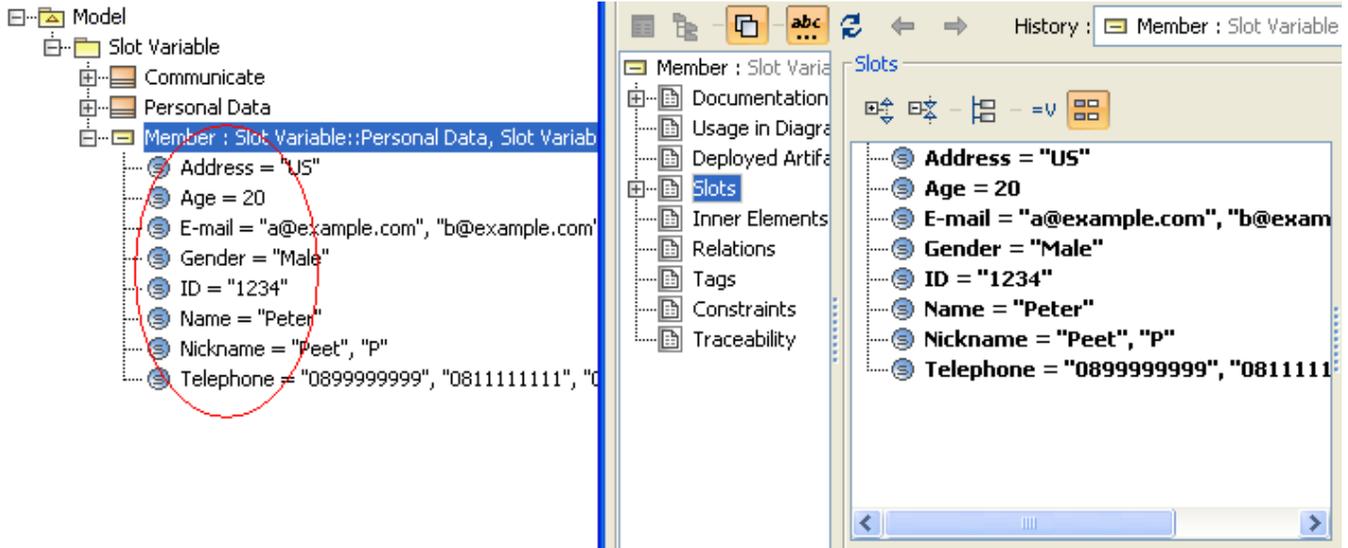


# Retrieving Slot Values

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Instead of using Stereotype and Tag, some projects may use Instance Specification and Slot to define new attributes of an element.



Instance Specification and Slot defining element attributes.

You can retrieve a slot value by either using a normal UML Specification structure, or by using a slot property.

## Using normal UML Specification to Retrieve Slot Values

For example, to retrieve a Name slot value type:

```
#foreach($instance in $InstanceSpecification)
  #foreach($slot in $instance.slot)
    #if($slot.definingFeature.name == 'Name')
      #if($slot.value.size() > 0)
        #set($v = $slot.value.get(0).text)
      #else
        #set($v = "")
      #end
      Slot value is $v
    #end
  #end
#end
```

## Using Slot Property to Retrieve Slot Values

You can use a slot property as a shortcut to get the following information from a slot.

### Retrieving slot information from an element

The following code retrieves slot information from an element.

```
$element.slots
```

In which:

- \$element is an element.
- slots is a property for getting slot variables.

For example, if you want to obtain a collection of slot variables of an element, type:

```
#foreach($slot in $instanceSpecification.slots)
    $slot.name
#end
```

### Retrieving slot information from an element and a classifier's name

The following code retrieves slot information from an element and a classifier's name.

```
$element.slots.ClassifierName
or
$element.slots.get("ClassifierName")
```

Where:

- \$element is an element.
- slots is a property for getting the slots variable.
- ClassifierName is the classifier's name.

The code returns:

- A list of slot variables whose classifier names are ClassifierName.
- If there are multiple classifiers that match the ClassifierName, the code returns the slot property of the first classifier.
- If there is no classifier that matches the ClassifierName, the code returns null.

For example, if you want to retrieve all slot values from the "Communicate" classifier, type:

```
$instanceSpecification.slots.Communicate
$instanceSpecification.slots.get("Communicate")
```

### Retrieving slot value from an element, a classifier's Name, and a defining feature name

```
$element.slots.ClassifierName.DefiningFeatureName
or
$element.slots.ClassifierName.get("DefiningFeatureName")
or
$element.slots.get("ClassifierName").DefiningFeatureName
or
$element.slots.get("ClassifierName").get("DefiningFeatureName")
```

Where:

- **\$element** is an element.
- **slots** is a property for getting slots variable.
- **ClassifierName** is the classifier's name.
- **DefiningFeatureName** is the name of a slot.

The code returns:

- A slot value whose name is DefiningFeatureName and a classifier whose name is ClassifierName.
- If the slot multiplicity is  $\leq 1$  (less than or equal to 1), it will return the value in ValueSpecification.
- If the slot multiplicity is  $> 1$ , it will return the value in array of ValueSpecification.

For example, if you want to retrieve the values of a slot whose name is "Address" and those of a classifier whose name is "Communicate", type:

```

$instanceSpecification.slots.Communicate.Address
$instanceSpecification.slots.Communicate.get("Address")
$instanceSpecification.slots.get("Communicate").Address
$instanceSpecification.slots.get("Communicate").get("Address")

```



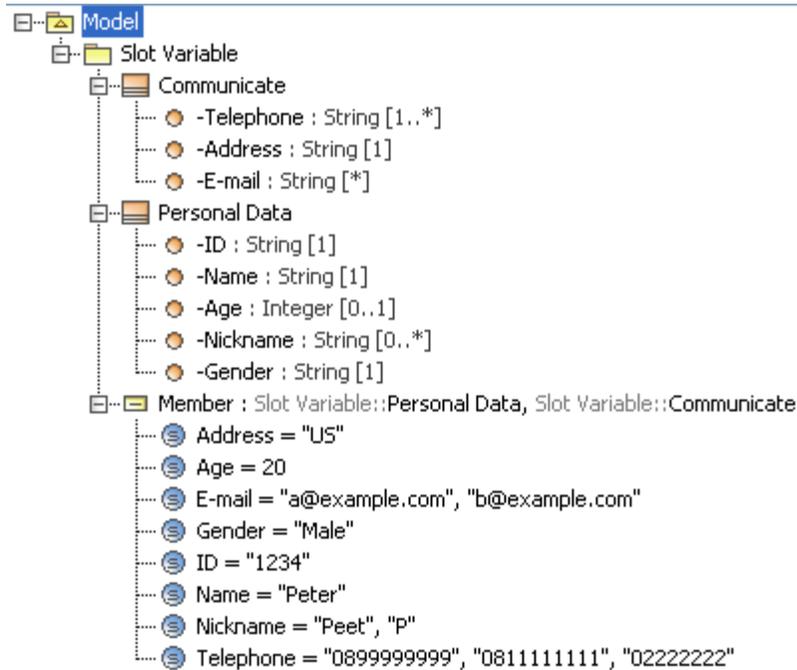
- ClassifierName and DefiningFeatureName are case-sensitive properties.

- You can use:

## Code examples to retrieve slot values

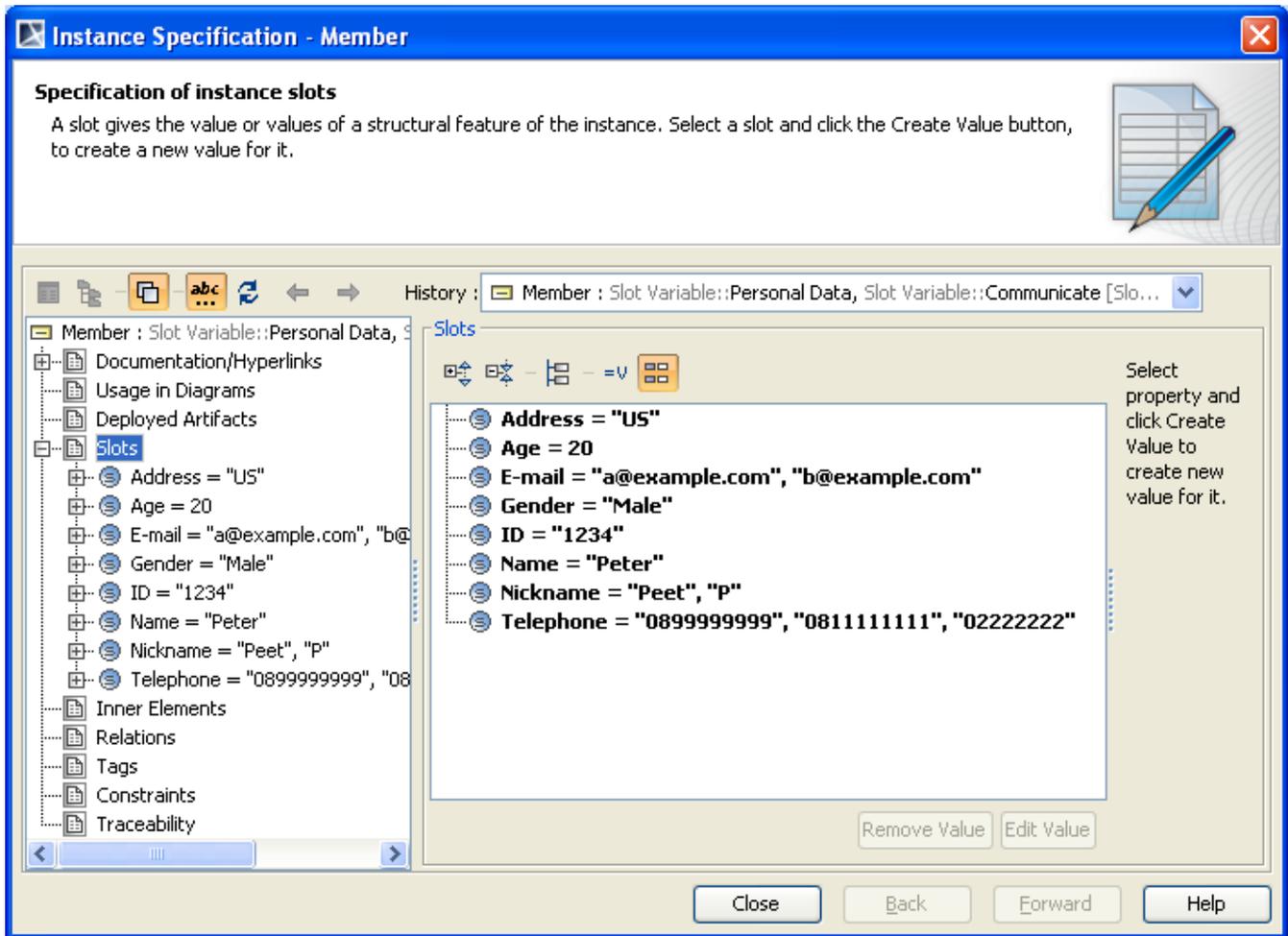
```
$report.getSlotValue($element, ClassifierName, DefiningFeatureName)
```

This section explains how to get the value of an instance slot from a classifier. The figure below shows the elements of a slot variable in the Containment tree in MagicDraw. You can see the values of the element **Member** in the tree, or you can right-click on it and open the Specification dialog to see the values in the dialog.



An example of elements in the Containment tree.

The following figure shows the Instance Specification dialog of the element Member of the slot variable. As you can see in the dialog, the element Member of the slot variable contains slot names and values.



All slots of Instance Specification.

The following are examples of using the code to retrieve a value of a slot.

Example 1.

If you want to print the value of a slot **Address** of the element **Member** from the classifier **Communicate**, you can use the following template code as a shortcut. Note that the slot multiplicity is 1.

```
#foreach($instance in $InstanceSpecification)
    Slot value is $instance.slots.Communicate.Address
#end
```

The output of the code shown above is :

```
Slot value is US
```

Example 2.

If you want to print the value of a slot **Telephone** of the element **Member** from the classifier **Communicate**, you can use the following template code as a shortcut. Note that the slot multiplicity is > 1, [1..\*].

```
#foreach($instance in $InstanceSpecification)
    Slot value is $instance.slots.Communicate.Telephone
#end
```

The output of the code shown above is:

```
Slot value is [0899999999, 0811111111, 02222222]
```

Example 3.

If you want to print the value of a slot **Name** of the element **Member** from the classifier **Personal Data**, you can use the following template code as a shortcut. Note that the slot multiplicity = 1.

```
#foreach($instance in $InstanceSpecification)
    Slot value is $instance.slots.get("Personal Data").get("Name")
#end
```

The output of the code shown above is:

```
Slot value is Peter
```

Example 4.

If you want to print the value of a slot **Nickname** of the element **Member** from the classifier **Personal Data**, you can use the following template code as a shortcut. Note that the slot multiplicity is > 1, [0..\*].

```
#foreach($instance in $InstanceSpecification)
    Slot value is $instance.slots.get("Personal Data").get("Nickname")
#end
```

The output of the code shown above is:

```
Slot value is [Peet, P]
```

Example 5.

If you want to use `$Report` method to print the value of a slot **Name** of the element **Member** from the classifier **Personal Data**, you can use the following template code.

```
#foreach($instance in $InstanceSpecification)
    Slot value is $report.getSlotValue($instance, "Personal Data", "Name")
#end
```

The output of the code shown above is:

```
Slot value is [Peter]
```

Example 6.

If you want to use `$Report` method to print the value of a slot **Nickname** of the element **Member** from the classifier **Personal Data**, you can use the following template code.

```
#foreach($instance in $InstanceSpecification)
    Slot value is $report.getSlotValue($instance, "Personal Data", "Nickname")
#end
```

The output of the code shown above is:

```
Slot value is [Peet, P]
```

#### Example 7.

If you want to print the names and values of all classifiers and the slot properties of all instance elements, you can use the following template code as a shortcut.

```
#foreach($instance in $InstanceSpecification)
  #foreach($classifier in $instance.slots)
    Classifier name: $classifier.name
    Slots:
    #foreach($slot in $classifier)
      $slot.name : $slot.value
    #end
  #end
#end
#end
```

The output of the code shown above is:

```
Classifier name: Personal Data
  Slots:
    Name : Peter
    Age : 20
    Nickname : [Peet, P]
    Gender : Male
    ID : 1234

Classifier name: Communicate
  Slots:
    Telephone : [0899999999, 0811111111, 02222222]
    E-mail : [a@example.com, b@example.com]
    Address : US
```