

Circular: NPCI/2023-24/BBPS/003

18th May 2023

To,

All BBPOUs Bharat Bill Payment System

Dear Sir/Madam,

Bharat Bill Payment System - New Enhancement in Existing BBPS APIs

Members to take a note that Bharat Bill Payment System has introduced a new enhancement in the existing BBPS APIs in order to expand the scope of BBPS to cater to the requirements of new categories like National Pension Scheme (NPS), E – Challan, Corporate Credit Cards, B2B, etc.

Key functionalities below:

- Multiple bills fetch and pay functionality via a single BBPS API respectively for a single biller.
- Amount configuration at individual bill level. The bill can be configured for various amount configurations like ad hoc, exact, exact up, exact down, or range.
- Introducing Amount Multiple attribute in fetch response API that will specify the COU/AI front
 end platforms to accept the payment amount only for the multiple of value passed in Amount
 Multiple attribute. For Eg: If Amount Multiple = 100. Customer can pay in multiples of 100 only
 ie: 100, 200, 300, ...
- Introducing selection element type that will facilitate the COU/AI on how to process the bills on the front-end platforms.

Selection	Description
Туре	
Multiple	Customer can select multiple bills from the list of bills
	presented on the front-end COU/Ai platform
Single	Customer can select only one bill from the list of bills
	presented on the front-end COU/AI platform
All	Customers will not the option to select certain bills
j	from the list. Customer must pay all the bills presented
	on the front-end COU/AI platform



The API is available in the sand box for testing from May 15, 2023, and we expect the implementation completion by the BBPOUs to be completed by June 30, 2023.

Further details with respect to these new enhancements has been explained in Annexure 1 of this Circular. We request the members to take note of the same and bring the contents of the circular to the notice of the relevant personnel down the line.

Enclosed-

Annexure: New Enhancement in existing BBPS APIs

Warm Regards,

Chief Executive Officer

NPCI Bharat BillPay Ltd.



Annexure

New Enhancement in Existing BBPS APIs

Objective

In our endeavor to enrich bill payments and cater to the requirements of the upcoming new categories, BBPS is enhancing the functionalities of existing fetch and payment APIs. Through these new developments in APIs, additional features like bulk fetch and payment, amount configurations for individual bill level, selection element type, etc. is incorporated in existing BBPS APIs.

Problem Statement

Existing BBPS APIs specification could not cater to the new requirements for adding new categories of billers like National Pension Scheme, Mutual Funds, Corporate Credit Cards, B2B, E-Challan, etc.

Catering to the requirements of existing billers like different amount configurations for multiple amount options for loan category billers is a challenge through existing BBPS APIs specification.

Proposed Solution

New enhancement in existing BBPS APIs for incorporating new requirements. BBPS APIs will cater to following features:

- Multiple bills fetch and payment facility through a single BBPS fetch and payment API respectively for a single biller. This will help to incorporate billers that caters to list of bills for a single customer.
- Amount configuration at individual bill level. Each bill item can be configured for various amount configuration like ad hoc, exact, exact up, exact down, or range.
- Introducing Amount Multiple attribute in fetch response API that will specify the COU/AI front end
 platforms to accept the payment amount only for the multiple of value passed in Amount Multiple attribute.
 For Eg: If Amount Multiple = 100. Customer can pay in multiples of 100 only ie: 100, 200, 300, ...
- Introducing selection element type that will facilitate the COU/AI on how to process the bills on the frontend platforms.
- New payment amount configuration as "Range", which defines the minimum and maximum amount range for Billers as a measure of exactness.

Upcoming new categories post implementation

- National Pension Scheme
- Mutual Funds
- Corporate Credit Cards
- E-Challan



Functionalities

New API developments will have the following functionalities:

Functionality 1: Bulk Fetch and Payment

Introducing multiple bills fetch and payment facility through a single fetch and payment API respectively for a single biller. This will help to incorporate billers that caters to list of bills for a single customer.

Functionality 2: Amount configuration at individual bill level

Introducing minimum amount and maximum amount attribute for each bill item in the billerResponse element of BBPS fetchResponse API. This will enable the biller to define different amount level configuration for each bill item. This will facilitate the customers to pay any amount within the range defined by the biller for each bill. Billers configured in this configuration would be able to accommodate for all the scenarios of current configurations, as illustrated below:

	Bill Amount (Rs.)	Minimum Amount (Rs.)	Maximum Amount (Rs.)	Use Case	Description
Scenario 1	1000	1000	1000	Biller wants the customer to pay an exact bill amount.	Customers need to pay exact amount of Rs. 1000. No amount editable option available.
Scenario 2	1000	-	2000	Biller wants the customer to pay any amount less than a particular maximum amount.	Customers will be allowed to pay between Rs.O and Rs. 2000
Scenario 3	1000	500	_	Biller wants the customer to pay any amount more than a particular minimum amount.	Customers will be allowed to pay between Rs.500 and min (maximum limit payment channel, maximum limit payment mode)
Scenario 4	1000	-	-	Biller wants the customer to pay any amount.	Customers will be allowed to pay any amount from Rs.0 to min (maximum limit payment channel, maximum limit payment mode)
Scenario 5	1000	100	2000	Biller wants the customer to pay any amount between a particular set limit.	Customers will be allowed to pay between Rs.100 and Rs.2000

Other considerations:

- 1. In case the limit is not sent in minimum or maximum parameters, the default limits for payment channel & payment mode would be picked.
- 2. In case minimum limit sent is lesser than minimum limit of the payment channel / payment mode then the higher value of minimum limit would be selected.

Minimum limit sent by biller - Re.1

Minimum limit of Payment Mode - Rs.5

Minimum limit of Payment Channel - Rs.10

- ⇒ In this case, minimum limit applicable to payment amount is Rs.10
- In case maximum limit sent is higher than maximum limit of the payment channel/payment mode then the lower value of maximum limit would be selected.
 Maximum limit sent by biller – Rs.1,00,00,001.



Maximum limit of Payment Mode – Rs.1,00,00,000. Maximum limit of Payment Channel – Rs.50,00,000.

□ In this case, maximum limit applicable to payment amount is Rs.50,00,000.

Functionality 3: Amount Multiple for each bill item

Introducing Amount Multiple attribute for each bill item in the billerResponse element of fetchResponse API. Amount Multiple is the minimum denominator value passed by the biller that will specify the COU/AI front end platforms to accept payment only for the multiple of value passed in Amount Multiple attribute. Various scenarios catering to Amount Multiple attribute are as follows:

Bill Amount	Minimum	Maximum	Amount	Description
(Rs.)	Amount (Rs.)	Amount (Rs.)	Multiple (Rs.)	
1000	-	-	50	Customer can pay multiple of Rs. 50 (E.g.: 50, 100, 150, etc.)
			1	Maximum limit will be min (max limit of payment
				channel, max limit of payment mode)
1000	-	2000	50	Customer can pay multiple of Rs. 50 (Eg: 50, 100,
				150,, 2000). Maximum limit is Rs. 2000
1000	201	-	50	Customer can pay multiple of 50. Minimum
				amount needs to be paid should be more than Rs. 201 (ie: 250).
			ŀ	Hence customers can pay Rs. 250, 300, 350, 400,
				etc.
				Maximum limit will be min (max limit of payment channel, max limit of payment mode)
1000	201	2000	50	Customer can pay multiple of 50. Minimum
	1			amount needs to be paid should be more than
				Rs.201 (ie: 250).
				Maximum limit is Rs.2000.
				Hence customer can pay Rs. 250, 300, 350, 400,, 2000.
-	-	-	50	Customer can pay multiple of Rs. 50 (E.g.: 50,
				100, 150, etc.)
l				Maximum limit will be min (max limit of payment
				channel, max limit of payment mode)
-	-	2000	50	Customer can pay multiple of Rs. 50 (E.g.: 50,
	201			100, 150,, 2000). Maximum limit is Rs.2000
-	201	-	50	Customer can pay multiple of 50. Minimum
·				amount needs to be paid should be more than
				201 (ie: 250).
				Hence customers can pay Rs.250, 300, 350, 400, etc.
				Maximum limit will be min (max limit of payment
				channel, max limit of payment mode)
- 1	201	2000	50	Customer can pay multiple of 50. Minimum
				amount needs to be paid should be more than
]				201 (ie: 250).
			ļ	Maximum limit is Rs.2000.
		ļ		Hence customer can pay Rs. 250, 300, 350, 400,
				, 2000.

Note: Customer will be allowed to pay only rounded off values and not decimal figures of the value defined in Amount Multiple attribute. Eg: 1x, 2x, 3x, etc.



Functionality 4: Selection Type

Introducing a selection type in the BBPS Biller MDM API, which will facilitate the COU/AI on how to process the bills on the front-end platforms.

Selection Type	Description
Multiple	Customer can select multiple bills from the list of bills presented on the front-end COU/AI platform
Single	Customer can select only one bill from the list of bills presented on the front-end COU/AI platform
Ail	Customers will not the option to select certain bills from the list. Customer must pay all the bills presented on the front-end COU/AI platform

API Changes

BBPS Bill Fetch Response API

Option 1: If <billerResponseType> element is "Single" in BBPS biller MDM API

- 1. 4 new attributes added as part of the <billerResponse> element in BBPS Fetch Response API.
- 2. 3 new attributes added as part of the <billerResponse.Tag> element in BBPS Fetch Response API.

Element	Attribute	Mandatory	Data Type	Description
	label	0*	Alphanumeric	Min Length – 1, Max Length – 100 Header name for the individual <billerresponse> element</billerresponse>
	minAmount	0*	Numeric	Minimum amount that can be paid by the customer.
billerResponse	maxAmount	0*	Numeric	Maximum amount that can be paid by the customer.
	amountMultiple	0*	Numeric	The input amount by the customer should be a numeric multiple of the value defined in "amountMultiple"
billerResponse.Tag	minAmount	0*	Numeric	Minimum amount that can be paid by the customer.
	maxAmount	0*	Numeric	Maximum amount that can be paid by the customer.
	amountMultiple	0*	Numeric	The input amount by the customer should be a numeric multiple of the value defined in "amountMultiple"

^{*}O stands for Optional in the above table.

Option 2: If <billerResponseType> element is "List" in BBPS biller MDM API

4 new attributes added as part of the <billerResponse> element in BBPS Fetch Response API.
 Attributes added are "label", "minAmount", "maxAmount", "amountMultiple."



The various param	eters are explained i	below		3
Element	Attribute	Mandatory	Data Type	Description
List of billerrespon	se element			
	label	O*	Alphanumeric	Min Length – 1, Max Length – 100 Header name for the individual <billerresponse> element</billerresponse>
	minAmount	0*	Numeric	Minimum amount that can be paid by the customer.
billerResponse	maxAmount	0*	Numeric	Maximum amount that can be paid by the customer.
	amountMultiple	0*	Numeric	The input amount by the customer should be a numeric multiple of the value defined in "amountMultiple"

^{*}O stands for Optional in the above table.

Note: For list of <billerResponse> block, <billerResponse. Tag> element cannot be utilized.

Validation Rules (Needs to be performed by OUs):

- "minAmount" <= "amount"; if "amount" and "minAmount" has some value.
- "maxAmount" >= "amount"; if "amount" and "maxAmount" has some value.
- "minAmount" <= "maxAmount"; if "minAmount" and "maxAmount" has some value.
- "amountMultiple" <= "amount"; if "amount" and "amountMultiple" has some value.
- "amountMultiple" > 0, if "amountMultiple" has some value.
- Customer will be allowed to pay only rounded off values and not decimal figures of the value defined in Amount Multiple attribute. Eg: 1x, 2x, 3x, etc.

Note:

minAmount, maxAmount, amountMultiple values will be in paisa format.

BBPS Biller MDM API

Option 1: If <billerResponseType> element is "Single" in BBPS biller MDM API Following changes are being made in Biller MDM API:

• Introduced a new enum called "RANGE" in Payment Amount Exactness, which defines the minimum and maximum amount range for Billers as a measure of exactness.

Element	Mandatory	Data Type	Description
PaymentAmountExactness	C*	Enumerated	Added new value: "RANGE"
		String	

^{*}C stands for Conditional in the above table.

While onboarding through CANVAS portal, biller utilizing minAmount and maxAmount attribute will be onboarded as "RANGE" configuration in Payment Amount Exactness.



Option 2: If <billerResponseType> element is "List" in BBPS biller MDM API Following changes are being made in Biller MDM API:

 Added <Selection_Type> element in BBPS Biller MDM API that will be applicable for list of bills passed in BBPS fetchResponse API. Selection_Type will facilitate the COU/AI front end platform on how to process the list of bills passed in BBPS fetchResponse API. Selection_Type will have 3 values: Multiple, Single, All.

Element	Mandatory	Data Type	Description	· · · · · · · · · · · · · · · · · · ·
Selection_Type	C*	Enumerated	Select from	the list:
		String	Values	Description
			Multiple	Customer can select multiple bills from the list of bills presented on the
-				front-end COU/AI platform
			Single	Customer can select only one bill from the list of bills presented on the front-end COU/AI platform
			All	Customers will not the option to select certain bills from the list. Customer must pay all the bills presented on the front-end COU/AI platform

^{*}C stands for Conditional in the above table.

BBPS Payment Request API

Option 1: If <billerResponseType> is "Single" in BBPS biller MDM API

• Added 3 additional attributes in <Amount.Tag> element: "minAmount", "maxAmount", "amountMultiple".

Element	Attribute	Mandatory	Data Type	Description
Amount.Tag	minAmount	0*	Numeric	Same as "minAmount" attribute of
	maxAmount	0*	Numeric	Same as "maxAmount" attribute or
	amount Multiple	O*	Numeric	Same as "amountMultiple" attribute of <billerresponse.tag> element passed in fetch response API</billerresponse.tag>

^{*}O stands for Optional in the above table.

<u>Note:</u> If the <Amount> Tag contains <Amt> tag along with one of the <Amount. Tag> then that tag will be considered for payment



Example:

Case		Sample
	 fetch Response API	<pre> <billerresponse amount="20000" amountmultiple="2000" billnumber="12303010" billperiod="Sept" customername="CustomerName"> <tag amountmultiple="2000" maxamount="100000" minamount="10000" name="Advance Payment"></tag> <tag maxamount="100000" minamount="1000" name="Part Payment"></tag> </billerresponse> </pre>
Case 1: Customer pays the due amount Rs. 200	<amount> element in payment request API</amount>	<pre><amount></amount></pre>
Case 2: Customer pays advance payment option	<amount> element in payment request API</amount>	<pre><amount></amount></pre>
Case 3: Customer pays part payment options	<amount> element in payment request API</amount>	<amount></amount>

Note: This has to be configured at biller level in amountBreakupSet to have either base_bill_amount or base_bill_amount with one of the three Tags.

Validation for "RANGE" amount configuration (Performed by BBPS):

The range enum will allow for a range of values to be specified for the payment amount. If the payment amount falls within the specified range, the transaction will be considered valid. If the payment amount does not fall within the specified range, an error code will be returned.

minAmount (in Rs.)	maxAmount (in Rs.)	Validation Rules
500	1000	Amount entered by the
		customer should be
	1	between Rs. 500 and Rs.
		1000
•	1000	Amount entered by the
		customer should be
		between 0 and Rs.1000



500	_	Amount entered by the customer should be between Rs.500 and min (max limit of payment channel, max limit of payment mode)
-	-	No validation if min Amount and max Amount attribute are null

Option 2: If <billerResponseType> is "List" in BBPS biller MDM API

- Added new element <AmountBreakUp>, that will be a child element of <Amount> block in BBPS Payment Request API.
- Added new element <BillAmt>, that will be a child element of <AmountBreakUp> element in BBPS Payment Request API.
- Added 2 new attributes in <BillAmt> element: "billNumber" and "Amount". BillNumber corresponds to the
 "billerNumber" attribute of "BillerResponse" element of BBPS Fetch Response API for which the payment
 was done. "Amount" attribute corresponds to the amount that is paid by the customer for the respective
 "billNumber" attribute.

Element	Attribute	Mandatory	Data Type	Description
List of <amount.amountbreakup.billamt> element</amount.amountbreakup.billamt>				
Amount. Amount Break Up. Bill Amt	billNumber	O*	Alphanumeric	Min Length – 1, Max Length – 100 bill Number corresponds to the "billerNumber" attribute of "BillerResponse" element for which the payment was done
	Amount	0*	Numeric	Amount paid by the customer for the respective "billNumber"

^{*}O stands for Optional in the above table.

Note: <BillerResponse> element will not be passed in Payment Request API for option 2.

Validation Rules (Needs to be performed by OUs):

- "amount" attribute in <Amount.Amt> element must be equal to the sum of the "Amount" attributes of all the <Amount.AmountBreakUp.BillAmt> element.
- Necessary validation for the "Amount" attribute of <Amount.AmountBreakUp.BillAmt> element should be done by the OUs.
- After initiating the payment, if the status of a single bill fails, then all the other bills associated with that
 payment request API will also fail.

BBPS Payment Response API/402 API

Option 1: If <billerResponseType> is "Single" in biller MDM API

Payment Response API will contain the same < billerResponse > element that was passed in Bill Payment request.

Option 2: If <billerResponseType> is "List" in biller MDM API

List of <billerResponse> element will only contain "amount" and "billNumber" attribute. Only the bills paid by the customer will be part of <billerResponse> element.



Summary on API Changes

Option 1: If <billerResponseType> is "Single" in biller MDM API

- 4 new attributes added as part of the <billerResponse> element in BBPS Fetch Response API. Attributes added are "label", "minAmount", "maxAmount", "amountMultiple".
- 3 new attributes added as part of the <billerResponse.Tag> element in BBPS Fetch Response API. Attributes added are "minAmount", "maxAmount", "amountMultiple".
- Introduced a new enum called "RANGE" in <PaymentAmountExactness> element in BBPS Biller MDM API, which defines the minimum and maximum amount range for Billers as a measure of exactness.
- Added 3 additional attributes in <Amount. Tag> element in BBPS Payment Request API. Attributes added are "minAmount", "maxAmount", "amtMultiple".

Option 2: If <billerResponseType> element is "List" in BBPS biller MDM API

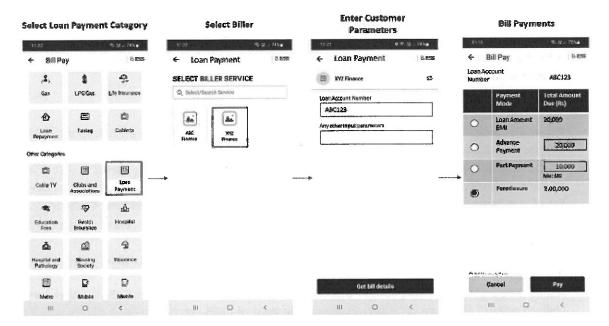
- 4 new attributes added as part of the <billerResponse> element in BBPS Fetch Response API.
 Attributes added are "label", "minAmount", "maxAmount", "amountMultiple"
- Added <Selection_Type> element in BBPS Biller MDM API that will be applicable for list of bills passed in BBPS fetchResponse API. Selection_Type will facilitate the COU/AI front end platform on how to process the list of bills passed in BBPS fetchResponse API. Selection_Type will have 3 values: Multiple, Single, AII.
- Added new element < AmountBreakUp>, that will be a child element of < Amount> block in BBPS Payment Request API.
- Added new element <BillAmt>, that will be a child element of <AmountBreakUp> element in BBPS Payment Request API.
- Added 2 new attributes in <BillAmt> element: "billNumber" and "Amount". BillNumber corresponds to the
 "billerNumber" attribute of "BillerResponse" element of BBPS Fetch Response API for which the payment
 was done. "Amount" attribute corresponds to the amount that is paid by the customer for the respective
 "billNumber" attribute.
- List of <billerResponse> element in BBPS Payment Response API will only contain "amount" and
 "billNumber" attribute. Only the bills paid by the customer will be part of <billerResponse> element in BBPS
 Payment Response API.



Use Cases

1. Loan Repayment Biller

For loan payment category, customers can choose any one of the multiple payment mode options (loan amount, advance payment, part payment, and foreclosure) and proceed to paying the bills for the respective payment mode for the billers available in BBPS ecosystem.



BBPS Biller MDM API

- Since there is a single bill item of EMI Amount, biller will be configured as "SINGLE" in <billerResponseType> element.
- Since biller wants the customer to select the cards of all the listed credit cards, biller will be configured as "Multiple" in <Selection_Type> element.

BBPS Fetch Response API

- The Fetch Response API's "BillerResponse" will include the following amountbreakup set:
- Due Amount (Loan Amount EMI): This will be included as an attribute named 'amount' in the
 BillerResponse. (Due Amount will be the base bill amount to be paid. It will be exact configuration. Hence,
 amount = minAmount = maxAmount).
- <Tags> under BillerResponse
 - Advance Payment: Customer can pay multiple of 5 EMI Amount
 - Part Payment-: Customer can pay between the amount range defined by the biller.
 - o Foreclosure -: Exact Amount Configuration. Editable amount fields will not be available.

Sample:



```
<BillerResponse customerName="CustomerName" amount="2000000" billNumber="12303010" billPeriod="Sept"</p>
 amountMultiple="200000">
        <Tag name="Advance Payment" minAmount="5000" maxAmount="15000" amountMultiple="5000"/>
        <Tag name="Part Payment" minAmount="10000" maxAmount="200000000"/>
       <Tag name="Foreclosure" minAmount="20000000" maxAmount="20000000"/>
</BillerResponse>
 BBPS Payment Request API
       The checksum from the BillerResponse in the Fetch Response API will also be included in the Payment
       Request API, and it will be the same.
<BillerResponse customerName="CustomerName" amount="20000" billNumber="12303010" billPeriod="Sept"
amountMultiple="2000">
       <Tag name="Advance Payment" minAmount="10000" maxAmount="100000" amountMultiple="2000"/>
       <Tag name="Part Payment" minAmount="1000" maxAmount="100000"/>
       <Tag name="Foreclosure" minAmount="100000" maxAmount="100000"/>
</BillerResponse>
       The Amount Tag will contain Amt with due amount as amount attribute.
<Amount>
       <Amt COUcustConvFee="10" amount="20000000" currency="356" custConvFee="0"/>
       <Tag name="Advance Payment" value = "20000000" minAmount="20000000" maxAmount="20000000" />
</Amount>
       If the <Amount> Tag contains <Amt> tag along with one of the below <Tag> then that tag will be considered
       for payment
       → Due Amount (or) Advance Payment (or) Part Payment (or) Foreclosure - Any one
<Amount>
       <Amt COUcustConvFee="10" amount="25000" currency="356" custConvFee="0"/>
       <Tag name="Advance Payment" value = "14000" minAmount="10000" maxAmount="100000"
       amountMultiple="2000"/>
       (OR)
       <Tag name="Part Payment" value="25000" minAmount="1000" maxAmount="100000"/>
      (OR)
       <Tag name="Foreclosure" value="100000" minAmount="100000" maxAmount="100000"/>
</Amount>
Note: This has to be configured at the biller level in the amountBreakupSet to have either base_bill_amount or
```

base bill amount with one of the three Tags.



BBPS Payment/ 402 Response API:

- Payment Response API will contain BillDetails and BillResponse Tag that was passed in Bill Payment request.

<BillDetails>

<CustomerParams>

<Tag name="Loan Account Number" value="23124523562089"/>

</CustomerParams>

</BillDetails>

<BillerResponse customerName="Cust1" amount="100000" billNumber="12303010" billPeriod="Sept">

<Tag name="Foreclosure" value="100000" min="100000" max="100000"/>

</BillerResponse>

2. Corporate Credit Card

All the associated cards linked to a specific corporate customer will be fetched. Corporate customer can select one or multiple cards for which the payment needs to be done, they can edit the base amount, and proceed with the payment.



BBPS Biller MDM API

- Since there are more than one corporate card associated with the particular corporate ID, biller will be configured as "LIST" in <billerResponseType> element.
- Since biller wants the customer to select the cards of all the listed credit cards, biller will be configured as "Multiple" in <Selection_Type> element.

<billerResponseType>LIST</billerResponseType>
<Selection Type>Multiple</Selection Type>



BBPS Fetch Response API

- List of all associated credit cards will be part of the list of billerresponse element in BBPS fetch response API.

```
<BillerResponse customerName="Karan" amount="1000000" dueDate="2023-01-20" minAmount="5000"
billNumber="12301"/>
<BillerResponse customerName="Juhi" amount="1500000" dueDate="2023-01-15" minAmount="5000"
billNumber="12302"/>
<BillerResponse customerName="Ambar" amount="2500000" dueDate="2023-01-18" minAmount="5000"
billNumber="12303"/>
<BillerResponse customerName="Amritha" amount="1000000" dueDate="2023-01-17" minAmount="5000"
billNumber="12304"/>
```

BBPS Payment Request API

- <AmountBreakUp> element will contain the details of all the credit cards for which the customer has done
 the payment.
- "amount" attribute in the <Amt> element will be the summation of all the "amount" attribute in the <AmountBreakUp> element.

