



Bharat Bill Payment System

BBPOU Technical Specification Document

Version: 2.0

1 Contents

2	About This Document.....	10
2.1	Revision History	10
2.2	Related Publications	10
3	Bharat Bill Payment System	11
3.1	Participants of BBPS.....	11
3.2	Role Structure in BBPS	12
3.2.1	Dependency Relationship among Entities.....	12
3.2.2	Biller Dependency.....	12
3.3	Mode of Payments	13
3.4	ON-US and OFF-US Transactions.....	13
3.5	Different Types of Biller Integration.....	14
3.5.1	Online Billers.....	14
3.5.2	Offline Billers	16
3.6	Types of Bill Payments.....	18
4	Transaction Process Flows	20
4.1	ON-US Transaction Flow	20
4.1.1	Online Mode.....	20
4.1.2	Offline Mode (A).....	22
4.1.3	Offline Mode (B).....	24
4.2	OFF-US Transaction Flow	24
4.2.1	Online Mode.....	25
4.2.2	Offline Mode (A).....	27
4.2.3	Offline Mode (B).....	28
4.3	Settlement Process Flow	29
4.4	Reversal Transaction Flow.....	31
4.5	Refund Transaction Flow	32
5	Information Security Requirements	33
5.1	Broad-based Security Architecture.....	33
5.1.1	Intrusion Prevention System.....	33
5.1.2	Web Application Firewall	34
5.1.3	Encryption of XML messages.....	34
5.1.4	Compliance Requirements	35
5.1.5	Authentication.....	35
5.1.6	Digital Certificate	35
5.1.7	E-Signature	36
5.1.8	Audit Log Maintenance	36

5.1.9	Application Logging	36
6	Fraud Risk Management	37
6.1	Fraud Scenarios and Mitigation Techniques.....	37
6.2	Limit and Exposure Management	38
6.3	In-built Fraud Risk Mitigation Procedures	39
7	Master Data Management Requirements.....	41
8	MIS / Reporting System	42
8.1	Functional Requirements	44
8.1.1	Basic Requirements	44
8.1.2	Reporting Requirements.....	45
8.1.3	Alerts and Notifications	45
8.1.4	Scorecards and Dash Boards	45
8.1.5	Audit Features	45
8.2	Indicative List of Reports	46
8.2.1	Indicative Reports Listing	46
9	BBPOU - Canvas	48
9.1.1	User Management	49
9.1.2	Home Page / Landing Page	49
9.1.3	My Profile.....	50
9.1.4	List of Services.....	50
9.1.5	Onboard Agent Institutions	50
9.1.6	Onboard Agent.....	50
9.1.7	Sponsor Bank/Settlement Bank Management	50
9.1.8	Biller Management: Add Biller.....	51
9.1.9	Biller Management: Edit / Delete Biller	51
9.1.10	Biller Management: View Biller	51
9.1.11	Biller Management: Set Default BBPOU	52
9.1.12	Translation Rules:	52
9.1.13	BBPOU File Submission Zone.....	52
9.1.14	Transactional Enquiry.....	54
9.1.15	Message Box.....	55
9.1.16	Accounting Ledger	55
9.2	User ID Convention	57
9.3	Password Policy	57
10	Configuration Management	59
10.1.1	Maker-Checker Configuration.....	59
10.1.2	Fee Configuration	59

10.1.3	Interchange Fee Configuration	59
10.1.4	Tax Configuration	59
10.1.5	Surcharge Configuration.....	59
10.1.6	Business Rules Configuration	59
10.1.7	TAT Configuration	59
10.1.8	Clearing and Settlement Cycles.....	60
10.1.9	Dispute Groups and Dispute Reasons	60
11	BBPOU On-Boarding and Management.....	62
11.1	BBPOU On-Boarding	62
11.2	New BBPPOU on-boarding	62
11.2.1	BBPOU Activities:.....	62
11.2.2	BBPCU Activities:.....	62
11.3	BBPOU Management.....	64
11.4	BBPOU ID Definitions	64
12	Customer Registration Process	65
12.1	Process Flow.....	65
12.2	Customer ID Generation	67
12.3	Modification of customer details	67
12.4	Biller Addition and Modification.....	68
12.5	Deactivation of Registered ID.....	69
13	Corporate Payments and Standing Instructions	70
13.1	Introduction	70
13.2	Bill Presentment	70
13.2.1	Bill Presentment Request Process Flow	71
13.2.2	Bill Presentment Request Message Format	71
13.2.3	Naming Convention: Outgoing File from Customer BBPOU.....	73
13.2.4	Bill Presentment Response Process Flow	73
13.2.5	Bill Presentment Response Message Format.....	74
13.2.6	Naming Convention: Outgoing File from Biller BBPOU.....	76
13.3	Corporate Bill Payments	77
13.3.1	Corporate Payment Process Flow	77
13.3.2	Corporate Payment Message Format	77
13.3.3	Naming Convention: Outgoing File from Corporate BBPOU	79
13.4	Corporate Refunds.....	80
13.4.1	Corporate Refund Process Flow	80
13.4.2	Corporate Refund Message Format	81
13.4.3	Naming Convention: Outgoing File from Biller BBPOU.....	82

13.5	Standing Instructions	83
13.5.1	Standing Instruction Process Flow	83
13.5.2	Standing Instruction Message Format	84
13.5.3	Naming Convention: Outgoing File from Customer BBPOU	86
14	Complaint Management System	87
14.1	Transaction based complaint	88
14.2	Service based complaint	88
14.3	Complaint response message formats	90
15	Dispute Management System	93
15.1	Dispute Initiation	93
15.1.1	Dispute Initiation Message Formats	94
15.1.2	Naming convention for the outgoing file	95
15.2	Dispute Initiation Response	95
15.2.1	Dispute Initiation Response Message Formats	96
15.2.2	Naming convention for the outgoing file	97
15.3	Good Faith	98
15.3.1	Good Faith Initiation Message Formats	98
15.3.2	Naming convention for the outgoing file	99
15.4	Good Faith Response	100
15.4.1	Good Faith Response Message Formats	100
15.4.2	Naming convention for the outgoing file	101
15.5	Case Management	102
15.5.1	Generating and Assigning Case Number	102
15.5.2	Interlinking the transactions - Case History	102
15.5.3	Audit Trail	102
15.5.4	Case Number Format	102
15.5.5	Case Verdict	103
15.6	Document Management	103
15.6.1	Document Attachment	103
15.6.2	Document Types	104
15.6.3	Document Naming Convention	104
15.6.4	Document Size	104
16	Interchange Fee	105
16.1	Interchange Fee Parameters	105
16.2	Interchange Fee Rate Table	106
16.3	Fee Calculation for a Bill Payment	106
16.4	Fee Calculation for Reversal and Disputed Transactions	107

16.5	Interchange Fee Direction.....	107
16.6	Calculation of Interchange Fee	108
17	Clearing and Settlement Process.....	109
17.1	Clearing:	109
17.2	Settlement:.....	109
17.3	BBPS Clearing and Settlement:	109
17.3.1	Option 1: Single clearing and Settlement cycle	110
17.3.2	Option-2: Multiple clearing and Multiple Settlement cycle	112
17.4	TAT for Clearing and Settlement.....	113
18	Testing Requirements.....	115
18.1	Tools / Simulators for Testing	115
18.2	Test Case Execution and Exception Testing	115
18.3	Load Testing and Stress Testing	115
18.4	User Acceptance Test	115
18.5	Audit of all Hardware and Software and Third Party Application	116
19	API Specification	117
19.1	Key attributes	117
19.2	Transaction Sets	119
19.3	Online Specification.....	119
19.3.1	Design Principle	119
19.4	Offline File Formats	119
19.4.1	Design principles:	120
19.4.2	Raw Data	120
19.4.3	Inbound File.....	122
19.4.4	Outbound File.....	124
19.4.5	Web Inbound File.....	125
19.4.6	Web Outbound File.....	127
19.4.7	Refund File	128
19.4.8	Biller Management File	130
19.4.9	Agent Management File	132
19.4.10	BBPOU Management File	134
19.4.11	MTI and Function Code	134
19.4.12	Header Record	135
19.4.13	Trailer Record.....	136
19.4.14	File Type Master	136
19.4.15	Response Code Master	136
19.4.16	Compliance	137

19.4.17	Matching Parameters.....	138
19.4.18	Fee Collection.....	138
19.5	Offline Data Elements.....	139
19.6	File Management.....	157
19.6.1	File Naming Convention	157
19.6.2	Files Uploaded by BBPOUs	158
19.6.3	Files Generated by BBPCU	158
19.6.4	File Handling.....	159
20	Annexures	162
20.1	Online Message Specifications	162
20.2	Transactions Set	162
20.3	CMS and DMS: Edge Case Scenarios	162
20.4	MDM& Biller Configuration List	162
20.5	Roles User Permission.....	162
20.6	Sample Report Structure	162
20.7	File Naming Convention	163
21	List of Abbreviations	164

List of Figures

Figure 1: Dependency Relationship among Entities	12
Figure 2: Biller Dependency	12
Figure 3: Participants of BBPS	13
Figure 4: Process flow - ON-US transaction (Bill Fetch Message) - online mode	20
Figure 5: Process flow - ON-US transaction (Payment Message) - online mode	21
Figure 6: ON-US transaction (Bill Fetch message) - offline mode (A).....	22
Figure 7: ON-US transaction (Payment message) - offline mode (A).....	23
Figure 8: ON-US transaction - offline mode (B)	24
Figure 9: OFF-US transaction (Bill Fetch message) - online mode.....	25
Figure 10: OFF-US transaction (Payment message) - online mode	26
Figure 11: OFF-US transaction (Bill fetch message) - offline mode (A).....	27
Figure 12: OFF-US transaction (Payment message) - offline mode (A)	28
Figure 13: OFF-US transaction - offline mode (B)	29
Figure 14: OFF-US transaction settlement process	30
Figure 15: Sample Reversal Scenario	31
Figure 16: Illustrative network architecture	33
Figure 17: Model functional architecture for MIS and Analytics	42
Figure 18: Database replication with in-memory reporting	44
Figure 19: Process flow for customer registration on BBPS	65
Figure 20: Bill presentment request process flow	71
Figure 21: Bill presentment response process flow.....	74
Figure 22: Corporate payments - process flow.....	77
Figure 23: Corporate refunds - process flow	80
Figure 24: Standing Instructions.....	83
Figure 25: Complaint API flow for OFF-US transaction.....	89
Figure 26: Complaint API flow for ON-US transaction.....	89
Figure 27: Single Clearing and Settlement Cycle	112
Figure 28: Multiple Clearing and Multiple Settlement	113

List of Tables

Table 1: Different payment scenarios in online mode for assisted transactions	15
Table 2: Different payment scenarios in offline mode (A) for assisted transactions	17
Table 3: Different payment scenarios in offline mode (B) for assisted transactions	18
Table 4: Different payment scenarios in offline mode (A) for self-service transactions....	18
Table 5: Different payment scenarios in offline mode (B) for self-service transactions....	18
Table 6: Transaction type and description	18
Table 7: Possible fraud scenarios in BBPS.....	38
Table 8: Indicative list of reports	46
Table 9: Accounting Ledger	56
Table 10: BBPOU on-boarding flow	63
Table 11: Data fields required for customer registration process.....	66
Table 12: Data fields required for biller addition / modification	69
Table 13: Bill presentment request message format.....	73
Table 14: Naming convention for outgoing file from customer BBPOU	73
Table 15: Bill presentment response message format	76
Table 16: Naming convention for outgoing file from biller BBPOU.....	77
Table 17: Corporate payment message format	79
Table 18: Naming convention for outgoing file from corporate BBPOU	80
Table 19: Corporate refunds message format.....	82
Table 20: Naming convention for outgoing file from biller BBPOU.....	83
Table 21: Standing instruction message format.....	86
Table 22: Naming convention for the outgoing file from customer BBPOU	86
Table 23: Validation for complaint categories	88
Table 24: Status of complaints	89
Table 25: API exchanges for complaint management	90
Table 26: Complaint response message formats	92
Table 27: DMS transaction stages	93
Table 28: Dispute initiation message format.....	95
Table 29: Dispute initiation outgoing file naming convention	95
Table 30: Dispute initiation response message format	97
Table 31: Dispute initiation response outgoing file naming convention.....	97
Table 32: Good faith initiation message format	99
Table 33: Good faith outgoing file naming convention	99
Table 34: Good faith response message format.....	101
Table 35: Good faith response outgoing file naming convention.....	102
Table 36: Case number format	102
Table 37: Interchange Fee Parameters.....	106
Table 38: Interchange Fee Rate Table (Indicative).....	106
Table 39: Interchange Fee Direction	108
Table 40: TAT for Multiple Clearing and Settlement	114
Table 41: ID generation	118
Table 42: Raw data for Offline specifications.....	122
Table 43: Raw data for customer BBPOU	122
Table 44: Raw data for biller BBPOU	122
Table 45: Data elements for inbound file.....	123
Table 46: Inbound file naming convention.....	124

Table 47: Data elements for outbound file	125
Table 48: Outbound file naming convention	125
Table 49: Web inbound file	126
Table 50 : BBPCU generated web inbound file naming convention	126
Table 51: Web outbound file data elements	127
Table 52: BBPCU generated web outbound file naming convention	128
Table 53: Refund message format	130
Table 54: Refund outgoing file naming convention.....	130
Table 55: Header message structure of biller management file	131
Table 56: Biller detail message structure for biller management file.....	132
Table 57: Trailer message structure of biller management file	132
Table 58: BBPCU generated biller management file naming convention.....	132
Table 59: Header message structure of agent management file	133
Table 60: Biller details message structure of biller management file.....	133
Table 61: Trailer message structure of agent management file.....	133
Table 62: BBPCU generated agent management file naming convention	133
Table 63: Header message structure of BBPOU management file.....	134
Table 64: BBPOU details message structure of BBPOU management file	134
Table 65: Trailer message structure of BBPOU management file	134
Table 66: BBPCU generated BBPOU management file naming convention.....	134
Table 67: MTI and function code list	135
Table 68: Header record format	135
Table 69: Trailer record format.....	136
Table 70: File type details	136
Table 71: Response code Response description.....	137
Table 72: Matching parameters	138
Table 73: Fee collection message format.....	139
Table 74: Offline data elements	157
Table 75: File naming convention.....	157
Table 76: Description of fields used for naming a file	158
Table 77: File status summary report	160

2 About This Document

2.1 Revision History

<i>Date</i>	<i>Version</i>	<i>Section Number</i>	<i>Description</i>
22.01.2016	1.0		First draft
24.02.2016	2.0	All sections	Revised after Stakeholder meeting

2.2 Related Publications

1. Implementation of Bharat Bill Payment System (BBPS) - Guidelines issued by RBI vide circular No. DPSS.CO.PD.No. 940/02.27.020/2014-2015 dated November 28, 2014.
2. Report of the Committee to Study the Feasibility of Implementation of GIRO Based Payment System in India, April 2013 (Committee chaired by Shri G. Padmanabhan, ED, RBI).
3. Report of GIRO Advisory Group, March 2014 (Committee chaired by Prof.Umesh Bellur).
4. Minutes of Stakeholders' Meetings and action points arising out of meetings of Sub-Groups of Stakeholders.
5. BBPS Procedural Guidelines published on NPCI website on November 18, 2015.

3 Bharat Bill Payment System

3.1 Participants of BBPS

The two primary participants of the Bharat Bill Payment System (BBPS) are:

- Bharat Bill Payment Central Unit (BBPCU)
- Bharat Bill Payment Operating Units (BBPOUs)

In addition, there are some more participants in the BBPS which are connected to the BBPCU through BBPOUs. These BBPOUs may be agent side BBPOUs or biller side BBPOUs. The participants include the following:

- Customer
- Agent
- Agent Institutions
- Billers
- Sub-Biller
- Sponsor Banks

The roles and responsibilities of each participant in the BBPS are as follows:

Bharat Bill Payment Central Unit (BBPCU): The BBPCU will be the single authorized entity to implement necessary operational, technical and business standards for the entire system and its participants, and also undertake clearing and settlement activities. The National Payments Corporation of India (NPCI) will function as the authorized BBPCU as mandated by RBI.

Bharat Bill Payment Operating Unit (BBPOU): BBPOUs will be the authorized operational units, working in adherence to the standards set by BBPS. The tiered structure could be further strengthened through an effective agent network(s) of the BBPOUs. While there will be a single BBPCU, there could be multiple BBPOUs operating under the BBPS. BBPOUs will on-board billers, aggregators, and payment gateways; and set up agent network and customer touch points to handle bill payments through different delivery channels, including self-service, assisted, electronic and manual modes. BBPOUs may be banks as well as non-bank entities.

Customer: Customers of BBPS will be of two types - retail and corporate customers. A customer needs to provide the relevant bill details while making a bill payment and at the same time needs to provide his / her contact details for receiving the payment confirmation.

Agents: Agents are service points which will be available in the form of branch offices, collection centres and outlets. All physical payment of bills will be routed through agents. BBPOUs can on-board the agents to increase their reach in the market. The responsibility will lie with BBPOUs to perform all due diligence while on-boarding new agents.

Agent Institutions: BBPOUs may also on-board agent institutions which will further on-board agents and / or set up customer service points in various regions and locations.

Billers: Billers are the service providers and are participating in BBPS through BBPOUs. A biller may be linked to multiple BBPOUs but it has to mention one BBPOU as a default BBPOU

in the system and one more BBPOU as a backup. Biller has the option to change its default BBPOU at a later stage.

Sub-Billers: In BBPS, billers can further be categorized to sub-billers. For example, Airtel Delhi and Airtel Maharashtra may be sub-billers for the biller Airtel.

Sponsor Bank: Each Non-Banking BBPOU will become a direct BBPOU of the BBPS but settlement of OFF-US transactions (where the biller and the payment collecting agent belong to different BBPOUs) will be done in RBI books by the sponsor bank. To participate in settlement, each non-banking entity acting as BBPOU will have a sponsor bank which will be responsible for settlement.

3.2 Role Structure in BBPS

3.2.1 Dependency Relationship among Entities

1. In the diagram below, L-2 and L-3 may or may not be separate entities.
6. In case there is a separate agent institute in place, then the same will be recorded in L-3.
7. In case there is no separate agent institute and the L-2 i.e. the BBPOU has acquired agents directly in those cases, L-2 and L-3 will be the same.

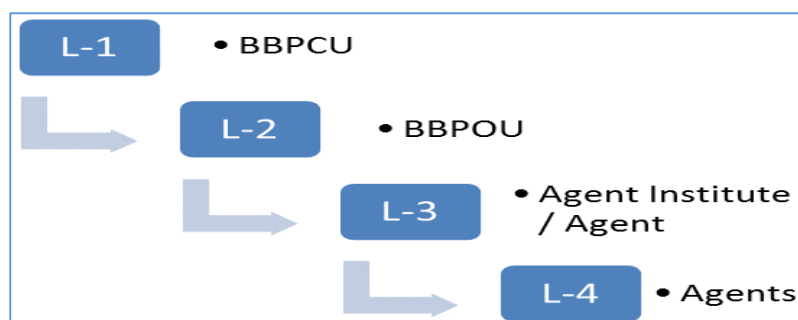


Figure 1: Dependency Relationship among Entities

3.2.2 Biller Dependency

1. In the diagram below, biller configuration will be done at master and sub level.
2. For e.g. Master Biller: Telco-1 and Sub-Billers: Mumbai - Telco-1, Gujarat - Telco-1, etc.

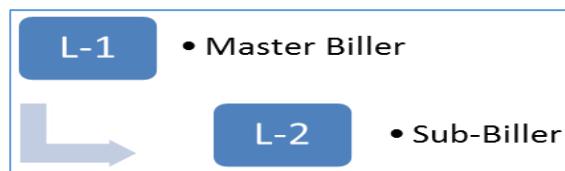


Figure 2: Biller Dependency

The overall structure of BBPS ecosystem is as follows:

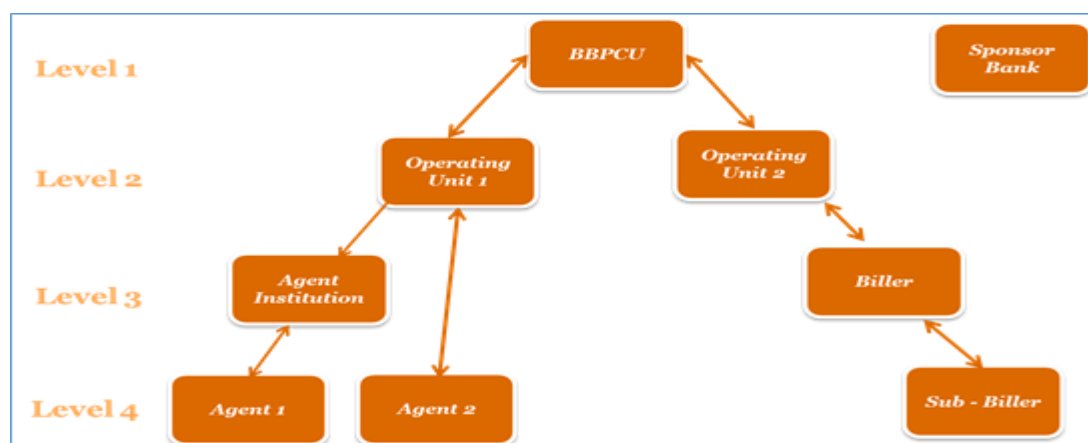


Figure 3: Participants of BBPS

3.3 Mode of Payments

All modes of payments will be accepted at BBPS enabled service points, i.e.:

1. Cash
8. Debit Cards, Credit Cards,
9. Online / Net-banking (not at physical outlet)
10. IMPS
11. Prepaid Instruments (Wallets and Cards)

Note: Due to complexities involved in handling cheques, Bill payment by cheque mode will not be a part of BBPS to begin with. It may be considered later. Since all BBPOU agent outlets may not be in a position to accept all modes of payments a minimum number of modes of payment, e.g., cash and / or card transactions, should be made available at each physical outlet. BBPOUs accepting digital payments will accept minimum of card and online payments.

Card acceptance infrastructure should be rolled out at the BBPS outlets within a reasonable period not exceeding one year from the launch of BBPS.

Physical outlets will have to mandatorily accept the payment mode mentioned below:

1. Cash
2. Card (within a reasonable period not exceeding one year from the launch of BBPS)

3.4 ON-US and OFF-US Transactions

The transactions are broadly divided in two categories:

1. **ON-US Transactions:** These are the transactions in which the agent and the biller are linked to the same BBPOU, or the customer is making a payment through an online portal provided by a BBPOU which is also linked to the biller. These transactions will not pass through the BBPCU and the settlement will be carried out at the BBPOU level itself. However, some messaging standards will be applicable for the purpose of complaint tracking.
12. **OFF-US Transactions:** These are the transactions in which agent and biller are not associated with the same BBPOU. The agent / agent institution, which initiates the transaction is linked to one operating unit (BBPOU1) and biller is linked to another

operating unit (BBPOU2). In such a scenario, the BBPOU1 will pass the transaction to the BBPCU which will then pass the transaction to the respective BBPOU. If the biller is linked to multiple BBPOUs then the transaction would be passed to the default BBPOU of the biller. In addition to this the below mentioned online transactions are also considered OFF-US transactions:

If the customer makes a bill payment using the online portal provided by an agent institution / BBPOU where the agent and biller are not linked to the same BBPOU.

In case the BBPOU has not on-boarded any agent or biller but is still part of BBPS. In this scenario the payment will be considered an OFF-US transaction.

3.5 Different Types of Biller Integration

BBPS transactions can happen in three possible modes:

1. **Online Billers:** When biller is connected online to the BBPOU2 and all the communications between biller and BBPOU2 is happening on real-time basis. At the time of bill fetch, BBPOU2 will pass the required information to the biller on real-time and also get the response in real-time. BBPOU2 will confirm the bill payment only after getting confirmation from respective biller.
13. **Offline Billers (A):** When the biller is not connected to BBPOU2 on real-time basis and provides a file of expected bills at a pre-determined / regular frequency to BBPOU2. If there is any bill fetch request for this biller then the information is fetched from the file maintained by BBPOU2. There is no real-time communication happening between the BBPOU2 and the biller.
14. **Offline Billers (B):** When the biller is neither connected to BBPOU2 on real-time basis nor provides any file of expected bills to BBPOU2. A bill fetch request is not initiated for this scenario and BBPOU2 receives all the bill payment requests for the concerned biller and settles with the biller at a later stage during the settlement cycle. This scenario is identical to quick pay scenario offered by various telecom service providers at present.

Corporate payments and payments through standing instructions also occur through the offline mode. These will be discussed separately in this document.

3.5.1 Online Billers

Online transactions are transactions which are happening on a real-time basis in BBPS. Responses for these transactions are also received on a real-time basis.

S. No.	Scenario Description	Payment Mode	Transaction Type	Messages	Entities Involved
1	A customer goes to an agent and requests for a	Cash or ON-US cheques	ON-US	Bill fetch request	Agent / Agent Institution, BBPOU1, Biller
				Bill fetch	Biller, BBPOU1, Agent /

	bill to be paid		OFF-US	response	Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, Biller
				Payment confirmation	Biller, BBPOU1, Agent / Agent Institution
				Bill fetch request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2, Biller
				Bill fetch response	Biller, BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2, Biller
				Payment confirmation	Biller, BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
2	A customer goes to an agent and requests for a bill to be paid	Debit / Credit / Prepaid Card	ON-US	Bill fetch request	Agent / Agent Institution, BBPOU1, Biller
				Bill fetch response	Biller, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, Biller
				Payment confirmation	Biller, BBPOU1, Agent / Agent Institution
			OFF-US	Bill fetch request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2, Biller
				Bill fetch response	Biller, BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2, Biller
				Payment confirmation	Biller, BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
3	A customer goes to an agent and requests for a bill to be paid	Mobile wallet / IMPS / PPI	ON-US	Bill fetch request	Agent / Agent Institution, BBPOU1, Biller
				Bill fetch response	Biller, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, Biller
				Payment confirmation	Biller, BBPOU1, Agent / Agent Institution
			OFF-US	Bill fetch request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2, Biller
				Bill fetch response	Biller, BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2, Biller
				Payment confirmation	Biller, BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution

Table 1: Different payment scenarios in online mode for assisted transactions

In Scenario 2 the agent will swipe the debit, prepaid or credit card at its POS terminal. Once the POS transaction is successfully completed, the agent will initiate the payment message in BBPS. The agent will have to provide the authorization code twice for (masked for the second input) confirming successful card payment while initiating the payment request message in the BBPS.

Scenario 3 is where a customer wants to make a bill payment using IMPS or a prepaid mobile wallet. As actual debit and credit is happening out of the BBPS, the agent will initiate the payment message once the debit transaction initiated through IMPS or mobile wallet is successfully completed.

3.5.2 Offline Billers

Offline modes have been divided into (A) and (B) modes based on whether there is a file of expected bills provided by the biller, as stated in the beginning of this section. The use cases are exactly the same as that for online modes. The only difference from online modes is that no communication happens between the BBPOU2 and the biller on a real-time basis and all the bill related information is provided by the respective biller BBPOU2 at the time of bill fetch. The net settlement between the biller and BBPOU2 is done at a later stage as per the settlement terms and conditions agreed between the biller and BBPOU2.

S. No.	Scenario Description	Payment Mode	Transaction Type	Messages	Entities Involved
1	A customer goes to an agent and requests for a bill to be paid	Cash or ON-US cheques	ON-US	Bill fetch request	Agent / Agent Institution, BBPOU1
				Bill fetch response	BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1
				Payment confirmation	BBPOU1, Agent / Agent Institution
			OFF-US	Bill fetch request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Bill fetch response	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
2	A customer goes to an agent and requests for a bill to be paid	Debit / Credit / Prepaid Card	ON-US	Bill fetch request	Agent / Agent Institution, BBPOU1
				Bill fetch response	BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1
				Payment confirmation	BBPOU1, Agent / Agent Institution
			OFF-US	Bill fetch request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Bill fetch response	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Payment	BBPOU2, BBPCU,

				confirmation	BBPOU1, Agent / Agent Institution
3	A customer goes to an agent and requests for a bill to be paid	Mobile wallet / IMPS / PPI	ON-US	Bill fetch request	Agent / Agent Institution, BBPOU1
				Bill fetch response	BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1
				Payment confirmation	BBPOU1, Agent / Agent Institution
			OFF-US	Bill fetch request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Bill fetch response	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
				Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution

Table 2: Different payment scenarios in offline mode (A) for assisted transactions

Offline mode (B) is the scenario in which the biller is neither connected to BBPOU2 on a real-time basis nor has provided any file of expected bills to BBPOU2. This scenario is identical to the Quick Pay option provided by most of the telecom service providers at present. BBPOU2 will receive and confirm the payment on behalf of the biller on a real-time basis and settlement between the biller and BBPOU2 is done at a later stage as per the settlement terms and conditions agreed between the biller and BBPOU2.

S. No.	Scenario Description	Payment Mode	Transaction Type	Messages	Entities Involved
1	A customer goes to an agent and requests for a bill to be paid	Cash or ON-US cheques	ON-US	Payment request	Agent / Agent Institution, BBPOU1
				Payment confirmation	BBPOU1, Agent / Agent Institution
			OFF-US	Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
2	A customer goes to an agent and requests for a bill to be paid	Debit / Credit / Prepaid Card	ON-US	Payment request	Agent / Agent Institution, BBPOU1
				Payment confirmation	BBPOU1, Agent / Agent Institution
			OFF-US	Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution
3	A customer goes to an agent and requests for a bill to be paid	Mobile wallet / IMPS / PPI	ON-US	Payment request	Agent / Agent Institution, BBPOU1
				Payment confirmation	BBPOU1, Agent / Agent Institution
			OFF-US	Payment request	Agent / Agent Institution, BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1, Agent / Agent Institution

Table 3: Different payment scenarios in offline mode (B) for assisted transactions

S. No.	Scenario Description	Payment Mode	Transaction Type	Messages	Entities Involved
				Payment confirmation	BBPOU1
			OFF-US	Bill fetch request	BBPOU1, BBPCU, BBPOU2
				Bill fetch response	BBPOU2, BBPCU, BBPOU1
				Payment request	BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1
				Payment confirmation	BBPOU2, BBPCU, BBPOU1

Table 4: Different payment scenarios in offline mode (A) for self-service transactions

S. No.	Scenario Description	Payment Mode	Transaction Type	Messages	Entities Involved
1	The customer makes a bill payment request through the BBPOU portal or is directed to a BBPOU portal by the centralized BBPS portal	Card / Internet Banking / PPI	ON-US	Payment request	BBPOU1
				Payment confirmation	BBPOU1
			OFF-US	Payment request	BBPOU1, BBPCU, BBPOU2
				Payment confirmation	BBPOU2, BBPCU, BBPOU1

Table 5: Different payment scenarios in offline mode (B) for self-service transactions

In all the above scenarios, the customer facing flow will remain the same. However, there would be tagging of transactions to bifurcate them on the basis of segments.

3.6 Types of Bill Payments

Bill payments transactions may be categorized into the following modes

Transaction Type	Description
Assisted	Under this model, a customer will go to the agent outlet and the bill payment transaction will be initiated by an agent. Agents can accept payments from customers through cash, cards, ON-US cheques, IMPS and mobile wallets; but it is envisaged that most of these transactions will happen in cash.
Self-service	This model will be preferable for customers having access to the internet. Under this model, bill payment transactions will be initiated by individual customers through the ATM, kiosk, online channel, etc. and mode of payment will be credit card, debit card, internet banking, IMPS, mobile wallets, etc. Bills through BBPCU may be paid through portals operated by BBPOUs.
Corporate Payments	Will be set of transactions that will be done for corporate segments. These will typically be done in bulk and bill presentment scenarios.

Table 6: Transaction type and description

4 Transaction Process Flows

4.1 ON-US Transaction Flow

4.1.1 Online Mode

The agent would get the bill details of a customer on real-time basis from the respective biller. Once the bill fetch part is done the second part is initiated and is related to the actual payment.

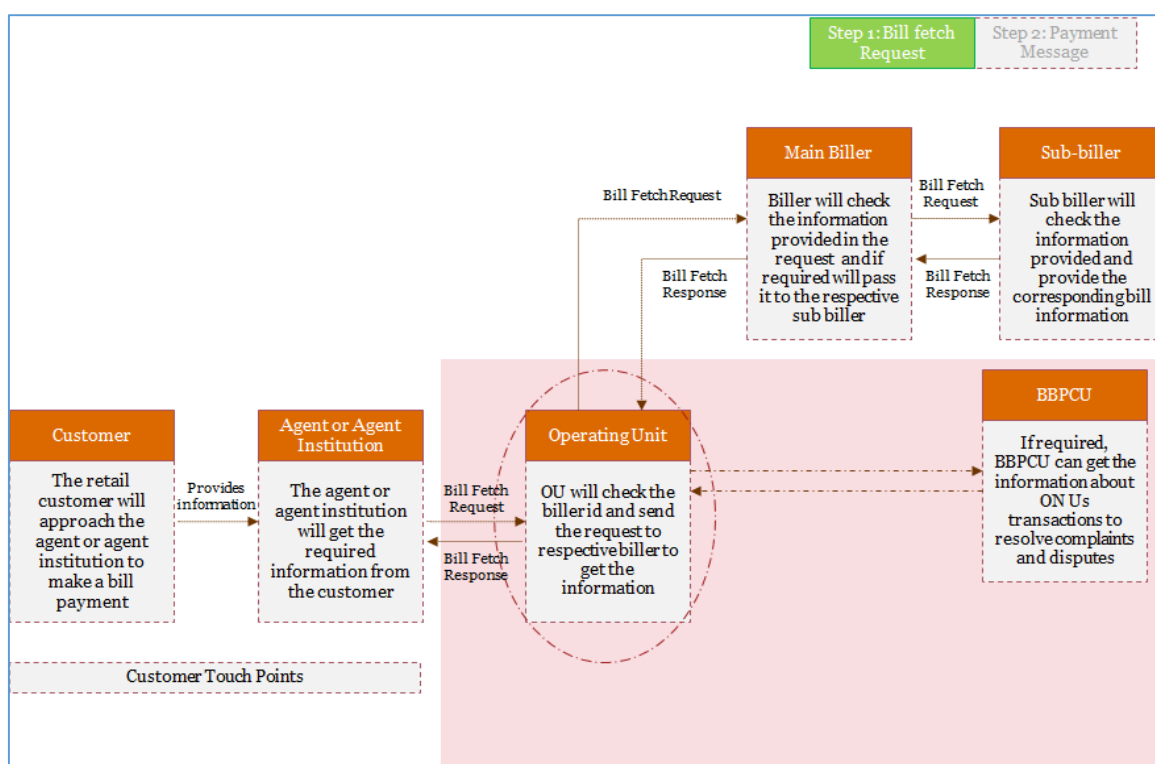


Figure 4: Process flow - ON-US transaction (Bill Fetch Message) - online mode

4.1.1.1 Bill Fetch Message:

Step 1: The agent will get the required information like Biller name, Customer ID and Customer name from the customer and initiate the bill fetch request from his end. The transaction will go to the BBPOU to which this particular agent / agent institution is linked. In case of ON-US transactions, both agent / agent institution and biller are linked to the same BBPOU.

Step 2: The BBPOU will pass the bill fetch request to the respective biller with all the mandatory details required by the biller. The biller will fetch the bill details.

Step 3: The biller will pass the bill details to the BBPOU.

Step 4: The BBPOU will pass the bill details to the respective agent who has initiated the bill fetch request.

On receiving the bill details, the Agent / Agent Institution will verify the amount and other details with the customer. If the information is correct then agent will also confirm the mode of payment with the customer before initiating the payment message.

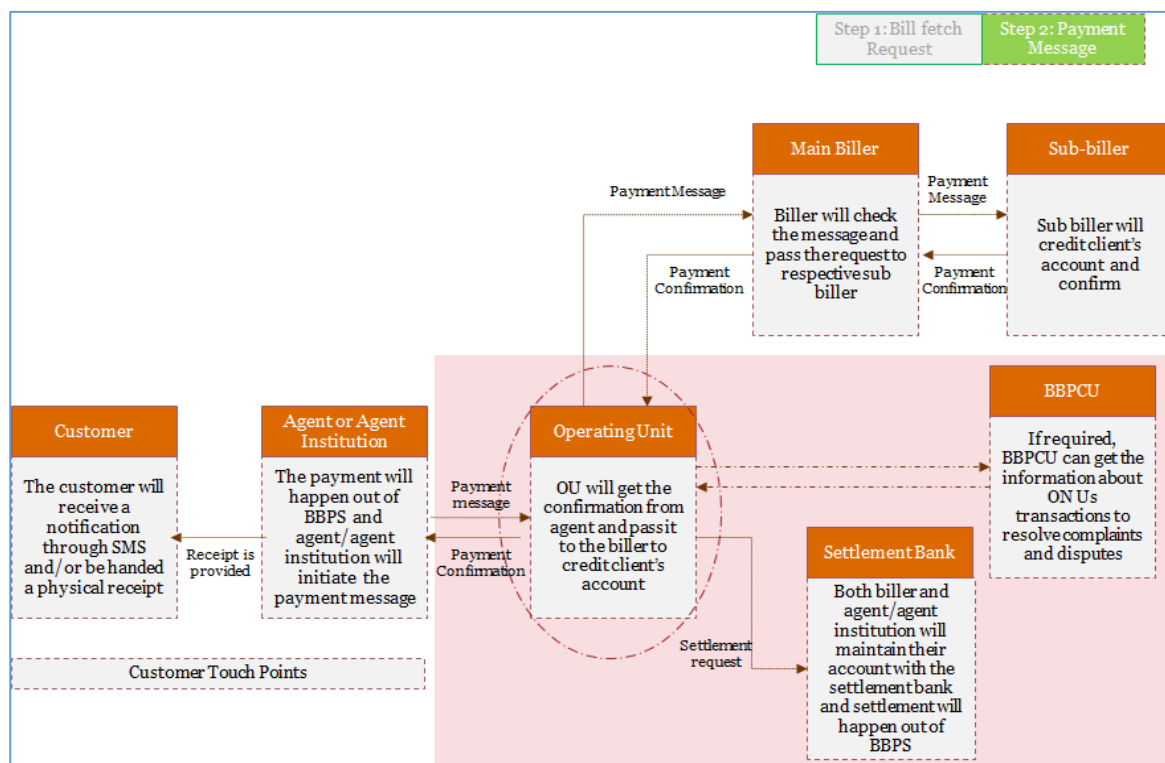


Figure 5: Process flow - ON-US transaction (Payment Message) - online mode

4.1.1.2 Payment Message: (Illustrative for Cash as payment mode)

Step 1: Once the agent has collected money from the customer, he will initiate a message from his end. This would be a confirmation from the agent to the BBPOU that he has received the money and the funds may be credited to the respective biller.

Step 2: On receiving this message from the agent / agent institution, the BBPOU will deduct the funds from the pre-paid wallet of the agent / agent institution maintained with the BBPOU.

Step 3: The BBPOU will acknowledge receipt of the message to the agent / agent institution. The BBPOU will simultaneously notify the biller and credit the funds to the respective biller as per the BBPOU and biller arrangement.

Step 4: On receiving this confirmation, the agent / agent institution will print the receipt and provide it to the customer.

The actual debit and credit will happen outside the BBPS, and only payment information will flow between the respective parties involved in the BBPS.

4.1.2 Offline Mode (A)

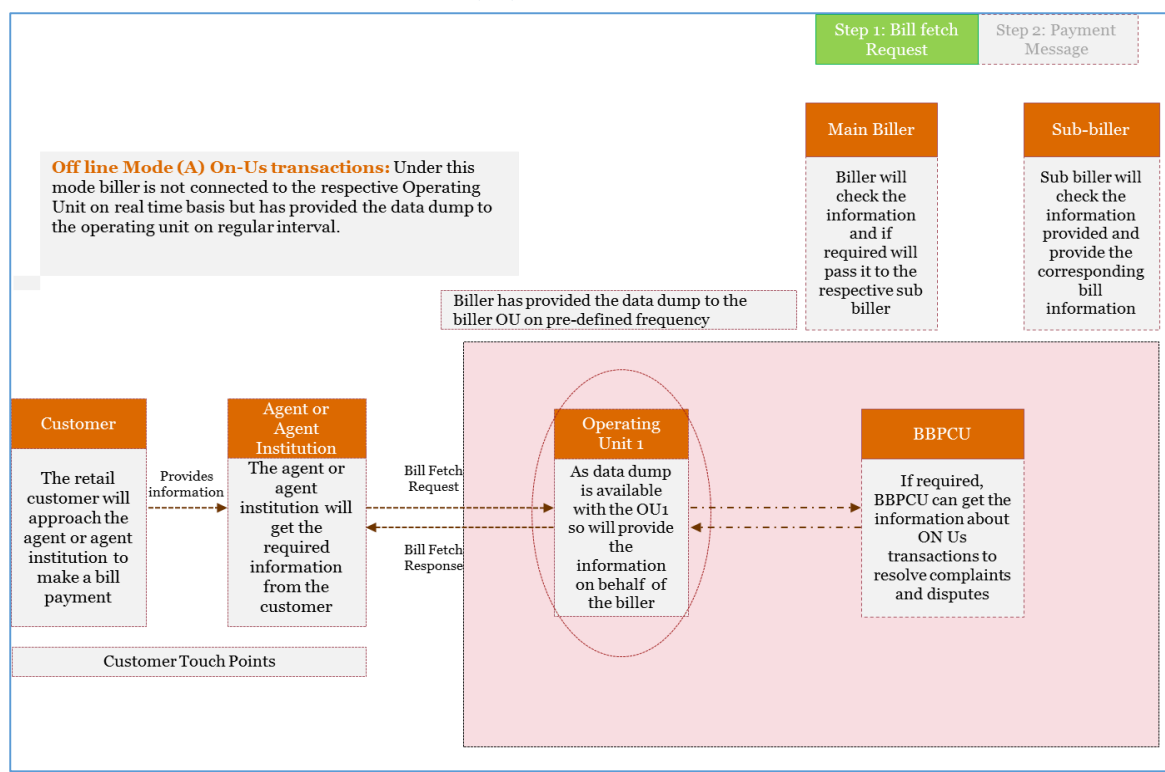


Figure 6: ON-US transaction (Bill Fetch message) - offline mode (A)

4.1.2.1 Bill Fetch Message:

Step 1: The agent will get the required information like Biller name, Customer ID and Customer name from the customer and initiate the bill fetch request from his end. The transaction will go to the BBPOU to which this particular agent / agent institution is linked. In case of ON-US transactions, both agent / agent institution and biller will be linked to the same BBPOU.

Step 2: As the biller has provided the data dump to the operating unit, the BBPOU will check the bill details related to the information provided by the agent / agent institution.

Step 3: BBPOU will send back the details to the respective agent / agent institution who has initiated the transaction.

On receiving the bill details, the agent will verify the amount and other details with the customer. If the information is correct the agent will also confirm the mode of payment with the customer before initiating the payment message.

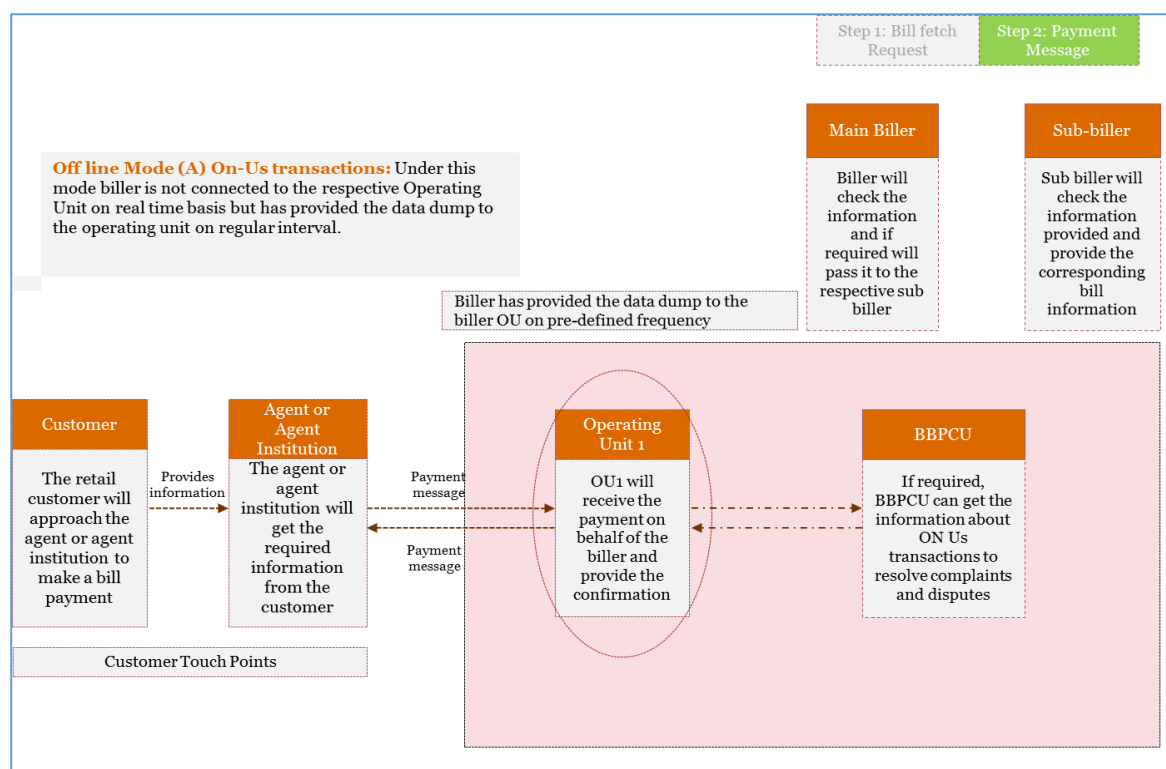


Figure 7: ON-US transaction (Payment message) - offline mode (A)

4.1.2.2 Payment Message: (Illustrative for Cash as payment mode)

Step 1: Once the agent has collected money from the customer, he will initiate a message from his end. This would be a confirmation from the agent to the BBPOU that he has received the money and the funds may be credited to the respective biller.

Step 2: As the biller is not connected real time to the operating unit, the BBPOU will respond to the message on behalf of the biller.

Step 3: The biller BBPOU will send the confirmation to respective agent or agent institution, and a receipt will be generated and provided to the customer.

The actual debit and credit will happen outside the BBPS and the payment message would flow between the respective parties involved in the BBPS.

4.1.3 Offline Mode (B)

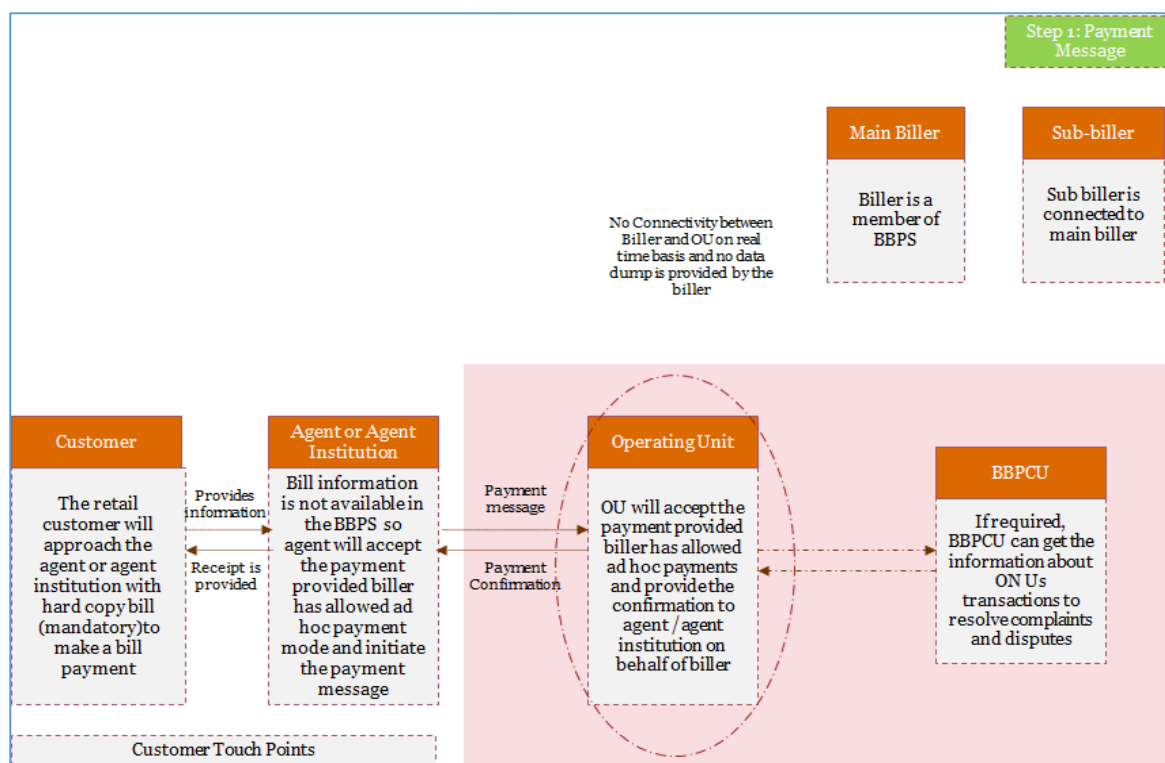


Figure 8: ON-US transaction - offline mode (B)

4.1.3.1 Payment Message: (Illustrative for Cash as payment mode)

A bill fetch request is not initiated for this scenario.

Step 1: The agent will check the hard copy bill provided by the customer and initiate the transaction based upon the information provided in the bill.

Step 2: The BBPOU will accept the payment on behalf of the biller and provide the confirmation to the respective agent or agent institution, who has initiated the payment message.

Step 3: The agent will print the receipt on receiving the confirmation and provide it to the customer.

4.2 OFF-US Transaction Flow

These are the transactions in which agent / agent institution and biller are not linked to the same Operating Unit. The agent side BBPOU will pass these transactions to BBPCU which would then pass them on to the BBPOU linked to the biller. These transactions will be divided into bill fetch and bill payment transactions, similar to ON-US transactions as discussed earlier.

4.2.1 Online Mode

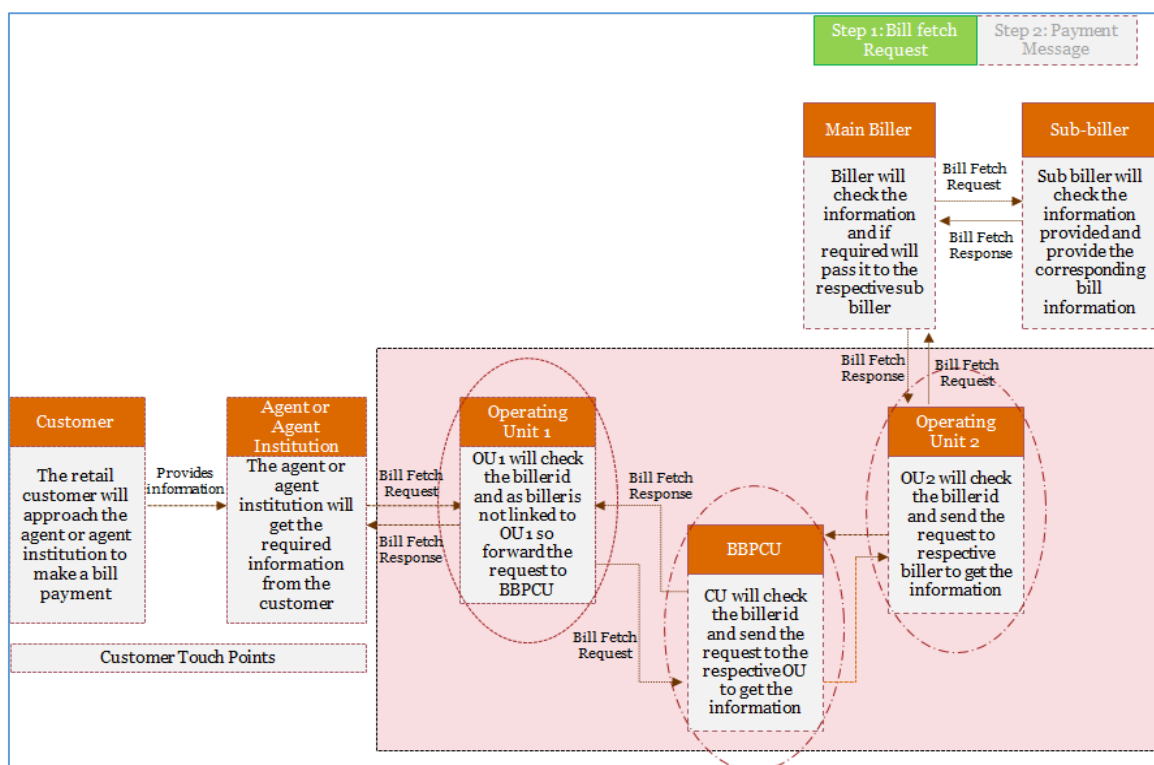


Figure 9: OFF-US transaction (Bill Fetch message) - online mode

4.2.1.1 Bill Fetch Message:

Step 1: The agent will get the required information like Biller name, Customer ID and Customer name from the customer and initiate the bill fetch request from his end. The transaction will go to the Operating Unit (BBPOU1) to which this particular agent / agent institution is linked.

Step 2: As the biller is not linked to BBPOU1, BBPOU1 will pass the transaction to the BBPCU.

Step 3: BBPCU on receiving the bill fetch request will check the biller ID and pass it to the respective Operating Unit (BBPOU2). If the biller is associated with multiple operating units, the BBPCU will pass the transaction to the default BBPOU of the biller.

Step 4: BBPOU2 will pass the bill fetch request to the biller with all the mandatory details required by the biller.

Step 5: The biller will fetch the bill details and pass the bill details to its operating unit (BBPOU2).

Step 6: BBPOU2 will pass the bill details to the BBPCU.

Step 7: BBPCU will pass the bill details to BBPOU1.

Step 8: BBPOU1 will pass the bill details to the respective agent who has initiated the bill fetch request.

Note: While the BBPOU1 will only facilitate this leg of the transaction by passing the bill details to the respective agent, the accountability for interacting with the biller to complete the bill fetch request successfully will lie with the BBPOU2. The BBPOU2 will also store information on biller-specific details including the modes of payment accepted by the biller, whether late payments are accepted through the system, and whether ad hoc payments are accepted.

On receiving the bill details, the agent will verify the amount and other details with the customer. If the information is correct, the agent will confirm the mode of payment with the customer before initiating the payment message.

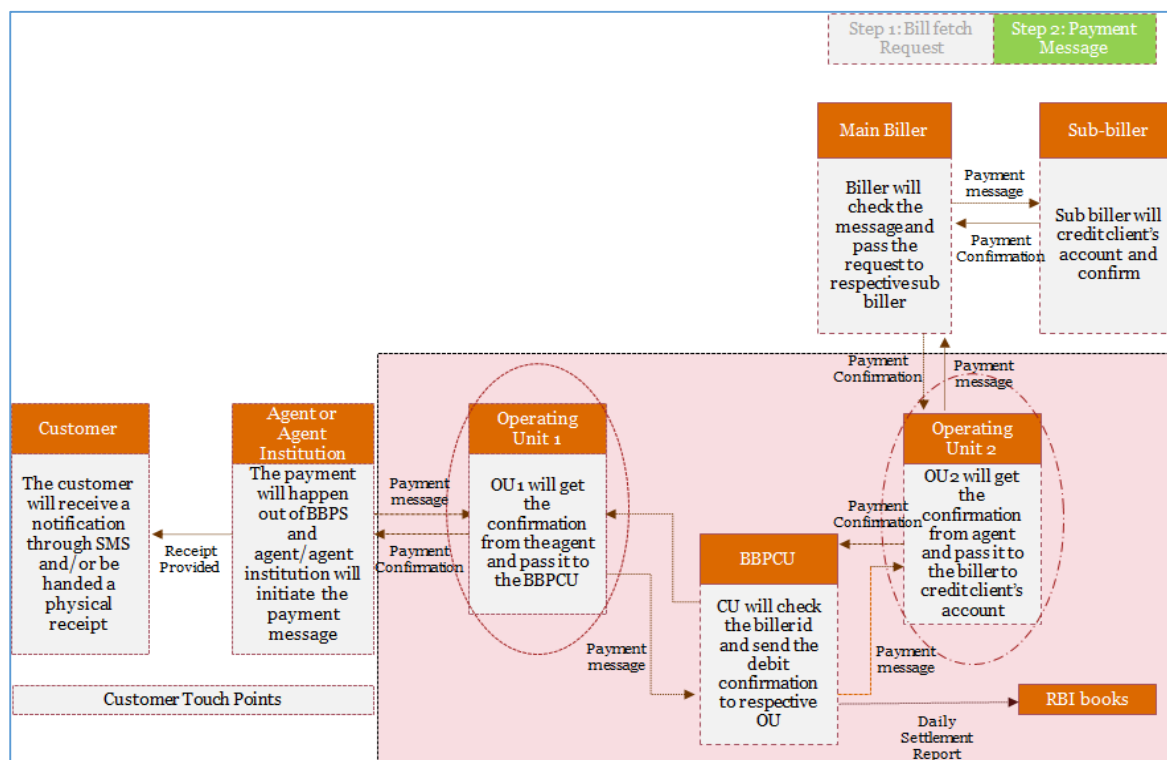


Figure 10: OFF-US transaction (Payment message) - online mode

4.2.1.2 Payment Message: (Illustrative for Cash as payment mode)

Step 1: Once the agent has collected money from the customer, he will initiate a message from his end. This would be a confirmation from the agent to the BBPOU that he has received the money and the funds may be credited to respective biller.

Step 2: On receiving this message from the agent / agent institution, the BBPOU1 will pass a message to the BBPCU confirming that it has received the funds and the biller's account may be credited accordingly.

Step 3: BBPCU will pass the message to the operating unit (BBPOU2) to which the biller is linked, confirming that the customer has paid the bill.

Step 4: BBPOU2 will acknowledge receipt of the message to BBPCU. BBPOU2 will simultaneously notify the biller and credit the funds to the respective biller as per the BBPOU2 and biller arrangement (at no cost it can be more than T+2 days).

Step 5: On receiving confirmation from BBPOU2, BBPCU will pass this confirmation to BBPOU1 on a real time basis.

Step 6: BBPOU1 will pass this confirmation to the respective agent / agent institution. On receiving this confirmation, the agent will print the receipt and provide it to the customer.

As in the fetch leg of the transaction, BBPOU1 will only facilitate this leg of the transaction by passing the confirmation to the respective agent, and the accountability for interacting with the biller to ensure that the customer's account with the biller is credited will lie with the BBPOU2.

The actual debit and credit will happen out of the BBPS and only a payment information message would flow between the respective parties involved in the BBPS. The net settlement is done by the BBPCU between all the BBPOUs linked to BBPS maximum within T+1, where T is the transaction date.

4.2.2 Offline Mode (A)

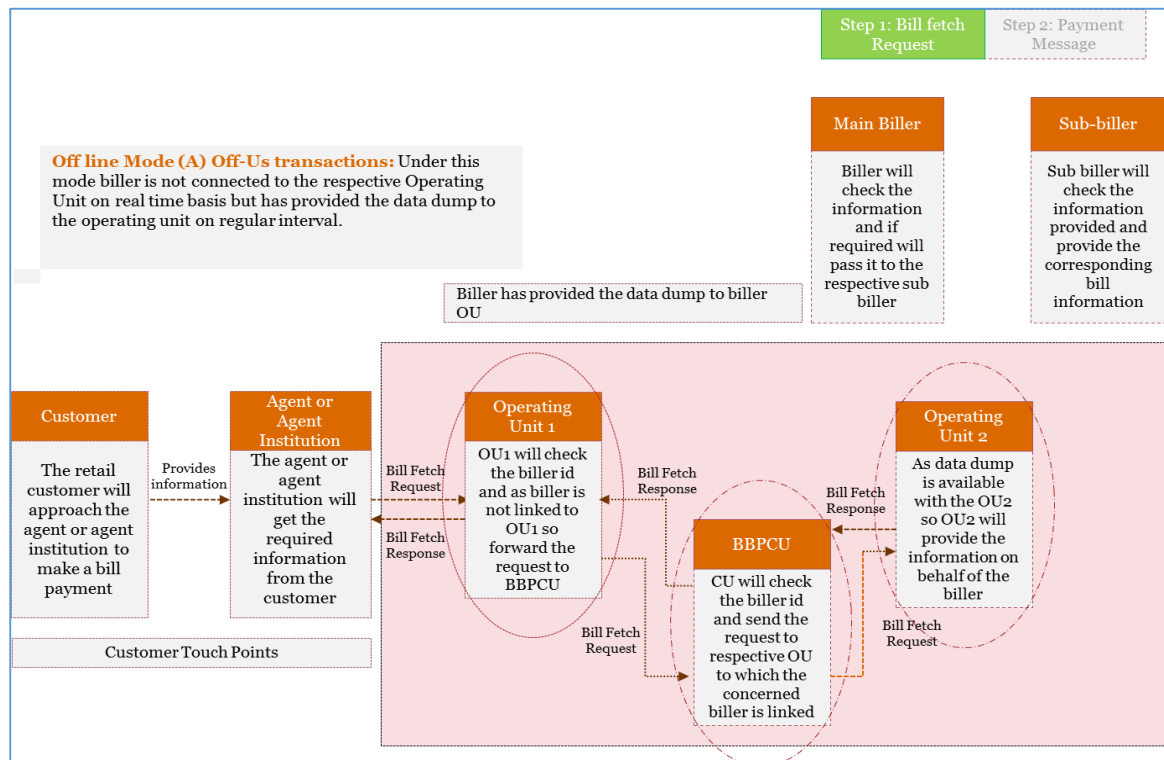


Figure 11: OFF-US transaction (Bill fetch message) - offline mode (A)

4.2.2.1 Bill Fetch Message:

Step 1: The agent will get the required information like Biller name and Customer ID from the customer and initiate the bill fetch request from his end. The transaction will go to the BBPOU (BBPOU1) to which this particular agent / agent institution is linked.

Step 2: As the biller is not linked to BBPOU1, BBPOU1 will pass the transaction to the BBPCU.

Step 3: BBPCU on receiving the bill fetch request will check the biller ID and pass it to the respective Operating Unit (BBPOU2). If the biller is associated with multiple operating units, the Central Unit will pass the transaction to the default operating unit of the biller.

Step 4: As the biller is not connected on a real-time basis, BBPOU2 will check the records in the provided data dump and send back the response to the BBPCU.

Step 5: The BBPCU will pass the bill details to BBPOU1.

Step 6: BBPOU1 will pass the bill details to the respective agent who has initiated the bill fetch request.

On receiving the bill details, the agent will verify the amount and other details with the customer. If the information is correct, the agent will confirm the mode of payment with the customer before initiating the payment message.

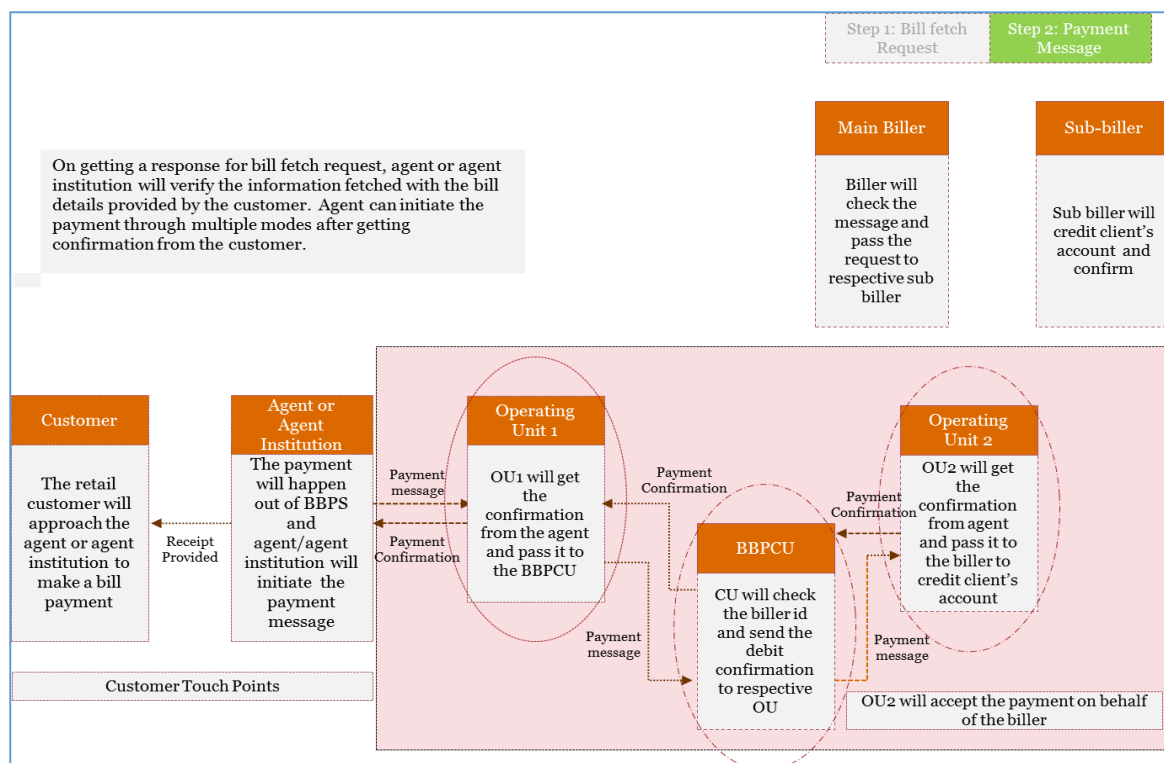


Figure 12: OFF-US transaction (Payment message) - offline mode (A)

4.2.2.2 Payment Message: (Illustrative for Cash as payment mode)

Step 1: Once the agent has collected money from the customer, he will initiate a message from his end. This would be a confirmation from the agent to the BBPOU that he has received the money and funds may be credited to the respective biller.

Step 2: On receiving this message from the agent / agent institution, BBPOU1 will pass a message to the BBPCU confirming that it has received the funds and the biller's account may be credited accordingly.

Step 3: BBPCU will pass the message to the operating unit (BBPOU2) to which the biller is linked, confirming that the customer has paid the bill.

Step 4: As the biller is not connected to the Operating Unit on a real time basis, the biller BBPOU will acknowledge the payment message on behalf of the biller. The biller BBPOU will provide the confirmation and will carry the responsibility of settling the funds with the respective biller at a later stage (at no cost it can be more than T+2 days).

The actual debit and credit will happen out of the BBPS and only the payment information will flow between the respective parties involved in the BBPS.

4.2.3 Offline Mode (B)

As in this mode, the biller is neither available online and nor has provided any data dump to the operating unit, the agent can only accept the payment if the biller has allowed ad hoc payments. There will not be any bill fetch request in this mode and it is mandatory for the customer to provide the hard copy bill to the agent to initiate the bill payment transaction. A bill fetch request is not initiated for this scenario.

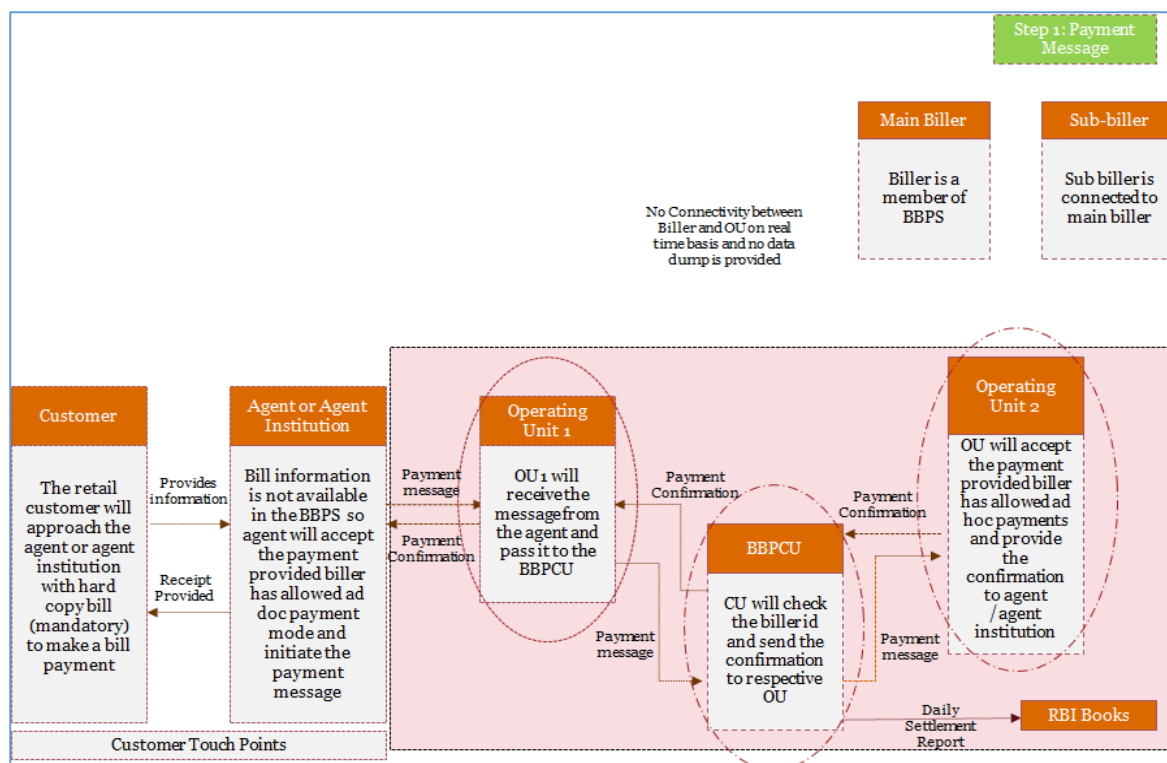


Figure 13: OFF-US transaction - offline mode (B)

Step 1: The agent will check the hard copy bill provided by the customer and initiate the transaction based upon the information provided in the bill. As this transaction is related to a biller not linked to BBPOU1, BBPOU1 will pass this transaction to the central unit.

Step 2: The BBPCU will check the biller ID and will pass it to the respective operating unit. If the biller is linked to multiple operating units, the BBPCU will pass the transaction to the default BBPOU of the biller.

Step 3: The biller BBPOU is not connected to the biller on a real time basis and so will accept the payment message on behalf of the biller provided the biller has allowed ad hoc payments.

Step 4: Based on the biller BBPOU's acceptance, a receipt will be generated by BBPOU1 and provided to the customer. The responsibility to settle the transaction offline with the biller at a later stage will be with the biller BBPOU (at no cost it can be more than T+2 days).

4.3 Settlement Process Flow

While ON-US transactions may be settled between the BBPOU and the biller, OFF-US transactions are settled through RBI as depicted below:

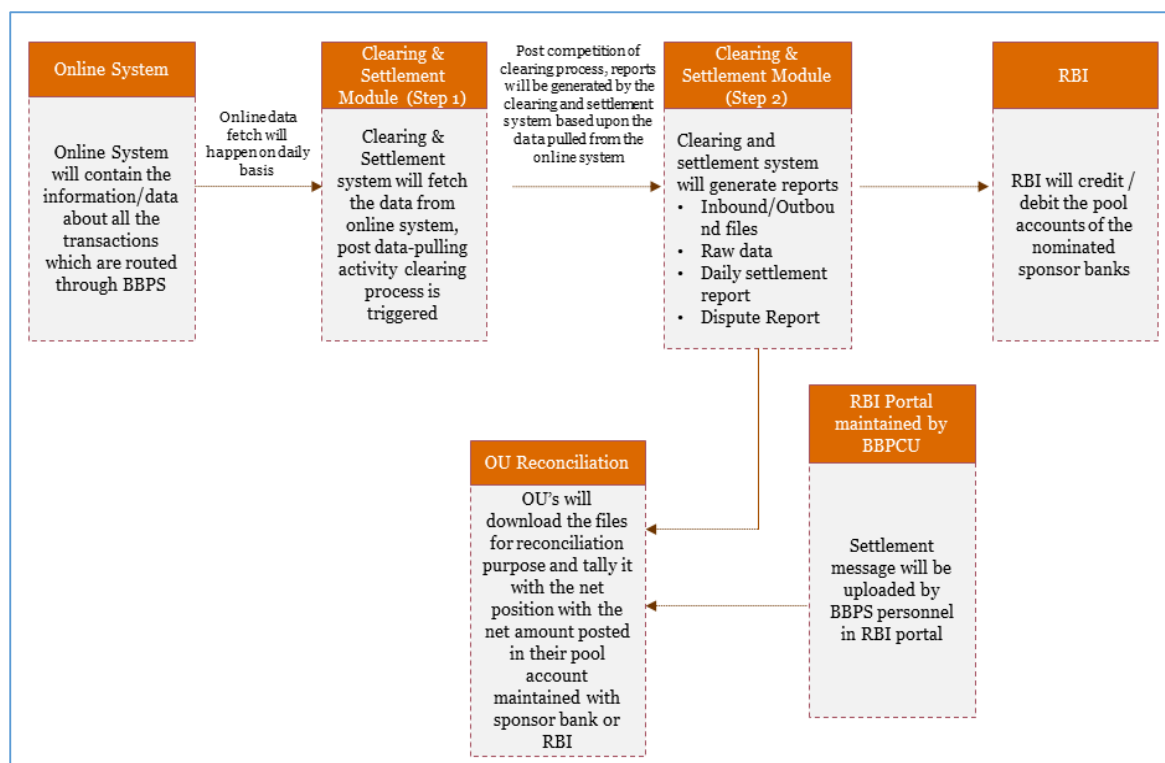


Figure 14: OFF-US transaction settlement process

Step 1: The online system will have a specified cut-over time on a daily basis. There could be multiple settlements in a day. These could also be for specific products, particular billers, category of billers, etc.

Step 2: Post cut-over the entire transaction dump specific to the BBPS module will be fetched from the online system to the clearing and settlement system.

Step 3: Once the data is fetched, BBPCU personnel will trigger the clearing process.

Step 4: The system will generate inbound / outbound files, raw data files, and daily settlement reports for all BBPOUs and for BBPCU users. A consolidated report for RBI books will be generated for the BBPCU user only.

Step 5: Settlement files will be posted by the maker and approved by the checker of the BBPCU operations team on the RBI portal within the specified time.

Step 6: BBPOUs who are banks will receive the credit in their pool accounts, while BBPOUs who are non-banking entities will liaise with their sponsor bank for fund transfers to their specific account.

Step 7: BBPOUs will credit funds to respective biller accounts.

In BBPS, “Net Settlement” means netting off all amounts payable to and receivable by a participant, and settling for the net amount that is either payable to or receivable by that participant. By extension, “Gross Settlement” would mean settling separately for the gross amount payable and gross amount receivable by a particular participant (real-time gross settlement would be one-to-one settlement as transactions take place). The net settlement would take place separately for:

1. Gross amount of bills, without deducting or adding any charges / fees, interchange, taxes, etc.). The settlement will take place for the net amount that is payable to or receivable by each participant.
2. Separate settlement for the net amount of fees, charges, interchange and taxes that is payable to or receivable from each participant.

4.4 Reversal Transaction Flow

1. During the course of bill payment, there might be a failure (due to connection time-out, non-delivery of acknowledgment or response not received) at any leg of the transaction which may result in initiating a payment message but not receiving an acknowledgement message for the same.
15. An acknowledgement message is a confirmation from the recipient to the sender of a message and will be a part of each leg of the payment transaction message. Failure to receive an acknowledgement from any participant in BBPS for a bill payment transaction will result in a reversal where the entire transaction will be reversed and an intimation will be sent to the origination point to return the amount to the customer through the same payment mode.
16. For a reversal process, the initiating party is the entity which has initiated a leg of the bill payment transaction but has not received its acknowledgement.
17. For example, an acknowledgement failure between BBPCU and BBPOU2 during a bill payment request, as shown below, will result in BBPCU initiating the reversal process.
18. The details of such scenarios have been provided in CMS and DMS: Edge Case Scenarios in Annexure.

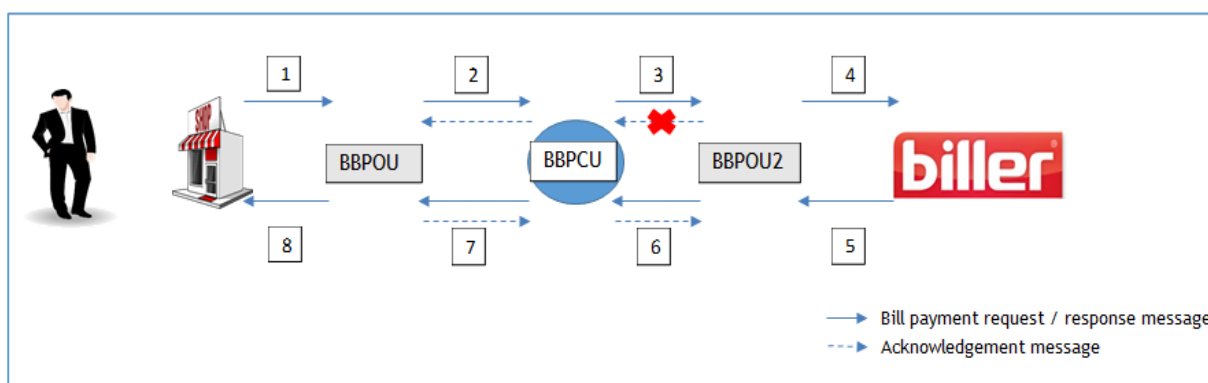


Figure 15: Sample Reversal Scenario

4.5 Refund Transaction Flow

1. Request for the refund will be initiated by the customer BBPOU (BBPOU1) in DMS and the actual refund will be initiated by the biller BBPOU (BBPOU2) for a bill payment transaction which has been previously cleared and settled.
2. This might be a result of the complaint or dispute resolution process or a situation when a settled transaction needs to be reversed.
3. BBPOU2 will process the refund of the bill amount received through the agent assisted or online payment mode.
4. For a refund process, the direction of interchange fee can be just the opposite of that particular bill payment process. However the system will have the capability to not reverse the interchange fees if agreed.

5 Information Security Requirements

5.1 Broad-based Security Architecture

The Bharat Bill Payment System will deal with the confidential information of the customers. It is thus imperative that the communication channel between the participants is secure and information flow is happening in most secure and encrypted format. Any breach in client confidentiality or security can have a negative impact on the reputation of BBPS.

It is imperative that the communication between agents and BBPOUs happen over a secure channel considering sensitive information that will flow between these entities. Since this communication will be entirely web traffic over TCP Port 80, it is required that encryption controls are implemented to prevent malicious users from stealing / sniffing sensitive information. Transport Layer Security (TLS) and its predecessor, Secure Sockets Layer (SSL) will provide security and data integrity for communications over TCP/IP networks such as the Internet.

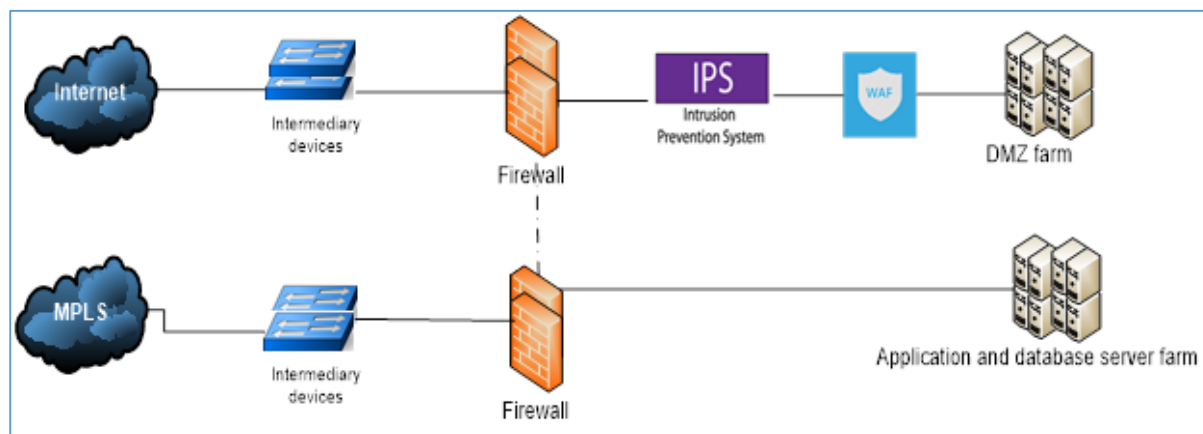


Figure 16: Illustrative network architecture

The Architecture introduces two separate sets of redundant firewalls. The architecture has been designed considering the following:

1. Internet facing servers will be protected by the Internet firewall creating an Internet DMZ.
19. All the Intranet servers will be protected by the Intranet firewall creating an Intranet DMZ. All MPLS traffic, for example, from the BBPOUs, directed towards the application servers will be filtered by the Intranet facing firewalls only.

5.1.1 Intrusion Prevention System

Internet based applications are very popular today and are famous targets for the attackers. This is the reason that Intrusion Prevention Systems (IPS) has become an extremely important part of robust and secure network. The IPS should be deployed in inline mode as shown in the diagram above. Deploying in Inline mode helps the IPS detect and prevent attacks in real time.

5.1.2 Web Application Firewall

This is an appliance with next generation filtering capability to secure websites and / or web-based applications against attacks such as session hijacking, buffer overflows, SQL injection, cross-site scripting (XSS) and other OWASP Top 10 web application vulnerabilities. The WAF should be deployed in inline mode as shown in the diagram above.

5.1.3 Encryption of XML messages

BBPCU will only be able to communicate with BBPOUs participating in BBPS. There would not be any direct communication between BBPCU, agent, agent institution and biller. BBPCU will act as a server whereas BBPOUs will act as a client. Operating Units will be responsible to generate a sign on message after every successful TCP socket connection.

The type of messages that will flow between the entities are XML messages. XML provides the facility to encrypt specific tags within a particular message; accordingly, tags carrying customer-sensitive data including PIN, passwords and account / card numbers will be transported only in encrypted form, but tags carrying other information including customer name, transaction history (time stamp, authorization code etc.) and Biller ID may be transported in unencrypted form.

For achieving confidentiality and privacy of these messages, a combination of symmetric and asymmetric key encryption will be adopted. Asymmetric encryption may be used initially to encrypt symmetric keys. These interim keys are then used to encrypt the actual data. These keys are discarded after every session is terminated and then a fresh pair of keys is generate. Due to this, if these interim keys are ever compromised, only the data that was sent in that particular session will be exposed.

This functionality will work in the following ways:

Step 1: The sender will encrypt the interim key with a public key which is known to everyone.

Step 2: The receiver will decrypt this using the private key only known to the receiver. The receiver thus gets the interim key now. Note that the data exchange has not yet been initiated.

The data exchange begins at this step.

Step 3: The sender will encrypt the data now using the interim key.

Step 4: The receiver will decrypt the data using the interim key.

Steps 1 and 2 thus use asymmetric cryptography, while Steps 3 and 4 use symmetric cryptography.

It is not possible for an outsider to get hold of the interim key since interim key is encrypted and can only be decrypted using receivers private key which in turn is only known to the receiver.

Hashing will be carried out at the source of the message, i.e., at the agent level, to ensure non-repudiation of data. The BBPS application should have a built-in functionality to hash the message in a way that integrity is maintained throughout the transition of message from the agent to the BBPCU and back.

SHA-128 bits or higher may be used as the hashing algorithm in the BBPS environment.

5.1.4 Compliance Requirements

5.1.4.1 Compliance to Information Technology Act

1. IT Act is the primary law in India dealing with cybercrime and electronic commerce. Compliance to the rules outlined in the IT Act for sensitive data protection will be essential. The customer registration process for BBPS includes a lot of personally identifiable information (PII) including PAN, Aadhaar number, date of birth, mobile number and e-mail ID. It is imperative that such information is protected. This private data has to be managed appropriately and the system will need to take precaution to protect it from theft, loss and unauthorized access.

5.1.4.2 PCI DSS Compliance

1. In the initial phase of the project, it is envisaged that the actual debit and credit will happen out of the BBPS and payment message would flow between the respective parties involved in the BBPS. Hence, we do not foresee compliance with PCI DSS. However, at a later date, if the BBPCU processes and stores card details and transaction data, PCI DSS and underlying controls will be applicable.
20. In case banks that have their own dedicated MPLS connectivity with NPCI desire to join the BBPS setup as an independent BBPOU, the existing secure MPLS links provided to them may be used to transfer BBPS messages without separate PCI DSS certification.

5.1.5 Authentication

1. Customers and other external stakeholders will be given access to the BBPCU system. For securing this access and prevent against repudiation attack, use of Two Factor Authentication will provide an added layer of security to authenticate legitimate users of the system. This will help prevent identity theft on the Internet, as well as phishing via e-mail. Considering that BBPS is a mass deployment, OTP via SMS is an economically viable and practical 2-factor authentication solution.

5.1.6 Digital Certificate

1. Digital certificates will be used to ensure the trustworthiness of public facing portals and websites of BBPS. The digital certificate will contain a unique identifier for the entity, and also include the certificate authority that verifies the information contained in the certificate, date that the certificate is valid from and the date that the certificate expires.

5.1.7 E-Signature

1. BBPS will also have the facility to utilize the e-sign service of Aadhaar for all identity and information validation. Any Aadhaar card holder will be able to digitally sign a document using e-sign online electronic signature service. The signature service is facilitated by authenticating the Aadhaar holder via the Aadhaar-based e-KYC service. E-Sign services are facilitated by providers who are licensed under the IT Act. Private keys of Aadhaar holders are created on Hardware Security Module (HSM) and destroyed immediately after one-time use. This mechanism adds an enhanced layer of security and prevents misuse. Digital signature certificates may be issued by any Certifying Authority by employing techniques such as hash function and cryptography to prevent repudiation.

5.1.8 Audit Log Maintenance

1. The system shall maintain a record of the users who have accessed the system including various application menus, resources used and actions performed along with security violations if any.
2. Audit log file shall constitute of information on all changes to system parameters; system access rights, system defaults and data access, a complete before and after image.
3. The system shall provide log of all successful and un-successful events, access to the system database / application by the users.
4. All audit log files must be handled in a secured manner to prevent unauthorized access and modification.
5. All important changes in configurations should be logged with User ID, Date and time stamp, old and new value etc.
6. All audit logs should be available to the authorized user as reports.

5.1.9 Application Logging

1. The Application will be built to collect and send application related logs to the Security Operations Centre (SOC) of NPCI for appropriate forensic analysis.

Note: The technology service provider has to follow security best practices during the implementation / execution of the technologies envisaged as part of the BBPS project.

6 Fraud Risk Management

There will be multiple participants involved in BBPS and as the system will work under the single brand name of BBPS, it is imperative that sufficient measures be taken to prevent or detect various fraudulent transactions /scenarios. The confidence level of a customer is an important factor for the success of any system. Bharat Bill Payment System will carry financial messages and will contain confidential information about the customer; accordingly, it is important that a robust fraud prevention and detection system be put in place.

6.1 Fraud Scenarios and Mitigation Techniques

1. The possible fraud scenarios in Bharat Bill Payment System and the corresponding mitigation techniques have been provided below.

S. No.	Fraud Scenario	Mitigation Plan	Techniques
1	Agent has an option to directly initiate a payment transaction without initiating the bill fetch transaction if the biller is offline and allows ad hoc payments. There might be a scenario under which an agent has accepted cash from the client and has not initiated any corresponding bill payment transaction in BBPS. The agent may have his own personal printer to print fraudulent receipts in BBPS format and providing the same to customers.	Payment confirmation will be sent to the registered mobile number and e-mail ID (if provided) on a real time basis. The payment is completed only once the confirmation has been sent to the customer.	SMS / e-mail alert Regular internal and external audits of the participants Transaction validation / status enquiry Customer awareness
2	The agent is initiating multiple bill fetch transactions and not initiating any corresponding bill payment transaction. This might be an indication that the agent is only verifying the bill amount and getting other details through BBPS, and providing fraud receipts to the customers after accepting their money.	Payment confirmation will be sent to the registered mobile number and e-mail ID (if provided) on a real time basis. The payment is completed only once the confirmation has been sent to the customer. Velocity and pattern checks will also be performed on real time basis to prevent any such frauds	SMS / e-mail alert Regular internal and external audits of the participants Velocity and pattern checks on the transactions initiated by an agent on real time basis
3	There might be a scenario that somebody at the agent institution or BBPOU level is changing the amount/phone number provided by the agent at the time of bill payment or changing the SI mandates. This may lead to either a wrong payment or a payment to an incorrect biller / customer account	Hashing is used to ensure that the information contained in the message is not changed during the transmission by any participant of BBPS or any other third party	SMS / e-mail alert Hashing technique
4	The agent might say to a	Payment confirmation will be	SMS / e-mail alert

	customer that payment has been done successfully but a receipt cannot be generated due to link failure. He may thus accept the cash from the customer and not make the payment at all.	sent to the registered mobile number and e-mail ID (if provided) on a real time basis. The payment is completed only once the confirmation has been sent to the customer. If not reversal transaction is initiated	Transaction validation / status enquiry / Reversal Customer awareness Customer has to insist on getting a receipt confirming acceptance.
5	The agent might collect the amount from a customer and promise to make a payment at a later stage in order to use that money for some other purpose in the interim.	BBPS needs to educate its customers that payment is not done till the time they have received a confirmation on their mobile number / e-mail ID and they should collect a payment receipt from the agent after making a payment. The date printed on the receipt will be considered the bill payment date for any subsequent dispute.	SMS / e-mail alert Customer awareness
6	The agent notes the credit or debit card number, expiry date, CVV and PIN, or Internet Banking password while initiating a bill payment in BBPS	The BBPCU will have to educate customers on not sharing confidential information with agents while making payments, since there is a risk of agents misusing the same for fraudulent transactions	Customer awareness
7	When a biller is offline and has allowed BBPOU2 to accept the payment on its behalf, there might be a scenario where BBPOU2 has accepted the payment from the customer but has not passed that amount to the biller and the customer account has not been credited.	For any dispute raised at later stage, BBPOU2 will be held liable	Regular internal and external audits of the participants SMS / e-mail alert Clear liability definitions in standards and policies
8	If login credentials of a registered customer are compromised or hacked, third parties may add fake billers to the customer's registered ID or access confidential information of the customer. The major concern in this scenario is that confidential customer information will be compromised. There will not be any financial impact as the online portal will not facilitate any direct payments.	There should be an OTP sent to the customer's mobile number to validate every addition / modification / deletion request made through the portal. On completion, an SMS / e-mail alert should also be sent to the customer's registered contact details.	OTP validation SMS / e-mail alert

Table 7: Possible fraud scenarios in BBPS

6.2 Limit and Exposure Management

1. There will be two types of limit monitoring - on the basis of volume / type of transactions and outstanding settlement amount. As per the defined rules, these limits will be exercised on the respective BBPOUs / participants.

2. The BBPCU system should be capable of performing limit and exposure tasks basis of the rules defined above.
3. Illustrative scenario:
4. Risk profile defined from 1 to 10 (1 being the lowest and 10 being the highest)
5. Basis of its current profile BBPOU (x) is assigned a risk score of 7
6. Risk score of 7 can imply that only limited or no transactions can be allowed for BBPOU(x)
7. This risk score will be revaluated on a periodic basis

6.3 In-built Fraud Risk Mitigation Procedures

BBPCU will implement real time checks / techniques to prevent and detect frauds in the Bharat Bill Payment System. Operating units have to share the information about ON-US transactions, as and when required, so that BBPCU can monitor these transactions being processed under the brand name of BBPS. In addition, a regular audit will be carried out for all the participants of BBPS. Initially, this process will be based on offline report and will later be automated and built-in the system.

The following functionalities will have to be built in to prevent frauds in BBPS:

1. **SMS / E-mail alerts:** Real time confirmation will be sent to the registered mobile number and e-mail ID (if provided by the customer at the time of registration) to share the status of the transaction processed through BBPS. It is important for the Customer BBPOU to communicate to all the participants and customers of BBPS that a transaction is not complete unless a payment acknowledgment message is sent and a receipt generated by the system. The date mentioned on the receipt will be considered the date of payment for the purpose of all subsequent disputes.
2. SMS / e-mail alerts will also be generated for any change in sensitive information (including but not limited to mobile number, e-mail ID, address and PAN) of a customer.
3. **OTP validation:** OTP validation is mandatory for each stage of the customer registration process, including first-time customer registration, addition, modification or deletion of a biller, update in customer contact details and de-registration. The responsibility to generate an OTP for the customer's mobile number and e-mail ID (if provided) will be with the BBPOU or BBPCU, depending on whether the customer is registering or modifying details through an agent / BBPOU website or through the BBPS portal.
4. **Internal and external audit:** In addition to internal audits carried out by BBPOUs, the BBPCU also will carry out a process and security audit of participant BBPOUs at a pre-defined frequency to diagnose any deviations from recommended standards

and operating procedures. The application audit may be conducted by an internal auditor or a designated third Party.

5. **Status enquiry:** BBPCU system will have a functionality through which customers / agents can check the status of transactions on a real time basis through the online portal.
6. **Hashing encryption:** Hashing is used to validate the integrity of the content by detecting all the modifications done to the message in between or at the time of decryption. An important application of secure hashes is verification of message integrity. Determining whether any changes have been made to a message (or a file), for example, can be accomplished by comparing hash digests calculated before and after transmission (or any other event). Hashing will be imperative to control changes in messages that may be made by third parties like BBPOU employees, as well as ensure non-repudiation.
7. **Velocity and transaction pattern check:** Transaction pattern checks are based on historical transaction patterns of an agent / agent institution and matching that record against their current transactions to detect irregularities. Velocity checks may also be carried out in case the same agent is making multiple payments to the same biller and for the same customer multiple times within a very short time span, based on a pre-defined requirement by the BBPCU. These checks are done on a real time basis and are helpful to prevent frauds on time.
8. There will also be a cooling period (configurable) before a change is reflected throughout the BBPS ecosystem in order to prevent fraudulent transactions following changes made to customer details. A change made within a cooling period will lead to the cooling period being reset.
9. **Customer awareness programme:** According to the process designed for BBPS, all financial transactions / payments are made outside the system, and only payment information messages flow through the system. Actual payment may be accepted through multiple modes as stated above. Also, it is important to educate all customers on not sharing confidential information like card PIN and passwords with agents while making payments, since there is a risk of agents misusing the same for fraudulent transactions - causing reputational damage for the BBPS brand.

7 Master Data Management Requirements

Entities like Agent Institute, Agents, Billers, Sub-Billers and Customers will be treated like master data domains. The data values for these master data domains will be acquired from BBPCU and BBPOU. Following are the requirements for managing the master data domain in BBPS:

1. Consolidate the master data across multiple data providers and provide a single view of data records.
2. Standardize and de-duplicate data across multiple master data providers regardless of the data types and formats in which they are stored.
3. Provide simple search and identification of data records.
4. Support role based security access to the data.
5. The Master Data Management (MDM) solution shall be able to manage the data through effective and efficient:
 6. Data collection
 7. Data aggregation
 8. Data matching
 9. Data transformation and standardization
 10. Data storing
11. Provide manual override for authorized users to resolve improper matches (and mismatches) and preserve the override for that data record for future use.
12. Provide an audit log (who, what, where, when, why) of all manual updates to data.
13. The MDM solution will maintain a historical record of all derived master records and associated detailed record.
14. Resolve to one single record through multiple unique identifiers from different solutions.
15. Support common bi-directional interface modalities including generic web services or APIs.
16. The MDM solution will provide data extracts in multiple formats such as .xlsx, .csv, XML, flat files, etc. to support audit and reporting requirement.
17. The MDM solution will have capability to define the hierarchies for the master data domain.
18. Capability to define and execute any process (CRUD) related to master data domain.
19. Detailed information has been provided in Annexure “MDM & Biller Configuration”

8 MIS / Reporting System

The guidelines will cover the data attributes requirements, data modeling requirements and reporting requirements for the BBPCU system.

The BBPCU system will need a reporting solution over the billing transaction data collected. Along with Management Information System (MIS) module, BBPCU system will also need Master Data Management (MDM) component to manage accurate data about BBPOUs, Agents, Agent Institutes, Biller, Sub-Billers and Consumers.

MIS and reporting modules will be used for managing, tracking, monitoring and reconciling the billing transactions. MIS module will also provide the necessary information required for the regulatory compliance requirements and customer complaints management system. MIS system will be maintained separately from transaction data management system. BBPCU and BBPOU will both maintain the MIS and Reporting modules.

There will be certain set of MIS / Reports that will be generated on regular basis (daily, fortnightly, etc.). However, other reports will be such that they may be customized and extracted on an ad-hoc basis.

MIS / Reporting system may be integrated with the email / SMS system. For example, at certain levels a summary of total number of transactions done by a respective BBPOU or GTV of a particular BBPOU is to be communicated to that particular BBPOU at the end of the day (cut-off) via a SMS / email. Another example is a trigger at the time of threshold of limit exposure value.

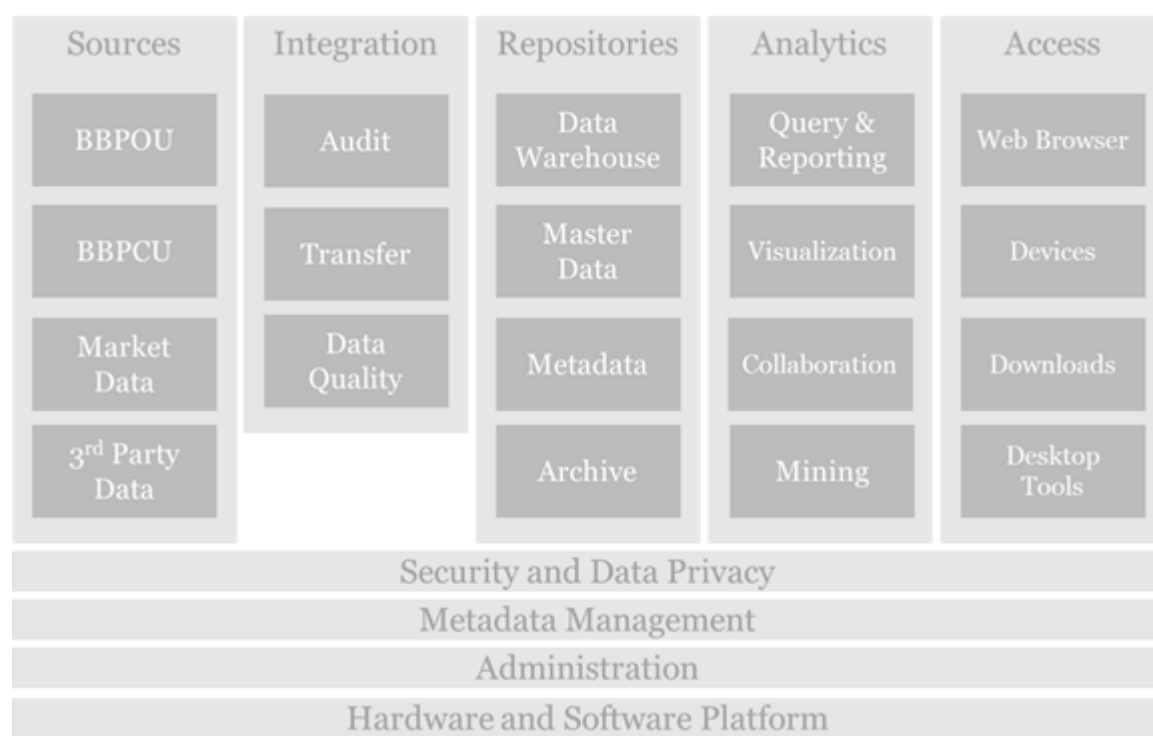


Figure 17: Model functional architecture for MIS and Analytics

As mentioned in the above diagram the solution should build all the required layers to create the bill payments data mart over a period of time, however for the current scope of engagement BBPS will only have a bill payments data repository to fulfill the MIS, reporting

and analytics need. The following section describes the information in brief about each layer of the architecture.

Source Systems: The bill payments data mart will receive data from multiple data sources. The OFF-US transactions will flow through BBPCU. The transaction will be captured and provided as source data for the bill payments data mart. The ON-US transaction will be settled by individual BBPOUs with their attached billers. The ON-US transaction details will be processed for Bill Payments data repository as and when required from BBPOUs. BBPS will also build MDM solution for managing master data domains like Biller, Sub-Biller, BBPOUs, Agents, Agent Institutions, etc. MDM will also provide data feed to the data mart.

Integration: The bill payments data repository will need a robust data integration system which can process the entire data volume in available time period. The data integration system will be able to extract, cleanse, transform and load the data to the data repository. The system will be able to deal with file transfers from external data provider to BBPOU's data servers. Once the external file is received, the data integration system should automatically process it and load to the bill payments data repository. The data integration system will also provide feature of reconciliation / audit for the data for the financial transactions of bill payment. The data integration system will ensure that only clean data gets loaded in bill payments data repository by ensuring the completeness, conformity, consistency, accuracy and standardization of the data. A full blown integration system is not envisaged as part of the initial BBPS scope.

Data Repositories: The bill payment data will be stored in the separate data repository and arranged in dimension model format. The bill amount and billing transactions are the two KPIs that will be captured against multiple dimensions. Along with bill payments data repository the BBPS will also capture the master data repository. The master data domains that will be captured are: billers, BBPOUs, consumers, etc. BBPS will also have feature to archive the data from the data repository as required.

BBPCU will also maintain the query and reporting database as the operational data store (ODS). ODS will store data in accordance with the data storage policy of BBPS and will be mainly used for the day-to-day query purpose. There will be predefined reports as well as ad-hoc reports running on the ODS.

Analytics: The analytics module will contain features of canned reports and ad-hoc reports. The reports will be fetched against the Bill Payments data repository. There will be reports for the data received from BBPOUs for the ON-US transactions. The data will be exposed to end user through queries and reports formats. There will be certain canned reports that users would like to see on daily / weekly / monthly basis. There will be entire metadata layer available for power users to perform the ad-hoc reporting as required. Various visualization options will be available to choose appropriate representation of the data. The cleansed data will also be exposed to the end user who wants to run analytical models on the bill payments transactions to segment the consumers and to identify the payment patterns.

Access: The reports can be accessed through multiple channels. The canned reports and ad-hoc reports can be accessed over web using web-browser. The reports are also available for download in .csv, .xlsx, .pdf, etc. formats. The MIS reports can also be consumed on other devices like mobile phones and tabs.

Security and Data Privacy: The data will be transferred from BBPS transaction system to the BBPS MIS system in highly secured manner. Also the PII (Personal Identification

Information) of the consumers, agents or any involved personnel will be masked and secured from abused usage.

Metadata Management: Metadata management solution will be able to provide the end-to-end data lineage for the data attributes flowing from BBPS transactional system to BBPS MIS system to the particular reports. The metadata management solutions will also help in performing impact analysis for the any change required in the standards of BBPS data architecture.

Administration: The administration module will help in controlling the overall data movement in the MIS system. The administration module will control the refresh of the canned reports, run the data archive jobs, configure authentication and authorization for the users, manage the hardware and software of the system, etc.

Hardware and Software Platform: BBPS system will have separate setup of hardware and software for the MIS system. The hardware and software setup will be scalable to match the required data needs for the MIS reporting and analytics requirements in future.

8.1 Functional Requirements

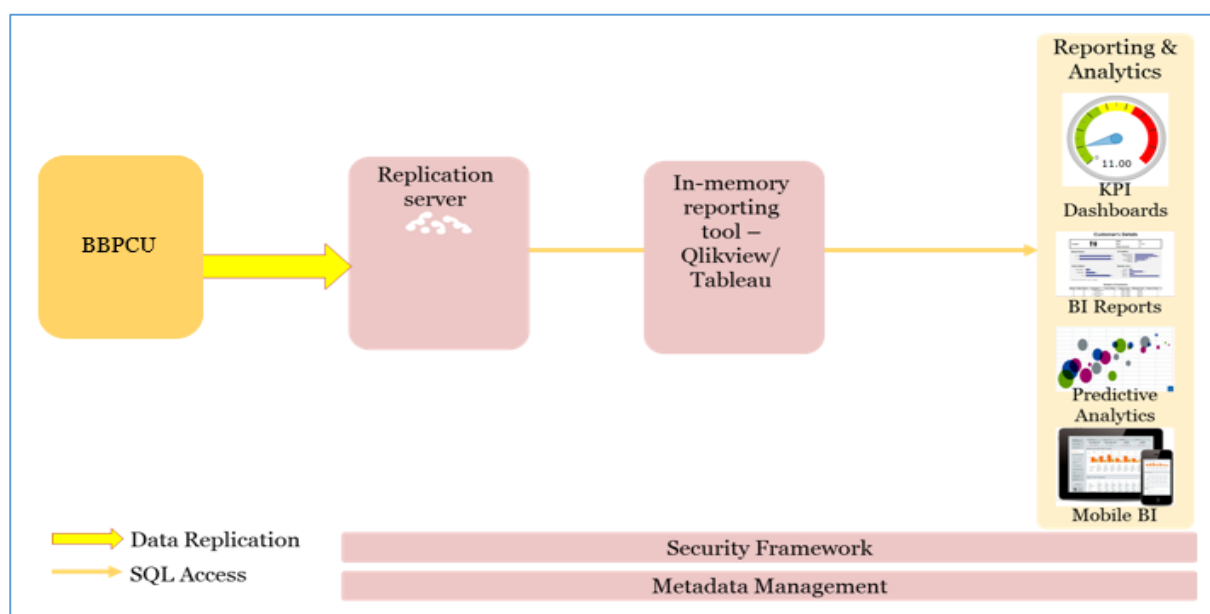


Figure 18: Database replication with in-memory reporting

Following are the functional requirements of the BBPS MIS and Reporting system:

8.1.1 Basic Requirements

1. Add value to groups of data sets so that it (data) becomes useful information asset for users.
2. Integrate data from existing internal and external systems to enable a central view across BBPCU for improved strategic (business) decision making.
3. Restructure data to enable it deliver efficient query performance, even for complex queries, without impacting the operational systems.
4. Enable monitoring and evaluation of actions relating to customer complains.

8.1.2 Reporting Requirements

1. Enable reporting in varied formats and at different levels depending on factors such as frequency and consumer of the report.
2. Supply end users with access to querying and reporting tools to enable them to generate regular reports and perform organized listings.
3. Enable more complex user interaction or sophisticated formats of reports.
4. Provide a tool with more reporting features and an environment for creating sophisticated layouts.
5. Extract data from the existing / identified databases.
6. Integrate information from both internal and external sources.
7. Export reports into different formats including but not limited to .doc, .pdf, .xlsx, .csv and .jpeg.

8.1.3 Alerts and Notifications

1. A sub-module will be set up for customer complaints.
2. Use of multi-coloured highlighting modes such as Green / Amber / Red to show performance status for customer complaints module.
3. For each alert the system must provide the appropriate user with the ability to define the recipients of the notification, the lead-time, and frequency of notification.

8.1.4 Scorecards and Dash Boards

1. A sub-module for the development of scorecards and dashboards linked to and fed by the reporting database.
2. The system will provide the ability to visualize measurements in the form of a chart, a diagram or a gauge.

8.1.5 Audit Features

1. The system must keep a log of system actions performed by the users on the system (user activity report). The actions logged by the system must include at least the following information:
 - Date and time
 - Action
 - User IP address
 - Username (of the user who executed the action) / User ID
 - Additional action information
2. The system must provide auditing facilities allowing the administrator to query system action logs online.

3. The auditing facilities must allow the administrator to query the log and filter the results by date and time the action was executed and the type of action.

8.2 Indicative List of Reports

While the earlier section identifies the technical requirements for MIS / Reporting, this section identifies the reporting requirements. Following are the reporting requirements for MIS Reporting module:

1. Generate transactional / operational reports from the system on daily basis at the lowest granularity.
2. Some important KPIs like count, volume and aggregated value of transactions to be generated on near real-time / intraday or daily refresh frequency.
3. Reconciliation of the OFF-US transactions with the BBPOUs on regular basis.
4. Single customer view to generate unique customer identification, compute share of wallet, portfolio value.
5. Build analytics to predict cross-sell / upsell, prevention of frauds etc.
6. BBPCU will receive the complete ON-US transaction data from BBPOU on need basis in .xlsx, .csv, flat file formats, etc. for the defined agent number / customer number / transaction number. The ON-US transaction data has to be in the same format as the OFF-US transaction data.

8.2.1 Indicative Reports Listing

Report Details
All dimension wise (slice-dice), count and value of transactions.
Top 'N' customers/agents/billers/sub-billers
Individual Transactions/Customers having value >5L
Product mix report
Market share report (Possible only if BBPOU provides both on-us and off-us transactions)
All dimension wise (slide-dice), count and value of Actuals/Budget
Trend report, All dimension wise (slide-dice), count and value of transactions. KPIs like PY share, Current MS, Change %, Trailing n months average etc.
New customer acquisition
Define categories like A,B,C,D for agents based on value of transactions and then see which agents are not performing etc.
New agents/billers acquisition and performance
No of failed transactions agent/agent institution wise
Customer payment behavior
Predictive model analytics on Cross sell/Upsell, Fraud prediction
Settlement Register Report
Daily MIS Report
Monthly MIS
Customize Report
Dispute Report
Settlement Report for each BBPOU
Monthly Volume Report and other reports

Table 8: Indicative list of reports

A sample report structure has been provided in Annexure.

9 BBPOU - Canvas

1. The below section details out on the features and functionality that will be offered to the BBPOU to manage the day to day administration with BBPCU.
2. Alike, BBPOU, BBPCU will also have access to the “Canvas” and will be able to perform the below activities. These activities may or may not have a direct impact to BBPOU.
3. For eg: addition of biller at BBPOU end will need a final approval at BBPCU level, thus impacting the BBPOU activity.
4. Snapshot of some of the BBPCU Activities are detailed below:
 - User Management
 - Addition of Categories and Services
 - Onboarding/Onboarding approval of BBPOU, AI and Agents
 - Onboarding approval of Billers
 - Listing/de-listing of any participants
 - Velocity Management
 - SGF Management
 - Calendar Management
 - System Configuration
 - MIS & Reporting
5. BBPOU Activities are detailed below:
6. It is mandatory that BBPOU on-boarding process is completed before a BBPOU administrator profile is created.
7. BBPCU administrator will create an administrator account for a BBPOU which will act as a parent ID for creating further login details for other users of the same BBPOU.
8. BBPOU profile details are auto populated on the basis of what is stored in the system.
9. The BBPOUs can only access the data pertaining to their own institution.
10. Further the user management interface will allow the BBPOU (BBPOU administrator) to create / modify / block / unblock / reset password their own users.
11. Administrator of a BBPOU can create “XX” (configurable at BBPCU end) number of users as defined in the operating guidelines.
12. The maximum / minimum number of users for each participant will be configurable.
13. BBPOU administrator to assign / modify different profiles for their users as per their requirement.
14. BBPOU will be able to view list of services, add, modify and delete billers, on-board agent institutions and agents, conduct transaction enquiry and other functions.

9.1.1 User Management

1. BBPOU will have an option of creating its own users.
2. The display screen will have following features:
 - Create BBPOU user
 - Manage BBPOU user profile
 - Manage BBPOU user role
 - Reset password for BBPOU user
 - Change password for BBPOU user
3. **Create BBPOU User:** Provide user ID and password to create new BBPOU user. There are two types of access rights that may be assigned to users - maker and checker. For a particular user ID, either be a maker or a checker may be assigned. Maker roles will be defined for maker user ID while checker roles will be defined for checker user ID.
4. **Manage BBPOU User Profile:** Provide option to block (temporarily suspend), delete (logical deletion) or modify the existing user ID.
5. **Manage BBPOU User Role:** Roles should be available in a drop down menu. Multiple roles may be assigned to a single BBPOU User. Same option should be used for deselecting or delinking the already assigned roles.
6. **Reset Password for BBPOU User:** Provide option for resetting to the default password for the existing BBPOU User profile.
7. **Change Password for BBPOU User:** Provide option for changing the password for the existing BBPOU User profile by entering the BBPOU User ID, old password and new password (twice to confirm the new password).

9.1.2 Home Page / Landing Page

1. This will be the post login section.
2. Some key sections that will be a part of the home page may be:
 - Welcome note on top
 - Mail Box Alerts
 - Dashboard:
 - Complaint Management
 - List of active Billers and BBPOUs
 - Number of transactions done on previous day
 - Value of transactions done on previous day
 - Fees and billing for previous day
 - Today's tasks
 - Manage participants:
 - Billers
 - Agent Institutes
 - Agents
 - Sponsor/Settlement Bank

9.1.3 My Profile

1. This feature will enable BBPOU to view and edit their profile details.
2. On the landing page, a link “My Profile” will appear on the top menu bar.
3. On click of this link, user is redirected to the profile page where BBPOU profile details are displayed.
4. BBPOU profile details are auto populated as text based on what is stored in the system.
5. The different sections of the profile may be updated by the BBPOU user, but they need to be validated by the BBPCU user before the changes start reflecting in the BBPCU system.

9.1.4 List of Services

1. BBPOU will be able to view the list of services, categories and billers that are available for executing transaction.
2. The ‘View List of Services’ process allows the BBPOU user to view the services in the system. Once a service is added in the system, one should be able to view the service.
3. The following flow chart gives an overview of the ‘View List of Services’ process.
4. All the services in BBPS system will be visible in a grid.
5. User can also search the services based on ‘Service Name’ and ‘Service Category’. The searched services will be reflected in the grid.
6. Also, once a new service is created, it will be visible in the grid.
7. Service Name, Service Description and Service Category attributes of a service will be visible to the user in the grid.
8. When user clicks on ‘View’ link in the grid, user will see the complete service details in the ‘Create Service’ screen with read-only fields.

9.1.5 Onboard Agent Institutions

1. BBPOU Administrator will have access to onboard Agent Institute.

9.1.6 Onboard Agent

1. BBPOU Administrator will have access to onboard Agent.

9.1.7 Sponsor Bank/Settlement Bank Management

1. Sponsor Bank / Settlement Management: Addition, Deletion and Modification of settlement bank / sponsor bank for Non-Bank BBPOUs at BBPCU level.

9.1.8 Biller Management: Add Biller

1. The BBPOU will have to enter the biller details in the BBPS system under the respective service and category created by BBPCU.
2. Configuration of the mode of payments as per biller acceptance at BBPOU level.
3. BBPOU user will be able to view these details in the BBPCU system.
4. There will be a mechanism in BBPCU system where any biller will be listed under respective BBPOU based on BBPCU's authorization.
5. BBPOU will send a formal request to BBPCU for any addition of new biller's entry when on-boarded through this section.
6. Once BBPCU adds the entry of the newly on-boarded biller to its respective BBPOU, the biller will be listed under respective BBPOU's section (post approval by BBPCU).
7. Same information will be communicated to all system participants.
8. Detailed information on Biller configuration is provided in annexure.

9.1.9 Biller Management: Edit / Delete Biller

1. For any editing or deletion of biller's entry, BBPOU will send a prior formal intimation, around 60 days (configurable) before, to BBPCU through the application.
2. Same will be effective once BBPCU removes the entry of the respective biller with its respective BBPOU and the biller will no more be listed in the respective BBPOU's section.

9.1.10 Biller Management: View Biller

1. BBPOU should be able to view all the biller information currently available.
2. This list will not only provide with the list of billers but will also display transactional level information.
3. The list will display the below information and more. These are only an indicative list of fields, we may have additional fields.
 - Biller Name
 - Biller Code
 - Registration Date
 - Status (Active / Deleted)
 - Number of transactions (current month till date)
 - Value of transactions (current month till date)
4. Option will be available to download and save the list of billers in an excel sheet.
5. Any BBPOU will be able to view the list of the billers that has been on boarded by itself along with transactional information.
6. BBPOU should also be able to view the list of all the billers in the BBPS eco-system

9.1.11 Biller Management: Set Default BBPOU

1. At the time of onboarding a Biller, BBPOU should have access to set itself as default/BCP (backup) for a particular biller.
2. The BBPOU will be allowed to onboard only those biller information in the BBPCU system for which it is a default or BCP(back-up) BBPOU

9.1.12 Translation Rules:

1. Translation rules to map any Agent / Agent Institution / Biller / Sub-Biller / BBPOU to its new name and ID in case of any change in existing IDs.
2. Translation rules to map Biller / Sub-Biller to new default BBPOU in case of change in BBPOU preference.
3. Translation rules to map any Agent / Agent Institution to its new BBPOUs.
4. Translation rules to map network IPs for both primary and disaster recovery centers for all the BBPOUs.
5. Translation rule for mapping settlement account to new settlement account.

9.1.13 BBPOU File Submission Zone

The BBPOU file submission zone is divided in two separate zones, i.e., file zone and web zone, which essentially means that BBPOUs can submit data to BBPCU system through files or through web entry.

9.1.13.1 BBPOU Outgoing and Incoming (Acknowledgment and Notification)

A BBPOU will create the outgoing files based on its BBPOU ID and function code. For every BBPOU ID, the BBPOU will create a separate outgoing file. Similarly, the BBPOU will get the acknowledgment file against its BBPOU ID and function code for which it had submitted the files. Notification files will also be generated based on the BBPOU ID.

Destination BBPOU will also get the notification against its BBPOU ID and the notification file will contain the transactions originated through file uploading process.

9.1.13.2 Validations for File Upload (File Zone)

User will compress and encrypt the clearing file, login to BBPCU system and select the “File Upload” option in the upload screen. Once the file is selected and uploaded the following actions will be performed:

1. Duplicate file name and file ID check
2. The file will be copied to BBPCU storage area.
3. The file validation service will pick up the relevant file and will perform the following validations:

9.1.13.2.1 Header validation

1. BBPOU ID in file header will be validated against the respective BBPOU’s BBPOU ID through which the file had been uploaded
2. File type and category - BBPOU generated and whether production file or test file

3. Duplicate file name and file ID check
4. Version number check
5. Date check

9.1.13.2.2 Transaction level validation

1. Format check, i.e., check if the number of delimiters are correct and record is correctly parsed (XML)
2. For each element check mandatory, optional and conditional elements, i.e., compliance check
3. For each element present perform checks on the data type, length and value passed
4. Record number sequence check

9.1.13.2.3 Trailer validation:

1. Number of transactions in file against trailer count
2. Run total of transaction amount against trailer run total
3. File name in header and file name in trailer
4. All common elements of header and trailer should be same
5. If header validation or trailer validation fails then the entire file gets rejected.
6. If transaction level validation fails for value or data type then entire file gets rejected.
7. Apart from above, if the transaction validation fails at record level, the particular record will be marked as “Rejected” and shown as output of validation process.

9.1.13.2.4 Output of Validation Process:

1. An Output Screen will be displayed for the following:
2. Entire file reject status
3. Option to download of records rejected in .xlsx, .csv, etc. formats
4. Successful transaction validation for file
5. Successful record summary
6. Rejected record details with record number, reject reason code and description
7. Error code with description (if any)
8. Logger entries (application log entries)
9. If there are successful transactions as part of the above validation process, a new screen will appear for continuation of the staging process.

9.1.13.2.5 File Duplication Check

1. The system should detect duplicate files based on file name (format and uniqueness), header information, time-stamp of file creation, file size, file content, etc.
2. The system should check / detect duplicate files based on previous cryptographic hash values of file contents with an option to override (without any significant impact on the system).

3. The cryptographic function used should be reasonably collision resistant.
4. It should be possible to scan files with specified file types residing in a specified folder / BBPOU area.
5. Duplicate file check facility shall be configurable as per the business requirements of the system participants.

9.1.13.3 Pre-processing of Files and Web Transactions / Actions (Web Zone)

The beginning of the clearing process would initially be triggered manually until the entire process is stabilized. However, the BBPCU system should provide for complete automation or auto scheduling of the processes to ensure minimum manual intervention.

This activity involves processing of clearing files and all transactions / actions raised on the web for the day post the last clearing cutover.

The pre-processing activities are as mentioned below:

1. Sequencing is based on timestamp wherever applicable
2. Compliance checks
3. Business rules validation
4. Conversion of transaction currency to settlement currency (if applicable)
5. Interchange calculations
6. Fee calculations (as applicable)
7. Prepare input data for accumulation of settlement

9.1.13.3.1 Output:

1. Accumulation of data for further processing
2. Error code with description (if any)
3. Logger entries (application log entries)

9.1.14 Transactional Enquiry

1. BBPOU will be able to search for any transaction details via this section.
2. After a transaction is pushed to BBPCU, it will be visible in the “Transactional Enquiry” screen for the BBPOU to view the details of the transaction.
3. BBPOU user will be able to search a transaction based on the following. These are only an indicative list of fields, we may have additional fields.
 - Agent Institute Name / ID
 - Agent Name / ID
 - Transaction ID
 - Biller name
 - Date range
 - Location
 - Status of transaction

4. Sorting of the information should by default be on the basis of transaction date and time. Option should be available to sort on other fields as well.
5. Fields to be displayed as an output of “View Transactions” section may be the following. These are only an indicative list of fields, we may have additional fields.
 - Transaction date and time
 - Transaction ID
 - BBPOU Name
 - Agent Institute Name
 - Agent Institute ID
 - Agent Name
 - Agent ID
 - Location
 - Biller Name
 - Category
 - Transaction Amount
 - Charges / Fee
 - Status
 - Remarks (if any)
6. Option will be available to download and save report in an excel sheet.

9.1.15 Message Box

1. This feature will enable distribution of communication among BBPOU users through BBPCU system regarding new launches, downtime or any other communication.
2. The user should be able to view the alert based on the type of alert created (message / pop-up / both) at the time of alert creation.
3. Application should throw errors and exception alerts in case of following
 - High value
 - Duplicates
 - Input Errors
 - Connection Time Out
 - Time Out
 - Transaction Failures
 - Network disconnect
 - Other Alerts
 - Mechanism for BBPS system services failure

9.1.16 Accounting Ledger

1. This section will display the account ledger of the BBPOU which will include the following. These are only an indicative list of fields, we may have additional fields.
 - Opening Balance
 - Batch Created
 - Commission Earned
 - Charges (if any)

- Joint Venture (if any)
 - Closing Balance
2. This ledger will be displayed at BBPOU level.
 3. If the BBPOU is associated with more than one Agent Institute, then separate account ledgers will be displayed.
 4. The ledger should be displayed at batch level.
 5. Sorting should be on the basis of transaction date and time.
 6. Option should be available to download, print and email the fund balance report.
 7. Pagination should be available for 10, 50 and 100. By default 10 line items should be displayed.
 8. Various search options should be available:
 - Last Week
 - Last Month
 - Date Range
 - Agent Institute / Agent

Statement Period	<From and To Date>			
Transaction Date and Time	Details	Debit (INR)	Credit (INR)	Balance (INR)
dd.mm.yyyy; hh:mm:ss	Opening Balance			
dd.mm.yyyy; hh:mm:ss	Batch No. (with batch date and time)			
dd.mm.yyyy; hh:mm:ss	Batch No. (with batch date and time)			
dd.mm.yyyy; hh:mm:ss	Charges			
dd.mm.yyyy; hh:mm:ss	Closing Balance			

Table 9: Accounting Ledger

Following rights may be applied to specific users at the time of creation of the user ID:

9. **Maker rights:** Maker rights to be given to user for generating possible actions on selected records which would then be pending for approver's authorization. It should also provide modify and cancel options.
10. **Checker rights:** Checker rights to be given to user for generating approved actions in the system, i.e., for logging the actions in the system which are processed by makers. It should also provide reject and cancel options.
11. **Viewer rights:** By default all users of the system, even if they are not assigned any maker or checker rights, shall have viewing rights irrespective of role under which the user is configured.
12. All or only selected rights can be assigned to a specific BBPOU.

9.2 User ID Convention

1. The user ID provided in BBPS should have maximum length of 12 alphanumeric characters.
2. The user ID construct will be: BBPOU ID (4-character) + user ID provided by BBPOU (8-character alphanumeric)

9.3 Password Policy

The password policy implementation on the system should be configurable and comply with BBPCU's Password policy provided below:

1. Users should be able to set and change their own passwords.
2. Password expiry should be set for 45 days (configurable).
3. Password history should be at least last 6 passwords (configurable).
4. System components should enforce complex passwords. For passwords to be termed as complex, they should have at minimum, combination of the following characteristics: Minimum length of eight (8) characters. Letters - Upper or Lower Case Letters (A, B, C,, Z, a, b, c,, z), Westernized Arabic Numerals (0, 1, 2.....9), Non-alphanumeric "special characters".
5. The account should be locked out after five (5) failed password attempts.
6. Locked out accounts should be enabled automatically after thirty (30) minutes.
7. There should be a provision for system administrators to be able to enable the account manually during the thirty (30) minute lockout duration.
8. Five (5) days prior to password expiry the user should be alerted by a warning message to change the password on every login.
9. System and applications should verify the user's old password before allowing the user to set a new password.
10. Passwords should be encrypted when transmitted across any network.
11. The display and printing of passwords must be masked using asterisks, or otherwise obscured such that unauthorized parties will not be able to observe or subsequently recover them.
12. Passwords must not be logged or captured.
13. A password must not be displayed on the data entry or display device.
14. "Remember Password" features of applications should not be used (e.g., web browsers, websites).
15. Temporary unique passwords should be assigned when creating new accounts and on users request for passwords resets.

16. Password requirements defined by this standard are applicable to temporary passwords.
17. User should be forced to change password at first login.
18. When changing a password, the user should be prompted to re-enter the new password for verification.
19. Customer facing applications should be locked out after three (3) incorrect password attempts.
20. Usage of group and shared passwords are prohibited.
21. Passwords should never be written down or stored in an unprotected fashion (including mobile or similar devices) without encryption.
22. Password reset for a user will happen in the following scenarios:
 - The user forgets the password.
 - When Super Administrator selects a user on “Manage Users” page and selects “Reset Password” option.
23. On successful password reset, a password will be generated automatically through the system and the following will happen:
 - The new password will be communicated to the user through SMS and / or Email.
 - After password reset in the system, login will be considered as a first time login and the user will be asked to change password immediately after logging in.

10 Configuration Management

This menu allows the authorized BBPCU User with appropriate rights and roles to configure or set up parameters for various fee types, incentives, taxes, and business and interchange rules. This function also provides option for setting up various masters like reason codes, vertical category codes, etc.

10.1.1 Maker-Checker Configuration

The system should be able to configure maker-checker requirements for the various transactions and functions that are accessed by the various users, including file upload, BBPCU administrator roles and access to web menu options.

10.1.2 Fee Configuration

The authorized user can set up parameters for collection of various types of fee. The various types of fee are mentioned in the BBPCU fee computation section.

10.1.3 Interchange Fee Configuration

This option shall enable setting up of interchange fee in the system. Interchange is calculated based on various parameters that are defined in the interchange fee section.

10.1.4 Tax Configuration

This option shall enable setting up of various tax structures like Service Tax, Education Cess, Swachh Bharat Cess, GST and Secondary and Higher Education Cess on the various types of fee charged / applied at NPCI.

This section should allow different configurations to be setup for application of Service Tax. The system should provide options like adding the Service Tax on the fee to provide a consolidated figure (inclusive of Service Tax) or should have the option to calculate and display as a separate item.

The system will interface with the billing module for including the Service Tax in the billing. The Service Tax will be rounded up to the second decimal (either for each transaction or the final amount).

10.1.5 Surcharge Configuration

The system should provide for configuring surcharge in flat / percentage terms with minimum amount, maximum amount, etc.

10.1.6 Business Rules Configuration

This option provides for configuring business validations for various message types (business rule, lifecycle validation, etc.).

10.1.7 TAT Configuration

1. Turnaround times for all the stages of transaction life cycle starting from settlement of authorization record till the end of complaint / dispute cycle should be configurable in the system.

2. Multiple TAT calculation is envisaged in the system, in order to address application of old and new TAT for different set of transactions in the transaction life cycle.
3. TAT table version number will be maintained centrally and will be tagged to transaction stages. TAT table version maintenance is required to address the need for respective TAT application to older transactions and newer transactions after TAT revision.

10.1.8 Clearing and Settlement Cycles

This option shall provide parameters for defining clearing cycles. This shall facilitate authorized users, i.e., users with appropriate privileges to set up clearing and settlement cycles for example:

1. Batch creation process for settlement and clearing
2. Single clearing cycle with a single settlement cycle in a day
3. Multiple clearing cycles with a single settlement cycle in a day
4. Multiple clearing cycles with multiple settlement cycles in a day
5. Batch Creation TAT Master
6. Calendar management
7. RTGS Holidays

Other users of the system will only be able to view the current settings. The clearing and settlement cycles may also vary as per the modes of payments.

10.1.9 Dispute Groups and Dispute Reasons

This option provides for creation of dispute groups and enables linking / mapping of single or multiple dispute reason codes with one or more dispute groups. The possible dispute reasons and their corresponding codes have been detailed out in the Dispute Management section.

10.1.9.1 Reason Codes

This feature enables authorized users of BBPCU system to define reason codes for various messages as per BBPS operating rules and map against dispute groups mentioned above. Following are some reason codes pertaining to BBPS:

1. Dispute reason code
2. Good faith reason code
3. Pre-arbitration reason code
4. Arbitration reason code
5. Fee and fund collection reason code
6. Debit adjustment reason code
7. Error reason code
8. Rejection reason code

The reason codes should adhere to the following norms:

9. All reason codes should have a length of 3 characters
10. The reason code should have the following variable associated along with other relevant variables:
 - Function code
 - Product code
11. Reason codes must be grouped with respect to ranges, e.g., 100 to 199 for disputes, etc.

Refer annexure for reason code structure.

10.1.9.2 Document Types Definition for Dispute Handling

Various types of documents required for fulfilling different transactions and requests on the system need to be identified and linked with the relevant transactions. This option will define the various documents while performing dispute related actions.

The documents could be provided by system participants for dispute related actions as illustrated below.

10.1.9.2.1 Customer related documents:

- Dispute form
- Bill copy / invoice
- Bill payment receipt
- Other documents

10.1.9.2.2 Operating Unit related documents:

- Authorization log
- Operating Unit log
- Transaction supporting document
- Debit adjustment form
- Arbitration form
- Arbitration response form
- Other documents

The document uploaded should get linked to a transaction. It should also specify which type of document is uploaded.

11 BBPOU On-Boarding and Management

11.1 BBPOU On-Boarding

BBPOU on-boarding set up will be required in following scenarios:

1. Registration of a new BBPOU
2. Activation/Deactivation of a BBPOU
3. Merger/demerger, exit of a BBPOU
4. Any change in the parameter settings due to regulatory requirements
5. Any major change in BBPOU's local system impacting BBPCU configuration settings
6. Any update request as required by the existing BBPOU
7. Any change in the Biller level configuration
8. Any change in BBPOU role i.e. (Non Bank/Bank, Customer/Biller/Both)

11.2 New BBPPOU on-boarding

BBPOU may approach BBPCU for commencing the on-boarding after receiving the in-principle approval from RBI. BBPOU on-boarding set up and testing will be done by the BBPCU team before certification. The following process may be followed for BBPOUs to get listed on the system.

11.2.1 BBPOU Activities:

For a new BBPOU, all relevant forms will be provided by BBPCU team. For any future changes, the BBPOU may request for changes with the BBPOU canvas.

1. BBPOU will fill-up the forms and share required documents (scanned and physical copy).
2. Submitted information will be queued for approval.
3. BBPCU may ask additional information from BBPPOU (if required) to certify if pending for approval.

11.2.2 BBPCU Activities:

The entire activity will be approved at the BBPCU end through a maker-checker concept once the information is configured by the BBPOU user. For new BBPOUs the following process may be followed.

1. All the data that is captured on the BBPOU registration form should be entered into the system while creating the BBPOU profile in the system. The form should be uploaded on the system and should be accessible along with all the data.
2. Once the BBPCU maker approves or rejects a BBPOU application, it will then need approval by the BBPCU checker to confirm or over-ride the BBPCU maker action.
3. BBPOU ID for the BBPOU will be generated after the BBPCU checker approves (for successful approval) the particular BBPOU.
4. Once approved by the BBPCU checker, all the information will be stored and used for system configuration.
5. Below would be the tentative process flow for onboarding of any new BBPOU

Sub-Process Name	Description of Entry Criteria	Description of Exit Criteria	Documents Required
On-boarding New BBPOUs in BBPS	Consent letters from the BBPOU (Bank/ Non-Bank Entity) to initiate BBPS Service	Receipt of documents, duly signed by Member BBPOU and submission/Upload of enablement.	In principal approval by RBI BBPOU Participation & compliance Form Board Resolution Letter of Authority (LOA) KYC/AML undertaking for BBPOUs Letter from Sponsor Bank (for non- bank BBPOUs) Tripartite Agreement (Agreement with biller/BBPOU/BBPCU) Collateral Deposit/SGF Fees/NDC Acceptance of BBPS business charges including onboarding / certification / one time fees for BBPOUs sponsor bank
Network Readiness for BBPS Enablement	BBPCU Operations Team shares the Requirement sheet with the BBPOU	Port made ready for testing and certification process	Network Compliance form for BBPS ECS Mandate for Network charges Application for NPCINet/Internet (In case of connectivity required)
Testing and Certification	BBPCU Operations team provides testing details with BBPOU Operations team	Completion of UAT Certification	BBPS access request form (BARF)/ DMS user access form Master data of billers , sub billers and agents/ AI BBPOU escalation matrix
Production Movement	Request from BBPCU Operations team to BBPOU team to provide Go-Live and sign-off	Go-live confirmation from Production team	IFSC and Settlement account confirmation letter Signoff letter (incl. audit/certification & Testing /network team) Go live letter

Table 10: BBPOU on-boarding flow

Note:

1. BBPOUs already connected to NPCI may not be required to retest the NW level configuration
2. BBPOUs will have to specify their intended role in the scheme i.e. Customer facing BBPOU, Biller facing BBPOU or both.
3. BBPOUs will be tested and certified as per the choice indicated above.
4. Once the documents has been uploaded, the same will be available at BBPCU end for on-boarding process.

11.3 BBPOU Management

All BBPOU details will be captured under this section. This option provides scope for managing BBPOUs i.e. deleting, modifying and blocking. Also, mapping and configuration of BBPOU IDs and addition of sponsor bank will be done.

Following information will be captured from the BBPOU:

- RTGS code / account number of BBPOU
- RTGS code / account number of sponsor bank (if applicable)
- Service Tax No.
- Contact Matrix (along with authorized signatory)

Any change to the BBPOU data should be accompanied with corresponding documentation, i.e., forms which should be uploaded when the change is done.

11.4 BBPOU ID Definitions

The BBPOU ID is a 4-character alphanumeric identifier which will uniquely identify an Operating Unit (Bank or Non-Bank) in BBPS and will be issued by BBPCU to each of the BBPOUs.

Example of a BBPOU ID may be the following:

- For Reserve Bank of India, BBPOU ID may be RB01
- For Bill Provider, BBPOU ID may be BP01

12 Customer Registration Process

The Bharat Bill Payment System will provide the customer the facility to register himself in order to be able to see a single view of billers registered and payments made, have his details already stored on the system without any requirement to re-enter them each time a payment is made, and monitor all his queries and complaints.

In BBPS, customers can go to any existing agent or BBPOU website and get themselves registered, or can directly access the portal provided by the BBPCU for registration. The customer has to provide mandatory information to complete the registration process. BBPCU will perform some internal checks to make sure that the same mobile number is not already been provided by some other customer. Once the registration process is completed a unique customer ID and random password will be generated for the client. The customer has to reset the password at the time of the first log-in and the new password should be in line with the password policy recommended by the BBPCU.

12.1 Process Flow

The below diagram represents the process flow for customer registration in Bharat Bill Payment System:

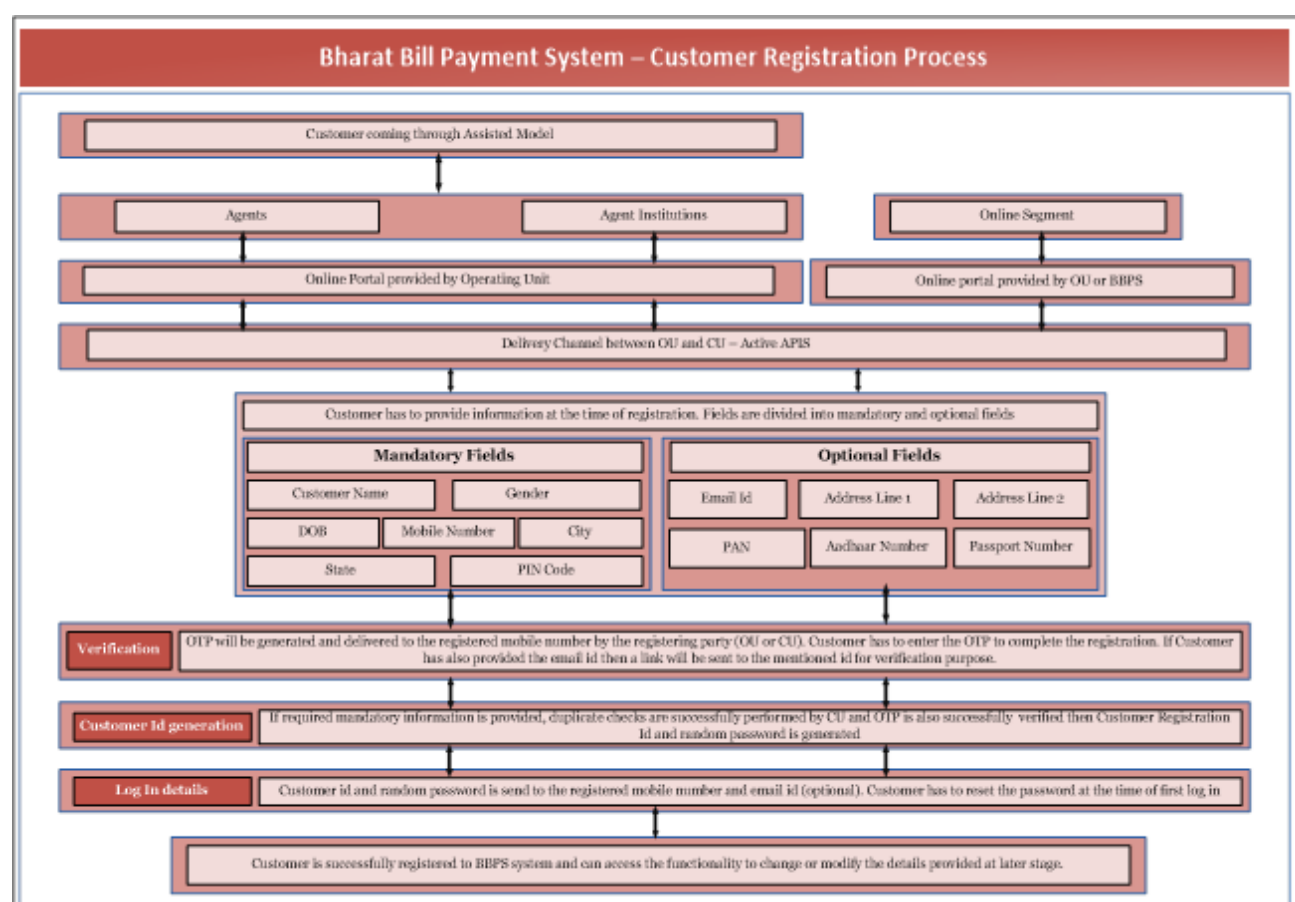


Figure 19: Process flow for customer registration on BBPS

The information required from the customer at the time of registration can be divided into mandatory and optional fields, as stated below.

Mandatory fields: This information is mandatory and customer cannot complete the registration process without providing this information. System will not allow the customer to submit the request without providing information in mandatory fields.

Optional fields: These fields are optional and customer can complete the registration process without providing information in these fields. This information might be useful to provide additional features and services to the customer at later stage. For example customer e-mail ID is an optional field and can be used for customer communication and marketing at a later stage.

The below table represents the information required to be provided by the customer to complete the registration process on the Bharat Bill Payment System.

S. No.	Information Required	Mandatory / Optional	Data Type	Data Length	Data Field
1	Customer Name	Mandatory	Character	30	Variable
2	Gender	Mandatory	Character	1	Fixed
3	Date of Birth	Mandatory	Date (DD/MM/YYYY)	10	Fixed
4	Mobile Number	Mandatory	Numeric	10	Fixed
5	E-mail ID	Optional	Alphanumeric	50	Variable
6	Address Line 1	Mandatory	Alphanumeric	50	Variable
7	Address Line 2	Optional	Alphanumeric	50	Variable
8	Address Line 3	Optional	Alphanumeric	50	Variable
9	City	Mandatory	Character	15	Variable
10	State	Mandatory	Character	15	Variable
11	PIN	Mandatory	Numeric	6	Fixed
12	Aadhaar Number	Optional	Numeric	12	Fixed
13	PAN	Optional	Alphanumeric	10	Fixed
14	Passport Number	Optional	Alphanumeric	8	Fixed

Table 11: Data fields required for customer registration process

Once the information is provided by the customer for all mandatory fields, BBPCU will perform the duplicate check on real time basis for the mobile number. The information related to all the customer's registered in BBPS is maintained by BBPCU and is updated on a real time basis. The responsibility to generate unique customer registration number and to perform the duplicate checks is with BBPCU as BBPCU is maintaining the central repository of all the customers registered through different participants of BBPS. There can be two broad scenarios:

Scenario1: Customer has directly gone to the online portal provided by BBPS and provided all required information there. BBPCU will check the mobile number provided by the customer to make sure that these records do not exist in the database maintained by BBPCU. If the same mobile number is present in the data base then a message will be displayed that the information already exists in the system, and request the customer to provide another mobile number or provide the "Forgot Password" option.

Scenario 2: Customer has gone to any participant of BBPS (Agent, agent institution or BBPOU) and wants to register on BBPS. Customer will provide the required information and this information will be shared with the BBPCU on real time basis through the pre-defined APIs. BBPCU will perform the duplicate check and confirm. The communication between

BBPOU and BBPCU will happen through active APIs; the onus to generate customer registration ID is with BBPCU.

Once the duplicate check is done by BBPCU and is successful, an OTP (One time password) will be sent to the mobile number provided by the customer at the time of registration. The responsibility to generate OTP will be with the party (either BBPOU or BBPCU) registering the customer. The OTP generated will be shared with the customer as a service message and not as a promotional message so that it does not get filtered out incase customer has opted for DND service.

E-mail ID is an optional field and if customer has provided the e-mail ID at the time of registration then a link will be sent to the ID for verification. Customer has to log in to his e-mail and will have to click on the link to verify. Any updates and OTPs will not be sent to the provided e-mail ID until it is verified by the customer.

Once the OTP is delivered to mobile number or e-mail ID (optional), the customer has to input it in to the system to complete the registration process. Customer registration number is generated by BBPCU and shared with the respective BBPOU or agent. The responsibility to generate customer registration ID is maintained with BBPCU to avoid any duplication.

After completion of the registration process, the customer's unique registration ID and temporary password will be sent to his mobile number and e-mail ID (if provided). The customer has to reset the password at the time of the first log-in, and will not be able to access any other functionality without changing the default password.

12.2 Customer ID Generation

The customer registration ID will be a 10-characters system generated ID. The BBPCU system will capture the BBPOU ID as well through which the customer has registered. In case the customer registers directly in the BBPCU system then it will assign a default BBPOU ID. The 10-character customer ID will be linked to the mobile number provided by the user at the time of registration. The system generated customer registration number and corresponding mobile number will be stored at the back end in the database table. Next time onwards, the registered customer will only have to provide the mobile number and password at the time of log-in and the system will automatically fetch the corresponding customer registration number stored in the back end table. So from the system perspective, the number generated at the time of registration will be used as a customer registration ID but the customer need not remember that number and can use his / her mobile number or customer ID interchangeably to access the BBPS.

If customer has decided or has already changed the mobile number then we have provided the functionality in BBPS through which registered customer can change the existing mobile number. This functionality is explained in detail in the next section of this document.

12.3 Modification of customer details

Customers registered in BBPS will have the option to modify the information provided at the time of registration at a subsequent stage. The process to modify has to be designed in a way to prevent fraudulent entry of details at the agent's end. Once customer has requested for a change and OTP is generated, intimation will also go to the old mobile number and e-mail ID available in the system. The OTP will be sent to the new mobile number or e-mail

ID, and once the OTP is verified, the system will still wait for around 8-24 hours (configurable at BBPCU level) before activating the change. This will give sufficient time to a customer to get in touch with the concerned team and stop the request in case of any fraud.

Process to change address: When a customer wants to update the address provided at the time of registration, an OTP will be sent to the registered mobile number and e-mail ID (if provided at the time of registration). The responsibility to generate the OTP will be with the party (either BBPOU or BBPCU) through which the customer request is made.

The customer has to enter the OTP before submitting the request. The system will verify the OTP submitted by the customer before implementing any changes in the address maintained in the BBPS database.

Process to change mobile number: There is a possibility that the customer might have changed his mobile number and wants to update his new number on BBPS. In this case the OTP will be sent to the new mobile number provided by the customer after deduping it (to check its existence in the BBPCU system) as the old mobile number might be out of service now. The responsibility to generate the OTP will be with the party (either BBPOU or BBPCU) through which the customer request is made.

However, to avoid any possibility of fraud at the agent's end, an intimation of change in mobile number on BBPS will also be sent to the old mobile number as well as the e-mail ID registered with BBPS. Customer gets the intimation and can inform the concerned team to stop the fraud. The message may also state a number that the customer may call immediately if he has not updated the details and suspects a fraudulent transaction.

Once the records are updated in BBPS, the confirmation will be sent to the old mobile number, new mobile number and e-mail ID (if entered) of the customer.

Process to change E-mail ID: The e-mail ID is mentioned as an optional field on BBPS and customer can complete the registration process without even providing it. In case there is a request for an e-mail ID to be updated, an OTP will be sent to the customer's registered mobile number, which the customer needs to enter at the time of submitting the request. The responsibility to generate the OTP will be with the party (either BBPOU or BBPCU) accepting the request of the customer. The intimation will also be sent to the old email ID of the customer so that in case of any fraudulent request, the customer gets the intimation and can inform the concerned team to stop the fraud. The message may also state a number that the customer may call immediately if he has not updated the details and suspects a fraudulent transaction.

Once the OTP is verified by the system, the e-mail ID will be updated in the records of BBPS. A verification link will be sent to the new email id provided by the customer and customer has to verify by clicking on the link.

12.4 Biller Addition and Modification

Registered customers of Bharat Bill Payment System will have the option to register their billers and get alerts on SMS or e-mail (if provided) once the bills are generated. The BBPCU system should validate the biller information entered by the customer with the biller via BBPOU2 by presenting his current bill details. Registered customers can also modify the biller details at a later stage, and add or delete the billers from their registered accounts. The steps to modify the biller information are provided below:

Step 1: Customer will log in using the credentials (Customer registration number and password).

Step 2: Post log in, a link will be available to add or modify the billers. Customer will click on the link and provide the biller details in case of addition request or will update the existing details in case of modification request. Customer will provide the required mandatory information and then click on the search button to get the list of relevant billers available in BBPS. Customer can only add the billers available in BBPS.

Step3: Once the required information is provided by the customer, an OTP will be generated and sent to the registered mobile number and e-mail ID (if provided). This step to generate and verify OTP is configurable at BBPCU level. If at any stage BBPCU thinks that OTP verification is not required for biller addition and modification purpose then this functionality can be disabled at BBPCU level.

Step 4: Customer will enter the OTP and submit the request, which the system will cross-verify.

Step 5: Once the OTP is verified, intimation will be sent to the registered mobile number and e-mail ID.

Step 6: Through the biller BBPOU, the customer information will travel to the biller, who will validate the details entered by the customer, especially the customer's account number or registration number with the biller (one of the Reference Fields to be configured, as mentioned below). Following this validation and transmission of the confirmation to the BBPCU, changes will reflect in the system following a time lag as decided by the BBPCU.

S. No.	Information Required	Mandatory / Optional	Data Type	Data Length	Data Field
1	Biller Name	Mandatory	Character	30	Variable
2	Biller Category	Mandatory	Character	20	Fixed
3	City	Mandatory	Alphanumeric	15	Variable
4	Reference field 1	Mandatory	Alphanumeric	20	Variable
5	Reference field 2	Conditional	Alphanumeric	20	Variable
6	Reference field 3	Conditional	Alphanumeric	20	Variable
7	Reference field 4	Conditional	Alphanumeric	20	Variable
8	Reference field 5	Conditional	Alphanumeric	20	Variable
9	Reference field 6	Conditional	Alphanumeric	20	Variable

Table 12: Data fields required for biller addition / modification

12.5 Deactivation of Registered ID

The process of customer deregistration would also require proper authentication, in a way similar to that for modification of customer details. For all deregistration requests received, an OTP will be sent to the customer's registered mobile number and e-mail ID (if provided), which the customer will then have to input before submitting. The responsibility to generate the OTP will be with the party (either BBPOU or BBPCU) accepting the request of the customer. As is the case with other processes, this OTP shall also be a service message.

Once deregistration is properly authenticated with the OTP, the customer details will be removed from the live environment but will be archived in accordance with BBPCU's data storage policy.

13 Corporate Payments and Standing Instructions

13.1 Introduction

This section covers the technical aspects of bill presentment and payment for corporate customers through the BBPS ecosystem, as well as payments made through Standing Instructions. It describes the functionality and file structures, their formats, and the data fields used for corporate payments and SI transactions routed through the BBPS network.

The corporate module in BBPS will be different from agent-assisted and online payments made by retail customers. For identifying the Corporate, a Group ID will be generated and all the customers within that corporate will be linked to the Group ID. Corporates will tie up with a BBPOU for handling all bill payments related to the corporate or related to the employees of the corporate. For instance, the BBPOU may manage all the electricity bill payments of all the factories in different locations, as well as mobile bill payments of all its employees. In both the above scenarios, the corporate will provide complete bill details to the BBPOU against which the BBPOU will stage a file in the clearing and settlement (BBPCU) application. BBPOU2 will respond to BBPOU1 which is linked with the corporate with the required details.

BBPOUs may make payments directly on behalf of corporates for bills sent to corporates directly by billers, akin to Quick Pay for retail payments. Alternately, they can stage a bill presentment request file with the details as provided by the corporate for fetching the bill details. After the clearing session, the BBPCU will create outbound / inbound files to the BBPOUs respectively. The BBPOU2 will have to respond to the bill presentment request in the specified format as and when the bill is generated.

Payments through standing instructions may be made by both retail and corporate customers, and are initiated by the BBPOU1. The actual debit of the customer or corporate's account on an instruction from the BBPOU takes place outside the BBPS ecosystem.

This section covers both bulk presentment and payment process in detail, and goes on to explain how it is applicable to corporate and SI payments.

Note: For the purpose of this section, Corporate BBPOU and Customer BBPOU may be used interchangeably.

13.2 Bill Presentment

In the context of the BBPS ecosystem, bill presentment refers to a request made by a individual/ corporate for bill details from its respective BBPOU.

Request for bill presentment can be triggered by the BBPOU through an online mode or offline mode.

In online mode, the BBPOU collates the relevant information like Account number, billing period and bill date from the customer and fetches the bill details from the biller BBPOU on

the next bill due date. This will enable the BBPOU to fetch bill presentment details on real time basis and present it to the customer. This is functionally similar to a bill fetch transaction initiated by a customer through an agent or online

In case of offline mode, the customer BBPOU generates a bulk file and uploads it on the BBPCU, which then redirects the request to the respective biller BBPOU. Bill presentment through this mode will be a one-time activity for a customer (corporate or individual) to register for the bill presentment option.

13.2.1 Bill Presentment Request Process Flow

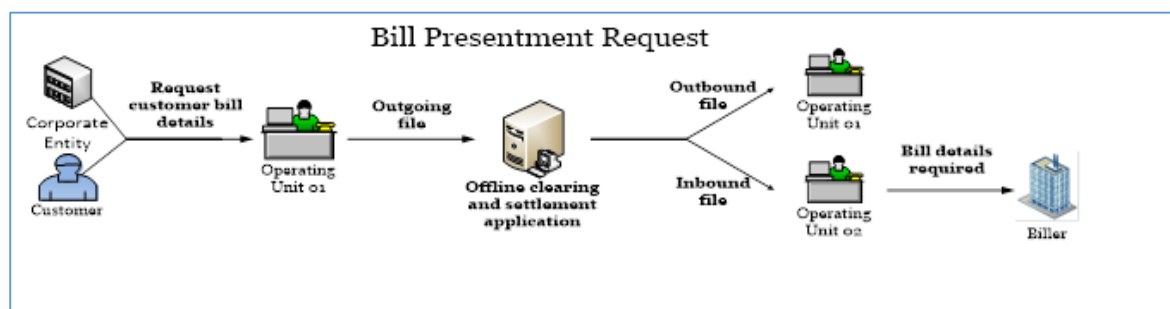


Figure 20: Bill presentment request process flow

Step 1: The corporate entity requests bill details to the BBPOU1 to which it is linked.

Step 2: The BBPOU1 accordingly prepares the outgoing file on the basis of the message specification mentioned in the subsequent section. The file needs to be staged in the clearing and settlement application.

Step 3: After cut-over of the application, the BBPCU will trigger the clearing process. Post clearing process, the corporate BBPOU1 and the biller BBPOU2 will receive outbound and inbound files respectively.

Step 4: The biller BBPOU2 sends the details to the biller, based on the information received from the inbound file.

13.2.2 Bill Presentment Request Message Format

The bill presentment request message is non-financial in nature. Customer and biller BBPOUs will receive the file in both XML and MS Excel format.

Data Element	Outgoing (Customer BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of bill presentment	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanumeric	VODA00000MUM03
Group ID	C	C	C	<GroupID>	5	Alphanumeric	SS999

Transaction originator ID code	M	M	M	<Fwdglnst>	4	Alphanumeric	AB22
Transaction destination ID code		M	M	<Recvlnst>	4	Alphanumeric	CD12
Reference field 1	M	M	M	<RefFld1>	20	Alphanumeric Special	Reference fields that may be customised according to the requirements of specific billers at the time of on-boarding. Sample data that may be entered in these fields include Customer account number (for electricity suppliers), Cycle number (for landline operators) etc. These data elements would be conditional - which is to say that they would be mandatory for specific billers only.
Reference field 2	C	C	C	<RefFld2>	20	Alphanumeric Special	
Reference field 3	C	C	C	<RefFld3>	20	Alphanumeric Special	
Reference field 4	C	C	C	<RefFld4>	20	Alphanumeric Special	
Reference field 5	C	C	C	<RefFld5>	20	Alphanumeric Special	
Reference field 6	C	C	C	<RefFld6>	20	Alphanumeric Special	
Reference field 7	C	C	C	<RefFld7>	20	Alphanumeric Special	
Settlement date	-	M	M	<StlmntDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121

				2>			
Fee amount 3	-	C	C	<FeeAmt 3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt 4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt 5>	1-18	Numeric	121
Commission amount	-	C	C	<CommA mt>	1-18	Numeric	1121
Fee Dr/Cr indicator	-	C	C	<FeeDCIn d>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy >	3	Numeric	356
Member message information	0	0	0	<MsgTxt>	200	Alphanu mericSp ecial	Customer name
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnC d>	3	Numeric	666

Table 13: Bill presentment request message format

13.2.3 Naming Convention: Outgoing File from Customer BBPOU

The first outgoing file processed / staged by a customer BBPOU for bill presentment request and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001AB122015092800

The above sample file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outbound file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150928	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 28
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 14: Naming convention for outgoing file from customer BBPOU

13.2.4 Bill Presentment Response Process Flow

Similar to a bill fetch response, a bill presentment response is used by the biller BBPOU to respond to the corporate's BBPOU with the details as requested in the bill presentment request. This process is also carried out through a file which is routed through the BBPCU. This is a one-time activity in response to a customer (corporate or SI payments) to register for the bill presentment option.

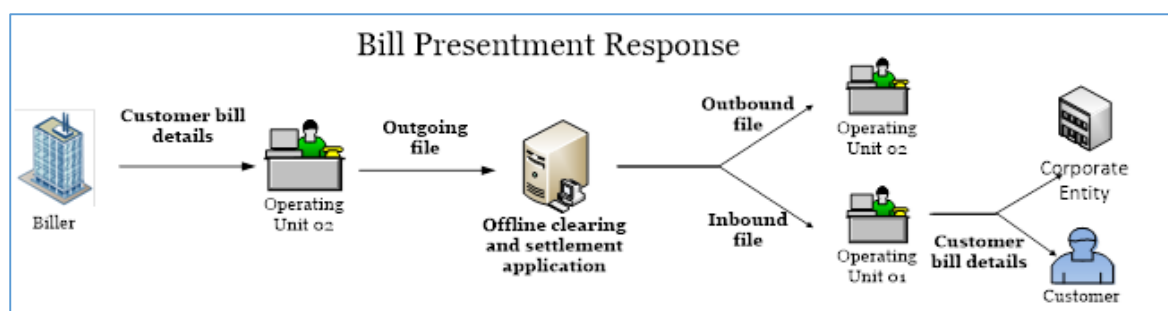


Figure 21: Bill presentment response process flow

Step 1: As per the bill presentment request received from the corporate BBPOU, the biller prepares the response file and sends it to the biller BBPOU.

Step 2: The BBPOU accordingly prepares the outgoing file based on the message specification mentioned in the table below. The file needs to be staged in the clearing and settlement application.

Step 3: Post cut-over of the application, the BBPCU triggers the clearing process. During the clearing process, the BBPCU validates the response with the data elements of the bill presentment request. Post clearing process, the corporate BBPOU and the biller BBPOU will receive outbound and inbound files respectively.

Step 4: The corporate BBPOU sends the details back to the corporate as requested in the bill presentment request.

Step 5: All the request made by the customer BBPOU for multiple customer account ID's will be identified by a unique reference and message ID. These ID's are stored by the BBPCU for future referencing of bill presentment response messages. Thus, while responding to these request on regular basis the biller BBPOU will populate the responses with these respective message and reference IDs

13.2.5 Bill Presentment Response Message Format

The bill presentment response message is non-financial in nature. Customer and biller BBPOUs will receive the file in both XML and MS Excel format.

Data Element	Outgoing (Biller BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of bill presentment transaction	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanu meric	VODA00000MUM03
Group ID	C	C	C	<GroupID>	5	Alphanu meric	SS999

Transaction currency code	M	M	M	<Currency>	3	Numeric	356
Transaction amount	M	M	M	<amount>	1-18	Numeric	10012
Due date	M	M	M	<DueDt>	8	Numeric	27092015
Late payment acceptance indicator	M	M	M	<LtPymntAcptId>	1	Alpha	Y - Yes N - No
Transaction originator ID code	M	M	M	<ForwardingInst>	4	Alphanumeric	AB22
Transaction destination ID code		M	M	<ReceivingInst>	4	Alphanumeric	CD12
Reference field 1	M	M	M	<RefFld1>	20	Alphanumeric Special	Reference fields that may be customised according to the needs of specific billers at the time of on-boarding. Sample data that may be entered in these fields include Customer account number (for electricity suppliers), Cycle number (for landline operators) etc. These data elements would be conditional , i.e. mandatory for specific billers only.
Reference field 2	C	C	C	<RefFld2>	20	Alphanumeric Special	
Reference field 3	C	C	C	<RefFld3>	20	Alphanumeric Special	
Reference field 4	C	C	C	<RefFld4>	20	Alphanumeric Special	
Reference field 5	C	C	C	<RefFld5>	20	Alphanumeric Special	
Reference field 6	C	C	C	<RefFld6>	20	Alphanumeric Special	
Reference field 7	C	C	C	<RefFld7>	20	Alphanumeric Special	

Settlement date	-	M	M	<StlmtDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee Dr/Cr indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Member message information	0	O	O	<MsgTxt>	200	Alphanumeric Special	Customer name
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnCd>	3	Numeric	666

Table 15: Bill presentment response message format

13.2.6 Naming Convention: Outgoing File from Biller BBPOU

The first outgoing file processed / staged by a BBPOU for bill presentment response and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001CD342015092800

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing message
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	CD34	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150928	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date

		- 28
Sequence number	00	00- signifies that this is the first incoming file that has been generated for this particular participant for the specified date

Table 16: Naming convention for outgoing file from biller BBPOU

13.3 Corporate Bill Payments

For actual bill payments, a corporate entity needs to send a file confirming the payment to be processed for its customer / employee bills to the BBPOU to which it is linked. This particular option may be used by the corporate's BBPOU to make payments on behalf of the corporate for bills received directly from by the corporate from the biller, in a manner similar to the Quick Pay option for retail customers. It may also follow a presentment transaction as discussed earlier.

13.3.1 Corporate Payment Process Flow

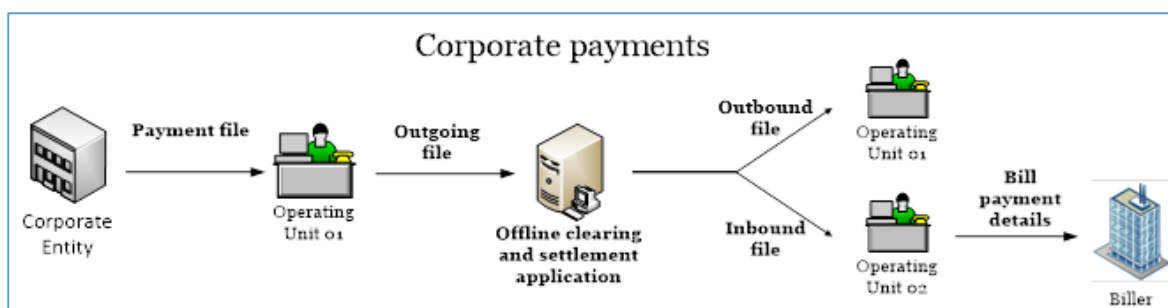


Figure 22: Corporate payments - process flow

Step 1: The corporate entity sends a file confirming the payment to be processed for the customer bills to the BBPOU to which it is linked. The fund transfer between the corporate and the BBPOU happens outside the network

Step 2: The BBPOU accordingly prepares the outgoing file based on the message specifications mentioned in the table below. The file needs to be staged in the clearing and settlement application.

Step 3: Post cut-over of the application, the BBPCU will trigger a clearing process during which it will validate structural details of the message. Post clearing process, the corporate BBPOU and the biller BBPOU will receive outbound and inbound files respectively.

Step 4: Settlement file processed by the BBPCU will debit the Corporate BBPOU and credit the Biller BBPOU.

Step 5: Biller BBPOU post receiving confirmation of the settlement details from BBPCU needs to send the details to the biller for crediting the customer account.

13.3.2 Corporate Payment Message Format

BBPOUs which have on-boarded corporates will need to process the bill payments file in the below mentioned format. Since the file will be staged by the BBPOU on behalf of the corporate entity, the application will not validate any data which is present; only structural validation will be done. Post clearing, the corporate BBPOU will receive the outbound file and biller BBPOU will receive the inbound file along with separate reports. The BBPOUs will receive the files in both XML and MS Excel format.

Data Element	Corporate BBPOU (outgoing)	Corporate BBPOU (outbound)	BBPOU Biller (inbound)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<DtTmTxn>	14	Numeric	15092015130514
Transaction ID	M	M	M	<TxnReferencId>	12	Alphanumeric	TR3456789123
Internal tracking number	O	O	O	<ApprvlRefNm>	6	Alphanumeric	ABC321
Group ID	M	M	M	<GroupID>	5	Alphanumeric	SS999
Agent Institution ID code	M	M	M	<ID>	20	Alphanumeric	OU01OXYG000001123456
Transaction Amount	M	M	M	<amount>	1-18	Numeric	10012
Transaction currency code	M	M	M	<Currency>	3	Numeric	356
Transaction originator ID code	M	M	M	<ForwardingInst>	4	Alphanumeric	AB22
Transaction destination ID code	-	M	M	<ReceivingInst>	4	Alphanumeric	CD12
Settlement date	-	M	M	<StlmntDt>	8	Numeric	15092015
Reference field 1	M	M	M	<RefFld1>	20	Alphanumeric Special	Reference fields that may be customised according to the requirements of specific billers at the time of on-boarding. Sample data that may be entered in these fields include Customer account number (for electricity suppliers), Cycle number (for landline operators) etc. These data elements would
Reference field 2	C	C	C	<RefFld2>	20	Alphanumeric Special	
Reference field 3	C	C	C	<RefFld3>	20	Alphanumeric Special	
Reference field 4	C	C	C	<RefFld4>	20	Alphanumeric Special	
Reference field 5	C	C	C	<RefFld5>	20	Alphanumeric Special	
Reference field 6	C	C	C	<RefFld6>	20	Alphanumeric Special	
Reference field 7	C	C	C	<RefFld7>	20	Alphanumeric Special	

							be conditional - which is to say that they would be mandatory for specific billers only.
Settlement DR/CR indicator	-	M	M	<StlmntD CInd>	1	Alpha	D
Settlement currency code	-	M	M	<StlmntCc yCd>	3	Numeric	356
Settlement amount	-	M	M	<StlmntA mt>	1-18	Numeric	10011
Fee code 1	-	M	M	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	M	M	<CommCa t1>	3	Numeric	234
Fee amount 1	-	M	M	<FeeAmt1 >	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2 >	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3 >	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4 >	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5 >	1-18	Numeric	121
Commission amount	-	M	M	<CommA mt>	1-18	Numeric	1121
Fee DR/CR indicator	-	M	M	<FeeDCIn d>	1	Alpha	D
Fee currency	-	M	M	<FeeCcy>	3	Numeric	356
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnC d>	3	Numeric	666

Table 17: Corporate payment message format

13.3.3 Naming Convention: Outgoing File from Corporate BBPOU

The first outgoing file processed / staged by a BBPOU for corporate payment and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150924	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 24
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 18: Naming convention for outgoing file from corporate BBPOU

13.4 Corporate Refunds

The corporate refund process may be used for a biller BBPOU to return amounts paid by corporates to the corporate BBPOU, when it has received a credit for an incorrect amount. A refund may be raised only for the full amount paid by the corporate. Unlike a payment or presentment transaction, this transaction is initiated by the biller through the biller BBPOU.

13.4.1 Corporate Refund Process Flow

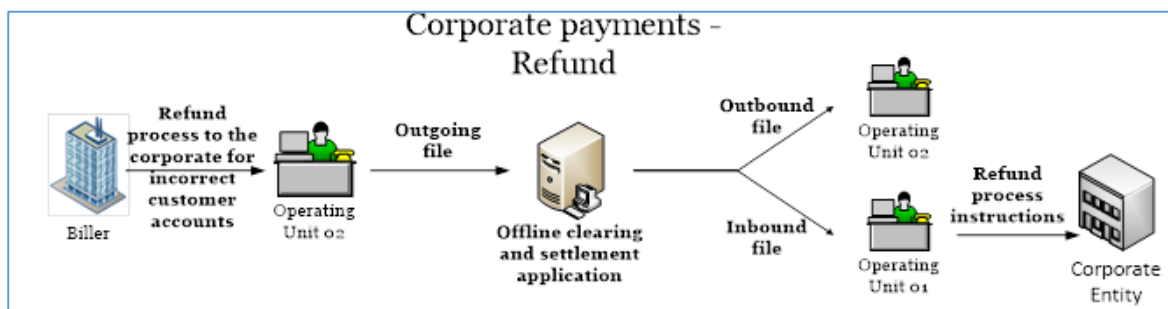


Figure 23: Corporate refunds - process flow

Step 1: The biller identifies incorrect credits from corporates

Step 2: The biller provides the BBPOU details of incorrect payments, which have been provided in a specified file format mutually agreed upon by both entities

Step 3: The biller BBPOU prepares the outgoing file on the basis of the message specification mentioned in the below mentioned table, and stage it in the clearing and settlement application

Step 4: BBPCU will trigger the clearing process after cut-over of the application. During the clearing process, BBPCU will validate the details provided in this file with those in the respective corporate payments transaction. Post the clearing process, BBPOUs will receive outbound and inbound files respectively.

Step 5: Settlement file processed by BBPCU will debit the Biller BBPOU2 and credit the Corporate BBPOU.

Step 6: The Biller BBPOU post receiving confirmation of the settlement details from the BBPCU sends the details to the biller for crediting the customer account.

13.4.2 Corporate Refund Message Format

This message will be used by the Biller BBPOU to process the refund of bill payments received through another BBPOU to which a corporate is linked. The biller BBPOU will use the below format for processing refund to the Corporate BBPOU. The BBPOUs will receive the file in both XML and MS Excel format.

Data Element	Biller BBPOU (outgoing)	BBPOU Biller (outbound)	Corporate BBPOU (inbound)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<DtTmTxn>	14	Numeric	15092015130514
Transaction ID	M	M	M	<TxnRefencId>	12	Alphanumeric	TR3456789123
Internal tracking number	O	O	O	<ApprvlRefNm>	6	Alphanumeric	ABC321
Group ID	M	M	M	<GroupID>	5	Alphanumeric	SS999
Agent Institution ID code	M	M	M	<ID>	20	Alphanumeric	OU01OXYG000001123456
Transaction Amount	M	M	M	<amount>	1-18	Numeric	10012
Transaction currency code	M	M	M	<Currency>	3	Numeric	356
Transaction originator ID code	M	M	M	<ForwardingInst>	4	Alphanumeric	AB22
Transaction destination ID code	-	M	M	<ReceivingInst>	4	Alphanumeric	CD12
Settlement date	-	M	M	<StlmntDt>	8	Numeric	15092015
Reference field 1	M	M	M	<RefFld1>	20	Alphanumeric Special	Reference fields to be customised for specific billers at the time of on-boarding. Sample data include Customer account number (for electricity suppliers), Cycle number (for landline
Reference field 2	C	C	C	<RefFld2>	20	Alphanumeric Special	
Reference field 3	C	C	C	<RefFld3>	20	Alphanumeric Special	
Reference field 4	C	C	C	<RefFld4>	20	Alphanumeric Special	
Reference field 5	C	C	C	<RefFld5>	20	Alphanumeric Special	
Reference	C	C	C	<RefFld6>	20	Alphanumeric	

field 6				>		merics Special	operators) etc. These data elements would be conditional
Reference field 7	C	C	C	<RefFld7 >	20	Alphanu meric Special	
Settlement DR/CR indicator	-	M	M	<StlMntD CInd>	1	Alpha	D
Settlement currency code	-	M	M	<StlMntC cyCd>	3	Numeric	356
Settlement amount	-	M	M	<StlMntA mt>	1-18	Numeric	10011
Fee code 1	-	M	M	<FeeCd1 >	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2 >	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3 >	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4 >	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5 >	3	Numeric	115
Commission category 1	-	M	M	<CommC at1>	3	Numeric	234
Fee amount 1	-	M	M	<FeeAmt 1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt 2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt 3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt 4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt 5>	1-18	Numeric	121
Commission amount	-	M	M	<CommA mt>	1-18	Numeric	1121
Fee DR/CR indicator	-	M	M	<FeeDCIn d>	1	Alpha	D
Fee currency	-	M	M	<FeeCcy>	3	Numeric	356
Member message information	M	M	M	<MsgTxt>	200	Alphanu mericSp ecial	Refund processed
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnC d>	3	Numeric	666

Table 19: Corporate refunds message format

13.4.3 Naming Convention: Outgoing File from Biller BBPOU

The first outgoing file processed / staged by a BBPOU for corporate refund and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001CD342015092800

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing message
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	CD34	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150928	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 28
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 20: Naming convention for outgoing file from biller BBPOU

13.5 Standing Instructions

Standing instructions are a way of making an automatic payment of a fixed amount at the end of a pre-defined period like a week or a month. It will be the responsibility of the customer / corporate BBPOU to initiate the debit from the account for processing the Standing Instruction.

13.5.1 Standing Instruction Process Flow

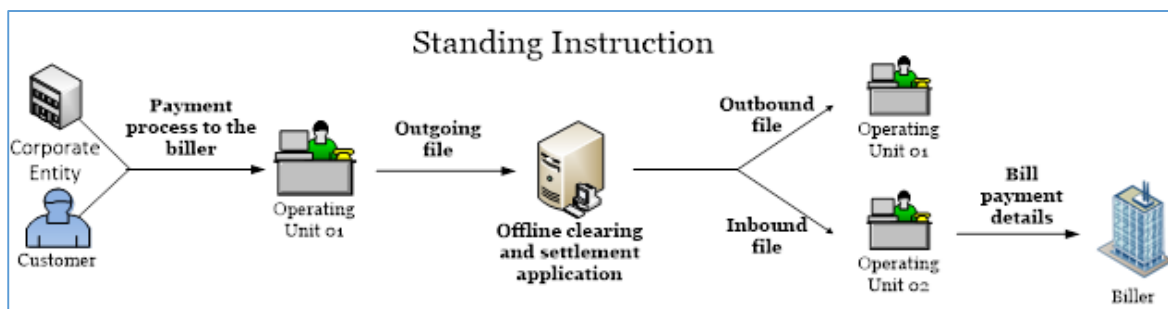


Figure 24: Standing Instructions

Step 1: Depending on the terms agreed, the BBPOU automatically debits the customer / corporate account at the end of the period. The fund transfer from the customer / corporate to the BBPOU happens outside the BBPS network.

Step 2: Post receiving the funds, the BBPOU prepares the outgoing file on the basis of the message specification mentioned in the below table. The file needs to be staged in the clearing and settlement application

Step 3: Post cut-over of the application, the BBPCU will trigger the clearing process. During clearing, the BBPCU will validate the transaction with the bill presentment response. Post clearing, the corporate BBPOU and biller BBPOU will receive outbound and inbound files respectively.

Step 4: The settlement file processed by the BBPCU debits the Customer BBPOU and credits the Biller BBPOU.

Step 5: Biller BBPOU post receiving confirmation of the settlement details from BBPCU sends the details to the biller for crediting the customer account.

13.5.2 Standing Instruction Message Format

Customer / corporate BBPOUs send this message to credit the biller BBPOU for the bill amount of the customer as paid through the SI. The standing instruction message is financial in nature, and the BBPOUs will receive the file in both XML and MS Excel format.

Data Element	Outgoing (Customer BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of stand-in transaction	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanumeric	VODA00000MUM03
Transaction currency code	M	M	M	<Currency>	3	Numeric	356
Transaction amount	M	M	M	<amount>	3-13	Numeric	10012
Due date of the bill	M	M	M	<DueDt>	8	Numeric	27092015
Due date mandate provided by the customer	M	M	M	<DueDtMndt>	8	Numeric	27092015
Late payment acceptance indicator	M	M	M	<LtPymntAcptId>	1	Alpha	Y - Yes N - No
Transaction originator ID code	M	M	M	<ForwardingInst>	4	Alphanumeric	AB22
Transaction destination ID code	-	M	M	<ReceivingInst>	4	Alphanumeric	CD12
Reference field 1	M	M	M	<RefFld1>	20	Alphanumeric Special	Reference fields that may be customised according to the requirements of specific billers at the time of on-boarding. Sample data that may be
Reference field 2	C	C	C	<RefFld2>	20	Alphanumeric Special	
Reference field 3	C	C	C	<RefFld3>	20	Alphanumeric Special	
Reference field 4	C	C	C	<RefFld4>	20	Alphanumeric Special	

Reference field 5	C	C	C	<RefFld 5>	20	Alphanu meric Special	entered in these fields include Customer account number (for electricity suppliers), Cycle number (for landline operators) etc. These data elements would be conditional - which is to say that they would be mandatory for specific billers only.
Reference field 6	C	C	C	<RefFld 6>	20	Alphanu meric Special	
Reference field 7	C	C	C	<RefFld 7>	20	Alphanu meric Special	
Settlement date	-	M	M	<Stlmnt Dt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1 >	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2 >	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3 >	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4 >	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5 >	3	Numeric	115
Commission category 1	-	C	C	<Comm Cat1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<Comm Amt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy >	3	Numeric	356
Member message information	O	O	O	<MsgTxt >	200	Alphanu meric Special	Customer name

Settlement DR/CR indicator	-	M	M	<Stlmnt DCInd>	1	Alpha	D
Settlement currency code	-	M	M	<Stlmnt CcyCd>	3	Numeric	356
Settlement amount	-	M	M	<Stlmnt Amt>	1-18	Numeric	10011
Record rejection indicator	-	C	C	<RejInd >	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsn Cd>	3	Numeric	666

Table 21: Standing instruction message format

13.5.3 Naming Convention: Outgoing File from Customer BBPOU

The first outgoing file processed / staged by a BBPOU for standing instructions and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150924	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 24
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 22: Naming convention for the outgoing file from customer BBPOU

14 Complaint Management System

The complaint management system aims to provide a simple, easy-to-use, standard platform for the resolution of all customer queries and complaints, in the process facilitating BBPOUs as well as the BBPCU to access and monitor details of all queries and grievances along with their redressal status. The system provides the flexibility to the customer to lodge a query or complaint through any BBPS-enabled agent outlet, or through the online channel, using his / her Transaction ID.

1. BBPCU shall put in place a centralized end to end complaint management system for all ON-US and OFF-US transactions.
2. Till such time the centralized management system can be put in place, to begin with, the BBPS will facilitate at least the centralized ticketing or lodging of complaints (against any biller) from the end-consumers at any of the BBPS points, even though the final redressal will be handled by the respective billers / BBPOUs.
3. The customer can directly or through the BBPOU or any agent (of BBPOU) be able to log onto the centralized BBPCU website and register complaint based on the transaction id created for that particular transaction.
4. The site or the complaint management portal would be the repository for this data and link to the billers through their respective BBPOUs.
5. The BBPCU Complaint Management System would be used for registering and tracking complaints for both ON US and OFF US transactions. In case of ON-US transactions the data for that specific transaction will be retrieved from the respective BBPOU.
6. At the time of raising a complaint, the customer will be asked for necessary details (e.g. name, mobile number and e-mail ID) that will be used for complaint status updates.
7. On the basis of the Transaction ID and the status of the transaction the complaint shall be tagged to the respective BBPOU and the biller for resolution.
8. The BBPOU can provide the access to the biller for checking the complaint and resolving the same for their set of complaints. In such cases once the biller updates the resolution in the system, BBPOU can verify and close the complaint. Closure of the complaint will remain with the assigned BBPOU only.
9. In case a complaint is not resolved within the TAT, a file will be generated at the BBPCU end and these cases will be manually uploaded in the DMS.
10. Two kinds of complaints are envisaged for BBPS:
 - Transaction-based complaint
 - Service-based complaint

11. The below table segregates the complaints which will require validation with the actual transaction, and transactions which are pertaining to service related issues and do not require validation.

<i>Validation required</i>	<i>Validation not required</i>
Transaction based	Delayed service
	Service quality
	Refusal of services
	Network-related complaints
	Other service-related complaints

Table 23: Validation for complaint categories

14.1 Transaction based complaint

This type of complaint is raised by a customer either for a successful / pending / failed transaction. The customer will initiate a complaint either at an agent outlet, BBPS website or BBPOU website. Complaint ID will be allocated by BBPCU after validation of transaction ID and the complaint ID will be used as a unique reference number for tracking complaints. The customer can raise a complaint only after T + 'x' days from the date of the transaction and can be configured on the basis of type of bill payment.

14.2 Service based complaint

This type of complaint is raised by a customer for non-transactional issues. Complaint may be raised at any time. Some of the service-based complaints are mentioned below:-

- Delayed service issues
- Service quality
- Refusal of services
- Network related complaints
- Other service-related complaints

Transaction based complaints will undergo validation at BBPCU and biller BBPOU levels. BBPCU and BBPOU will validate the transaction ID and accordingly allocate the complaint ID to the complaint which is raised by the customer.

Service based complaints won't undergo any transaction level validation. The customer can raise the complaint at any BBPS enabled outlet or on BBPS / BBPOU website based on the Agent ID and / or Agent Name. Service-based complaints will not move to the DMS under any circumstances, and escalations will be resolved by the customer BBPOU on the CMS itself.

The complaint management system will be a hybrid (combination of real time and batch processing) system where a complaint raised through the BBPS portal or an Operating Unit (through its agent or online) directly flows to the central unit. Once a ticket is raised in the BBPCU, the complaint is sent to the respective customer-side Operating Unit for resolution.

Based on the details of the complaint and whether the transaction is ON-US or OFF-US and which BBPOU will have to resolve it, the complaint may be assigned to the biller BBPOU by the customer BBPOU via the BBPCU. A Complaint ID will be generated by the BBPCU and communicated to the customer via the customer BBPOU (where the transaction originated

and not where the complaint is lodged). The customer BBPOU may also track resolution of the complaint using this ID.

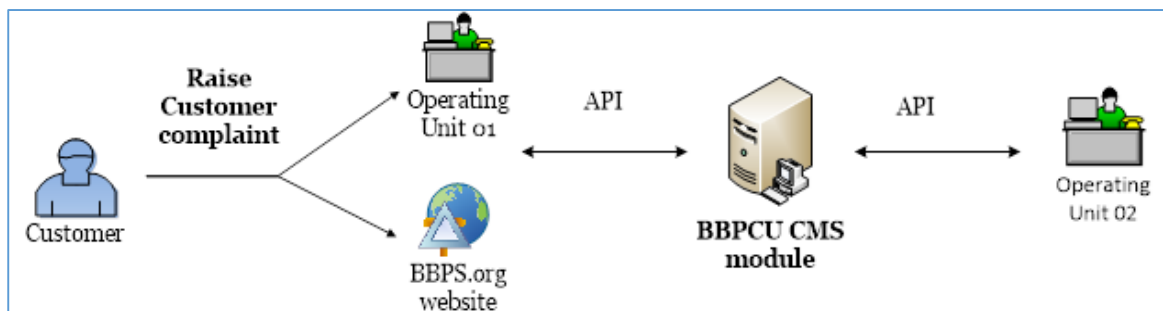


Figure 25: Complaint API flow for OFF-US transaction

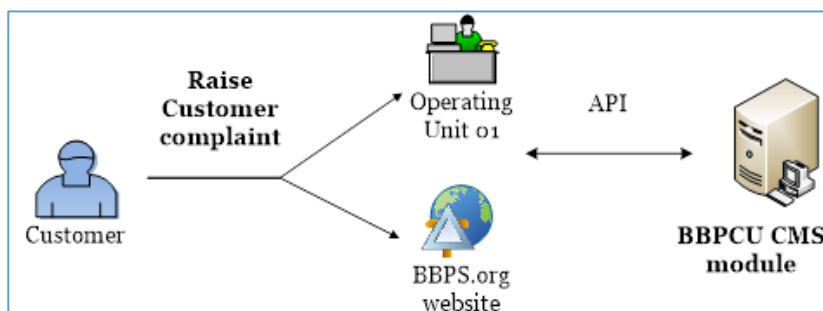


Figure 26: Complaint API flow for ON-US transaction

The following are the complaint statuses which will be assigned to the transactions:

Status	Description	TAT
Lodged	A customer has raised a complaint but is yet to receive a complaint acceptance response. The complaint is with the BBPS or the customer BBPOU at this stage.	Immediate
Assigned	A customer has raised a complaint at an agent outlet or on the BBPS / BBPOU website, and a ticket ID has been assigned to it. At this stage, the customer BBPOU may assign the complaint to the biller BBPOU depending on the details of the complaint.	Within a day of complaint registration
Pending with BBPOU	The complaint is still to be addressed by the BBPOU or its biller or agent	Within a day of complaint registration
Resolved	Once the biller / BBPOU resolves the customer related complaint, the BBPOU updates the system	Within 3 days of complaint registration
Additional information required	The biller / BBPOU requires further information for the complaint, the BBPOU updates the system accordingly	Within 3 days of complaint registration
Rejected	Once the biller / BBPOU rejects the complaints, the BBPOU updates the system	Within 3 days of complaint registration
Escalated	If the biller / BBPOU doesn't respond to the complaint by the specified TAT, the complaint gets escalated (except service-based complaints)	Depending on the nature of the complaint, but not exceeding 3f days

Table 24: Status of complaints

The following will be the online API exchanges between the customer BBPOU and biller BBPOU for complaint management system:

<i>Transaction type</i>	<i>Initiator</i>	<i>Via</i>	<i>Destination</i>	<i>API exchange requirement</i>
Off-us complaint registration request	BBPOU 1	BBPCU	BBPOU 2	✓
Off-us complaint registration response	BBPOU 2	BBPCU	BBPOU 1	✓
Complaint re-assignment request*	BBPCU	NA	BBPOU 2	✓
Complaint re-assignment response*	BBPOU 2	NA	BBPCU	✓
On-us complaint registration	BBPOU 1	NA	BBPCU	✓
On-us complaint registration response	BBPCU	NA	BBPOU 1	✓
Off-us complaint re-open request	BBPOU 1	BBPCU	BBPOU 2	✓
Off-us complaint re-open response	BBPOU 2	BBPCU	BBPOU 1	✓
On-us complaint re-open request	BBPOU 1	NA	BBPCU	✓
On-us complaint re-open response	BBPCU	NA	BBPOU 1	✓
Complaint status request	BBPOU 1 / BBPCU	BBPCU**	BBPOU 2 / BBPCU	✓
Complaint status response	BBPOU 2 / BBPCU	BBPCU**	BBPOU 1 / BBPCU	✓
Complaint closure message	BBPOU 2	BBPCU	BBPOU 1	✓

Table 25: API exchanges for complaint management

* Provided the registration response has not been received from Biller BBPOU

** Provided the transaction is initiated from Customer BBPOU

The Transaction ID will be used as the identifier for customer complaints to be raised on the system. Based on the Transaction ID, BBPCU will understand whether it is an ON-US or OFF-US complaint but it will still route it to the BBPS CMS application for generation of a unique Complaint ID for each complaint raised.

14.3 Complaint response message formats

The message will be used by the BBPOUs to respond to the complaint for the bill payments passed through the agent assisted or online payment mode. The BBPOUs will use the below format for processing the complaint response to the opposing BBPOU. The members will receive the file both in XML and MS Excel format.

<i>Data Element</i>	<i>Outgoing (Biller BBPOU)</i>	<i>Outbound (Biller BBPOU)</i>	<i>Inbound (Customer Biller)</i>	<i>Tag Names</i>	<i>Length</i>	<i>Field Type</i>	<i>Possible Values</i>
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanumeric	VODA00000MUM03
Transaction ID	M	M	M	<TxnReferencel d>	12	Alphanumeric	TR3456789123
Message reason code	M	M	M	<RsnCd>	3	Numeric	144

Document indicator	M	M	M	<DocInd>	1	Alpha	Y/N
Transaction originator ID code	M	M	M	<FwdgInst>	4	Alphanu meric	AB22
Complaint ID	M	M	M	<ComplaintId>	1	Alpha	Y/N
Complain status	M	M	M	<ComplaintStatus>	40	Alpha	Assigned/R esolved
Action taken	M	M	M	<Actiontaken>	50	Alpha	Taken up with biller
Member message information	M	M	M	<MsgTxt>	200	Alphanu mericSp ecial	Description of the response
Transaction destination ID code	-	M	M	<RecvnInst>	4	Alphanu meric	CD12
Settlement date	-	M	M	<StlmntDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Settlement DR/CR indicator	-	C	C	<StlmntDCInd>	1	Alpha	D

Settlement amount	-	C	C	<StlmntAmt>	1-18	Numeric	10011
Settlement currency code	-	C	C	<StlmntCcyCd>	3	Numeric	356 for INR (per ISO)
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	—	C	C	<RejRsnCd>	3	Numeric	666

Table 26: Complaint response message formats

15 Dispute Management System

The objective of the Dispute Management System will be to facilitate BBPS BBPOUs to raise and resolve a dispute on a transaction that has previously been cleared by the BBPCU or BBPOU. In case a dispute is not resolved through the normal workflow, the DMS will have a process of arbitration where the BBPCU's arbitration committee will deliver a final verdict. Complaints not resolved through the CMS will be manually uploaded to the DMS. BBPOUs will also be able to raise disputes in DMS against any other BBPOUs. However, service-based complaints will not be dealt with through the DMS.

The DMS application for BBPOUs will provide the following facilities:

<i>Transaction Stage</i>	<i>Initiating Member</i>	<i>Description</i>	<i>Financial / Non-financial</i>
Dispute Initiation	BBPOU1	The complaint which is raised by the customer-side BBPOU has not been resolved. This will have multiple levels of escalation.	Non-financial
Dispute Initiation Response	BBPOU2	Response to the dispute which is raised by customer BBPOU.	Non-financial
Pre-arbitration	BBPOU	This message is generated before an arbitration case is registered.	Non-financial
Pre-Arbitration response	BBPOU	This message is generated by BBPOU to respond as accept or decline against the pre-arbitration raised by the other BBPOU.	financial
Arbitration	BBPOU	The BBPOU can use this message when the complainant is still disputing the transaction and it can file for arbitration with the BBPCU	Non-financial
Arbitration Verdict	BBPCU	The arbitration committee of the BBPCU takes a decision after reviewing the case	Financial
Credit Adjustment / Refund	BBPOU2	These messages are generated by biller BBPOU to settle the credit amount to the customer BBPOU	Financial
Good faith	Any entity	These messages are generated by either the customer / biller BBPOU in case the time-frame for raising the disputes has lapsed	Non-financial
Good faith response	Opposing entity who has raised the good faith	These messages are generated by opposing entity which has raised the good faith. It is indication to the acceptance / decline of the good faith	Non-financial / Financial

Table 27: DMS transaction stages

15.1 Dispute Initiation

The message will be used by the customer BBPOU to raise the dispute for the bill payments passed through the agent assisted or online payment mode. The customer BBPOU will use the below format for processing the dispute initiation to the biller BBPOU. The members will receive the file both in XML and MS Excel format.

15.1.1 Dispute Initiation Message Formats

Data Element	Outgoing (Customer BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanumeric	VODA00000MUM03
Transaction ID	M	M	M	<TxnReferencId>	12	Alphanumeric	TR3456789123
Message reason code	M	M	M	<RsnCd>	3	Numeric	144
Document indicator	M	M	M	<DocInd>	1	Alpha	Y/N
Transaction originator ID code	M	M	M	<FwdgInst>	4	Alphanumeric	AB22
Transaction destination ID code	-	M	M	<RecvInst>	4	Alphanumeric	CD12
Settlement date	-	M	M	<StlmtDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D

Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Member message information	M	M	M	<MsgTxt>	200	AlphanumericSpecial	Customer name
Settlement DR/CR indicator	-	M	M	<StlmntDCInd>	1	Alpha	D
Settlement amount	-	M	M	<StlmntAmt>	1-18	Numeric	10011
Settlement currency code	-	M	M	<StlmntCcyCd>	3	Numeric	356
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnCd>	3	Numeric	666

Table 28: Dispute initiation message format

15.1.2 Naming convention for the outgoing file

The first outgoing file processed / staged by a member and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001CB122015092800

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150924	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 24
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 29: Dispute initiation outgoing file naming convention

15.2 Dispute Initiation Response

The message will be used by the biller BBPOU to provide the response to the dispute raised by the customer BBPOU. The biller BBPOU will use the below format for processing the dispute initiation response to the customer BBPOU. The members will receive the file both in XML and MS Excel format.

15.2.1 Dispute Initiation Response Message Formats

Data Element	Outgoing (Biller BBPOU)	Outbound (Biller BBPOU)	Inbound (Customer Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<FinDtTm>	14	Numeric	15092015 130514
Biller ID	M	M	M	<BlrId>	14	Alphanumeric	VODA0000 0MUM03
Transaction ID	M	M	M	<TxnRefere nceld>	12	Alphanumeric	TR345678 9123
Message reason code	M	M	M	<RsnCd>	3	Numeric	144
Document indicator	M	M	M	<DocInd>	1	Alpha	Y/N
Transaction originator ID code	M	M	M	<FwdgInst>	4	Alphanumeric	AB22
Dispute initiation acceptance indicator	M	M	M	<DisInAcpln d>	1	Alpha	Y/N
Transaction destination ID code	-	M	M	<RecvnInst >	4	Alphanumeric	CD12
Settlement date	-	M	M	<StlmntDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat 1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121

Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Member message information	M	M	M	<MsgTxt>	200	AlphanumericSpecial	Reason for acceptance or rejection
Settlement DR/CR indicator	-	C	C	<StlmntDCInd>	1	Alpha	D
Settlement amount	-	C	C	<StlmntAmt>	1-18	Numeric	10011
Settlement currency code	-	C	C	<StlmntCcyCd>	3	Numeric	356
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnCd>	3	Numeric	666

Table 30: Dispute initiation response message format

15.2.2 Naming convention for the outgoing file

The first outgoing file processed / staged by a member and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150924	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 24
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 31: Dispute initiation response outgoing file naming convention

15.3 Good Faith

The message can be used by both the biller / customer BBPOU to raise good faith in order to resolve the dispute. The member will use the below format for processing the good faith to the other member. The members will receive the file both in XML and MS Excel format.

15.3.1 Good Faith Initiation Message Formats

Data Element	Outgoing (Customer BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanu meric	VODA0000 0MUM03
Transaction ID	M	M	M	<TxnRefere nceld>	12	Alphanu meric	TR3456789 123
Message reason code	M	M	M	<RsnCd>	3	Numeric	144
Document indicator	M	M	M	<DocInd>	1	Alpha	Y/N
Transaction originator ID code	M	M	M	<FwdgInst>	4	Alphanu meric	AB22
Transaction destination ID code	-	M	M	<RecvnInst >	4	Alphanu meric	CD12
Settlement date	-	M	M	<StlmtDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat 1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121

Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Member message information	M	M	M	<MsgTxt>	200	AlphanumericSpecial	Customer name
Settlement DR/CR indicator	-	M	M	<StlmntDCInd>	1	Alpha	D
Settlement amount	-	M	M	<StlmntAmt>	1-18	Numeric	10011
Settlement currency code	-	M	M	<StlmntCcyCd>	3	Numeric	356
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnCd>	3	Numeric	666

Table 32: Good faith initiation message format

15.3.2 Naming convention for the outgoing file

The first outgoing file processed / staged by a member and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001CE122015092800

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	CE12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150928	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 28
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 33: Good faith outgoing file naming convention

15.4 Good Faith Response

The message can be used by both the biller / customer BBPOU to respond to the good faith in order to resolve the dispute. The member will use the below format for processing the good faith response to the other member. The members will receive the file both in XML and MS Excel format.

15.4.1 Good Faith Response Message Formats

Data Element	Outgoing (Customer BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<FinDtTm>	14	Numeric	15092015130514
Biller ID	M	M	M	<BlrId>	14	Alphanumeric	VODA00000MUM03
Transaction ID	M	M	M	<TxnRefere nceld>	12	Alphanumeric	TR3456789123
Message reason code	M	M	M	<RsnCd>	3	Numeric	144
Document indicator	M	M	M	<DocInd>	1	Alpha	Y/N
Transaction originator ID code	M	M	M	<FwdgInst>	4	Alphanumeric	AB22
Good faith acceptance indicator	M	M	M	<DislnAcpln d>	1	Alpha	Y/N
Transaction amount	M	M	M	<Amt>	3-13	Numeric	10012
Transaction destination ID code	-	M	M	<RecvnInst>	4	Alphanumeric	CD12
Settlement date	-	M	M	<StlmntDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115
Commission category 1	-	C	C	<CommCat1 >	3	Numeric	234

Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Member message information	M	M	M	<MsgTxt>	200	AlphanumericSpecial	Customer name
Settlement DR/CR indicator	-	M	M	<StlmntDCInd>	1	Alpha	D
Settlement amount	-	M	M	<StlmntAmt>	1-18	Numeric	10011
Settlement currency code	-	M	M	<StlmntCcyCd>	3	Numeric	356
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnCd>	3	Numeric	666

Table 34: Good faith response message format

15.4.2 Naming convention for the outgoing file

The first outgoing file processed / staged by a member and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001GE122015092800

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	GE12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150928	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 28
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified

		date
--	--	------

Table 35: Good faith response outgoing file naming convention

15.5 Case Management

15.5.1 Generating and Assigning Case Number

1. BBPCU should automatically create a unique 20 digit (configurable) alpha-numeric case number when a dispute case is raised in the system by the initiating BBPOU.
2. The same case number should be assigned to all stages in the dispute lifecycle.
3. Every dispute related screen should display the case number.
4. Case numbers will be communicated to the BBPOUs through incoming files and reports.

15.5.2 Interlinking the transactions - Case History

1. The BBPCU system has to interlink the transaction basis the case number and transaction ID (if applicable) to create a system trail of entire life cycle of the transaction.
2. The BBPCU system has to interlink the dispute cases with the case number.

15.5.3 Audit Trail

1. The BBPOU users and BBPCU Users can track the status of the case in the BBPCU system using transaction search screen.
2. The system should keep the audit trail or history of all previous actions on a case until the case closure as per the purging policy, post which the case details should be archived and should be available for future reference
3. The outstanding cases will be available for viewing and processing further action with appropriate status.

15.5.4 Case Number Format

Format of the case number is stated below:

Field Value	Description
Alphanumeric - 4 characters	BBPOU code of the initiator
Date - 8 characters	Date (YYYYMMDD)
Numeric - 8 characters	Running serial Number

Table 36: Case number format

Example:

- Case Number: AB122015081300000007
- AB12 (BBPOU code of the initiator) - 20150813 (YYYYMMDD, i.e., 13-08-2015) - 00000007 (Running serial Number)

The above docket number identifies that the Case is initiated by BBPOU with BBPOU code AB12 on 13-08-2015 with running serial number as 7.

15.5.5 Case Verdict

1. Any case raised on the BBPCU system has to be closed as per the TAT specified in the operating rules (and configured in the system). This option provides BBPCU to place the verdict on the case favouring either of the BBPOU.
2. Verdict messages will be generated by BBPCU and sent to both the BBPOUs stating clearly who can raise fund collection message and the collection amount.
3. It will be the BBPOU responsibility to generate the funds collection / funds disbursement messages and move the funds related to case based on the verdict from BBPCU.
4. The BBPCU system shall generate separate fee with reason codes collection message for the case as per BBPCU fee structure / BBPCU Rules including penalties if applicable due to delay in resolution.

15.6 Document Management

15.6.1 Document Attachment

1. Once the user selects the respective dispute case, the option of attaching transaction supporting documents should be made available.
2. This function should enable attaching documents with any dispute related cases like Good faith, Arbitration, etc.
3. The users should be able to attach / view / open / delete / print documents from all the relevant Menu options. Delete option is to be made available to the user before the case is approved.
4. Maker-Checker principle shall be applicable for approval of cases raised.
5. The attached documents should be tagged with Document Type Definitions (DTD).
6. The BBPCU system will generate unique document reference number for each document attached.
7. The system would keep track of documents that are pending as per document TAT. This data will be captured in pending actions. This TAT cannot exceed the overall TAT for Dispute resolution.
8. The users can attach the documents to the submitted cases, i.e., the users can attach documents after submitting the cases at any point of time (even after TAT) but before escalation to the next level of dispute resolution..
9. The document purging will be in sync with transaction record purging.

15.6.2 Document Types

The BBPCU system should support all the below document types:

- PDF
- TIFF (200 dpi, size less than 1 MB)
- JPEG (200 dpi, size less than 1 MB)
- XLSX (Only for bulk cases)

15.6.3 Document Naming Convention

The document uploaded should get linked to transaction and it should also specify that what type of document is uploaded along with the sequence number in order to cater to multiple document of same type.

15.6.4 Document Size

1. The document uploaded by user as part of dispute management process should not exceed 1 MB per document (Configurable).
2. The attached document should be of maximum allowable file size (parameter in system). System should track the amount of data uploaded transaction wise cumulative file(s) sizes.
3. The user can upload multiple documents cumulatively up to the maximum allowable file size.
4. Maximum document size allowable for upload per attachment is 10 MB (Configurable). The System shall reject the document with reason if the document size exceeds 10 MB (Configurable).
5. For a situation where the size of the document exceeds 10 MB (Configurable) the same would have to be transferred by other means such as magnetic media as specified in the operating guidelines.

16 Interchange Fee

Interchange fee is used as a balancing mechanism between Operating Units involved in a transaction to grow the payment system for the benefit of all participants. Generally, it is proposed that customer acquiring Operating Unit (BBPOU1) and the biller acquiring Operating Unit (BBPOU2) would share a fee that would either be charged to the biller and / or to the customer for bill payment transactions. To start with, irrespective of the mode of transaction, the fee to be shared between the participants in the system would remain the same as payment is not integrated in the system. In future, the fee could depend on one or more of the following: mode of payment, biller category, specific biller and several other parameters.

16.1 Interchange Fee Parameters

1. The interchange fee could be configured for any one parameter or a combination of parameters listed below.
2. The interchange fee could be fixed amount, slab-based amount, ad valorem amount or a combination of more than one. In case of variable fee, a cap of maximum amount could be stipulated.
3. The system should allow configuration of interchange in a way that allows certain interchange values for a predefined set of rules (based on below parameters) and allocating a default interchange value for the rest of the combination.

S. No.	Name	Description
1	Scheme Code	BBPS may run different schemes
2	End to End ID	To identify the transaction
3	MTI / Message ID	To identify the type of transaction like bill presentment, adjustments and refunds, etc.
4	Function Code	To identify the sub-type of transaction like bill presentment request, bill presentment response, debit adjustment, refund, etc.
5	BBPOU1 ID	ID of the customer facing Operating Unit
6	BBPOU2 ID	ID of the biller facing Operating Unit
7	Payment Mode	Mode of payment, i.e., cash, credit card, debit card, net banking, mobile wallets, PPIs, etc.
8	Transaction Amount	The transaction value
9	Biller ID	Individual or defined groups of billers (Schools, Utilities etc.) for a specific industry
10	Group ID	Consumer / Corporate / SME
11	Clearing Cycles	The number of clearing cycles in a day
12	Response code	Required to identify successful transactions
13	BBPOU1 Country Code	For international transactions (if required)
14	BBPOU1 Region	For international transactions (if required)
15	BBPOU2 Country Code	For international transactions (if required)

16	BBPOU2 Region	For international transactions (if required)
----	---------------	--

Table 37: Interchange Fee Parameters

16.2 Interchange Fee Rate Table

Interchange fee rate table will define the various rates for differential fee structure, e.g.

S. No.	Fee Description	Fee Code	Flat Fee Indicator (configurable)	Percentage Fee Indicator (configurable)
A	Customer convenience fee	XX1	Y	N
B	Biller payment fee	XX2	Y	N
C	Ticket size fee (customer)	XX3	Y	N
D	Ticket size fee (biller)	XX4	Y	N

Table 38: Interchange Fee Rate Table (Indicative)

Fee Rate table is made up of following components:

1. Fee Description: Type of fee which will be assessed to transaction
2. Fee Code: Code assigned by BBPCU as per fee program
3. Flat Fee Indicator: Fee can be charged as a fixed amount per transaction count (as applicable). It indicates if flat fee is applicable for that particular Fee Code / Fee Description.
4. Percentage Fee: Fee can be charged as a percentage per transaction amount (as applicable). It indicates if percentage fee is applicable for that particular Fee Code / Fee Description.

When flat fee or percent fee field's value is blank or zero for some fee reason code, it will be assumed that it is not present and not applicable.

16.3 Fee Calculation for a Bill Payment

Interchange fee for the bill payment transactions will be calculated on the transaction amount. "Transaction Amount" data element of the clearing message will define the amount of the transaction.

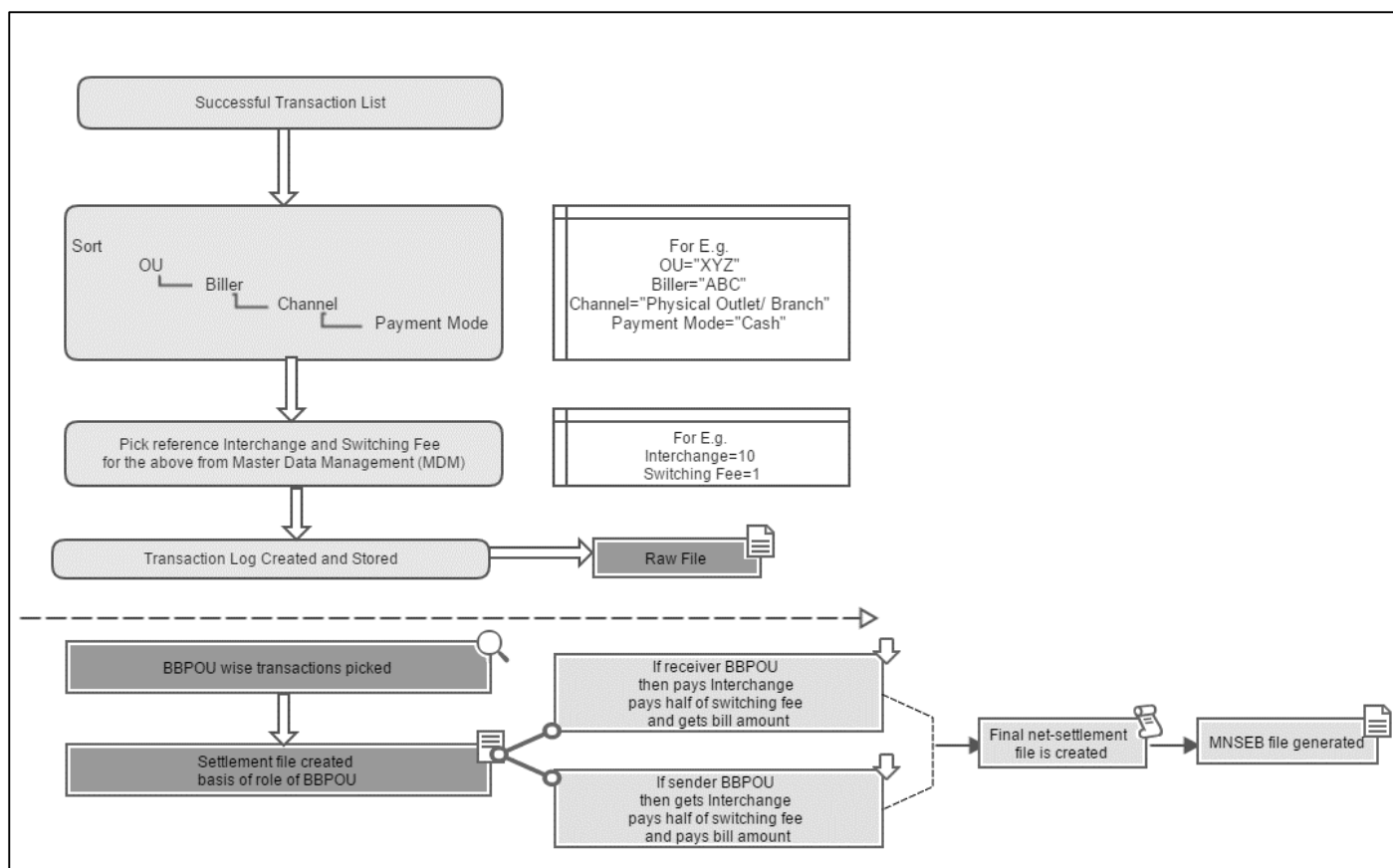


Figure 27: Clearing Rule Algorithm

16.4 Fee Calculation for Reversal and Disputed Transactions

Interchange fee that has been charged during the original transaction will be reversed when any action results in a fund movement. When a transaction reversal is done, the interchange fee will be taken from the bill payment. This could mean that the interchange fee being reversed will not differ from the original interchange charged. In case of disputed transactions, interchange fee will be taken from the preceding transaction in transaction sequence.

16.5 Interchange Fee Direction

The below table provides a list of message types that will pass through the clearing and settlement system. Direction and applicability of interchange fee for each message type is provided in the table below.

S. No.	Message Type	Interchange Fee (IF) Direction		Remarks
		BBPOU1	BBPOU2	
1	Bill Fetch / Presentment	Dr	Cr	-
2	Bill Payment	Cr	Dr	
3	Refund	Dr	Cr	-

4	Debit Adjustment	Cr	Dr	-
5	Good Faith Raise	NA	NA	-
6	Good Faith Accepted (Full / Partial)	NA	NA	-
7	Good Faith Declined	NA	NA	-
8	Good Faith Deemed Declined	NA	NA	-
9	Arbitration Raise	NA	NA	-
10	Arbitrations Acceptance	NA	NA	-
11	Arbitrations Continuation	NA	NA	-
12	Arbitrations Verdict	NA	NA	-
13	Arbitrations Withdrawn	NA	NA	-

Table 39: Interchange Fee Direction

16.6 Calculation of Interchange Fee

1. A transaction will have the following attributes:
 - Scheme Code
 - MTI / Message ID
 - Function Code
 - Payment Mode
 - BBPOU1 ID
 - BBPOU2 ID
 - Biller ID
 - Group ID
 - End to End ID
 - Transaction Amount
 - Clearing Cycle Number
 - Response Code
2. On the basis of these parameters and the applicable fee rate table items, the interchange fee, along with the fee direction will be computed for the respective BBPOUs.
3. Front end configuration will be given to the authorized BBPCU User for adding, modifying or deleting interchange fee structure with maker / checker option. Maker can only configure the interchange fee and once approved by the checker, relevant changes will be reflected in the respective tables.

17 Clearing and Settlement Process

17.1 Clearing:

Clearing is the movement of transaction information, post authorization from BBPCU system to a BBPOU. It consists of all the post authorization information exchanges regarding the transaction (including the dispute resolution cycle). However, the clearing process does not include the final exchange of funds between the different parties.

17.2 Settlement:

Settlement is the last step of the post transaction processes and involves the generation of final fund exchange records and actual transfer of funds to the relevant BBPOUs' accounts.

17.3 BBPS Clearing and Settlement:

BBPS clearing and settlement system is a three party module consisting of BBPOU1 (customer acquiring BBPOU), BBPCU and BBPOU2 (Biller acquiring BBPOU). BBPCU clearing and settlement is operational throughout the year. It extracts or collects the authorized transactions from the core application server (transaction server) transmitted by the BBPOUs and based on that, processes the transactions in clearing and settlement module and prepares a settlement file which needs to be uploaded to settlement bank.

Note:

- BBPS system will configure to handle multiple clearing and multiple settlement cycles for both online (Message based transactions) and offline (File based transaction).
- All file level/message level validation as mentioned in message formats will be executed by core application server.

BBPS can have the following options for single or multiple cycles (clearing and settlement).

Summary of clearing workflow:

BBPCU allows processing of both online transactions (individual customers) and offline (file based) transactions (for corporate / group users) from BBPS participants.

For online transactions, clearing and settlement module collects the file provided by the core application server and sorts, validates (record level and structural level), processes them and routes them to the respective BBPOUs. The steps involved in this process are:

- Collecting, sorting, validating and routing the files provided by core application server
- Performing currency conversion, if applicable.
- Calculating interchanges fees and BBPCU's switch fees.
- Creating, and routing interchange files to the appropriate customer BBPOU and biller BBPOU.

For offline transactions (file based), files uploaded to the core application server will be validated (record level and structure level), after which the files will be routed to the clearing and settlement module and rest of the online clearing steps will be followed, i.e.,

- Collecting, sorting, validating and routing the files provided by core application server
- Performing currency conversion, if applicable.
- Calculating interchanges fees and BBPCU's fees.
- Creating, and routing interchange files to the appropriate customer BBPOU and biller BBPOU.

BBPCU also handles dispute and compliance issues. In case disputes are raised by any of the BBPOUs, it routes such cases from the case raising BBPOUs to the implicated BBPOUs. For all disputes, unless mutually resolved, the final authority of declaring the verdict rests with BBPCU.

Settlement activity involves the following steps for both online and offline transaction:

- Accumulating of transactions from BBPCU clearing
- Determining each BBPOU's net settlement position (in other words, who owes what to whom)
- Generating the settlement file for exchanging of funds. The fund movement is done through a central bank / settlement bank that is authorized to debit / credit the BBPOU accounts.

17.3.1 Option 1: Single clearing and Settlement cycle

17.3.1.1 Online Messages

1. Clearing and settlement cycle will be effective on daily basis except RTGS holidays.
2. Core server processes will process the online transactions ALL DAY LONG.
3. The cut-over time for downloading /extracting online transactions from core server to BBPCU clearing and settlement module is **2300 hours**, after that extraction/download of the file begins.
4. All the downloaded/extracted transactions will be auto-presented in BBPCU clearing and settlement module at file staging stage.
5. File staging cutover will start at **0700 hours** and clearing and settlement module collects the file handle processing of transaction i.e. sorting, validation (record level, structure level and settlement), adjustment processing, fee and billing and dispute handling and processes them and routes them to the respective BBPOUs.
6. In BBPS clearing and Settlement, each transactions will be identified by MTI and product code (product code is part of online message).
7. Clearing module cutover will start by **1100 hours** All the cleared transactions are settled for arriving at net settlement for BBPOUs

8. Once clearing and settlement cycle completes, the report management module generates pre-defined reports which are available to BBPOUs i.e. BBPOUs (Bank and Non-Banks) including their sponsor banks to their HTTPS path for view and download.
9. The Settlement module will be carried out at **1300 hours** and BBPCU will upload the file to available RTGS cycle.
10. Accordingly the settlement fund transfer will be carried out on all business days. At settlement fund transfer cutover actual fund transfer between BBPOU banks takes place.

17.3.1.2 Offline Messages:

1. A separate window is being proposed. This may continue in parallel to the designated times as well.
2. Core server processes the offline transactions/files.
3. The cut-over time for downloading /extracting offline records from core server to BBPCU clearing and settlement module is **2300 hours**, after that extraction/download of the file begins.
4. All the downloaded/extracted files will be auto-presented in BBPCU clearing and settlement module.
5. File staging cutover will start at **0700 hours** and Clearing and settlement module collects the file provided by the core server handle processing of transaction i.e. sorting, validation (record level, structure level and settlement), adjustment processing, fee and billing and dispute handling and processes them and routes them to the respective BBPOUs.
6. In BBPS clearing and Settlement, Each transactions will be identified by MTI and product code (product code is part of online message).
7. Clearing module cutover will start by **1100 hours** all the cleared transactions are settled for arriving at net settlement for BBPOUs Once clearing and settlement cycle completes, the report management module generates pre-defined reports which are available to BBPOUs i.e. BBPOUs , including their sponsor banks, on their HTTPS server for view and download.
8. The Settlement module will be carried out at **1300 hours** and BBPCU will upload the file to available RTGS cycle.
9. Accordingly the settlement fund transfer will be carried out on all business days. At settlement fund transfer cutover actual fund transfer between BBPOU banks takes place.

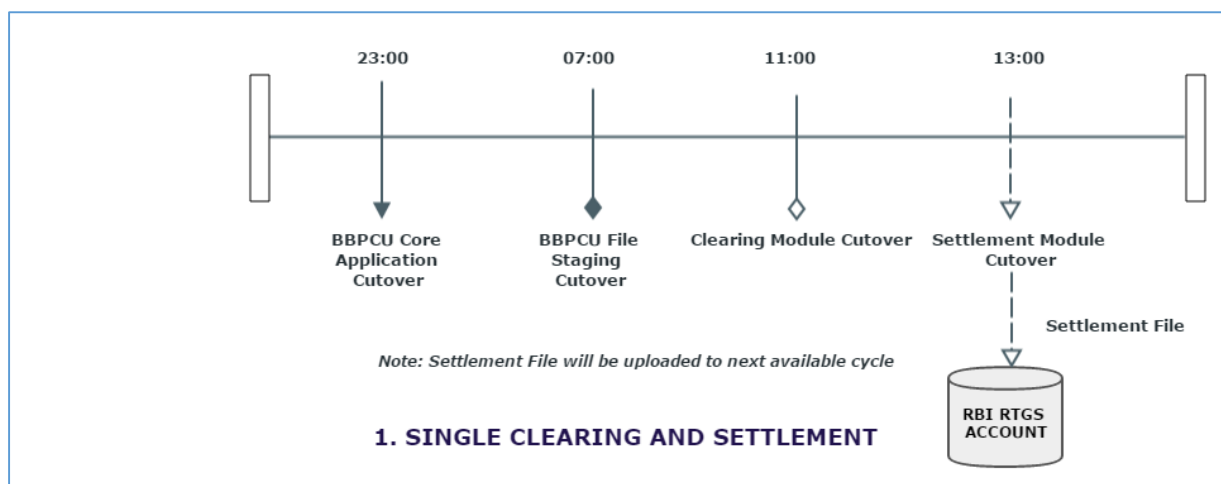


Figure 28: Single Clearing and Settlement Cycle

17.3.2 Option 2: Multiple clearing and Multiple Settlement cycle

17.3.2.1 Both online and offline systems

We are envisaging the multiple clearing and multiple settlement cycles in the BBPS. A separate window is being proposed. This may either continue in parallel of at designated times only

Multiple Clearing and settlement cycle will have following stages.

1. There will be multiple cutover in BBPCU core server in case of multiple clearing and settlement cycles.
2. BBPCU Core application cutover: 0900 hours/1100 hours/1300 hours
After core application all online /offline transaction will stage to the clearing and settlement module for each cycle.
3. File Staging cutover: 1100 hours/1300 hours/ 1500 hours
At this cutover, all files will start moving to the clearing and settlement module. Clearing and settlement module collects the file provided by the core server handle processing of transaction i.e. sorting, validation (record level , structure level and settlement), adjustment processing, fee and billing and dispute handling and processes them and routes them to the respective BBPOUs.
4. Clearing Module cutover: 1300 hours/1500 hours/1700 hours
All the cleared transactions are settled for arriving at net settlement for BBPOUs
Once clearing and settlement cycle completes
 - The report management module generates pre-defined reports which are available to BBPOUs i.e. BBPOUs and their sponsor banks to their HTTPS server for view and download.
 - The CU System provides inbound and outbound files to BBPOUs. The BBPOUs may use these inbound and outbound files for reconciliation of its transactions.

5. Generation of settlement file: 1500 hours/ 1700 hours/ 1900 hours

At this cutover, the net settlement file will be generated by BBPCU System .There will be separate net settlement file for each cycle.BBPCU will upload the file to available RTGS cycle.

6. Accordingly the settlement fund transfer will be carried out on all business days. At settlement fund transfer cutover actual fund transfer between BBPOU banks takes place.

On RTGS Holidays and Sundays, the net settlement file is not provided to the clearing house; instead the net settlement file for that day will be provided on next subsequent working day along with next day settlement file.

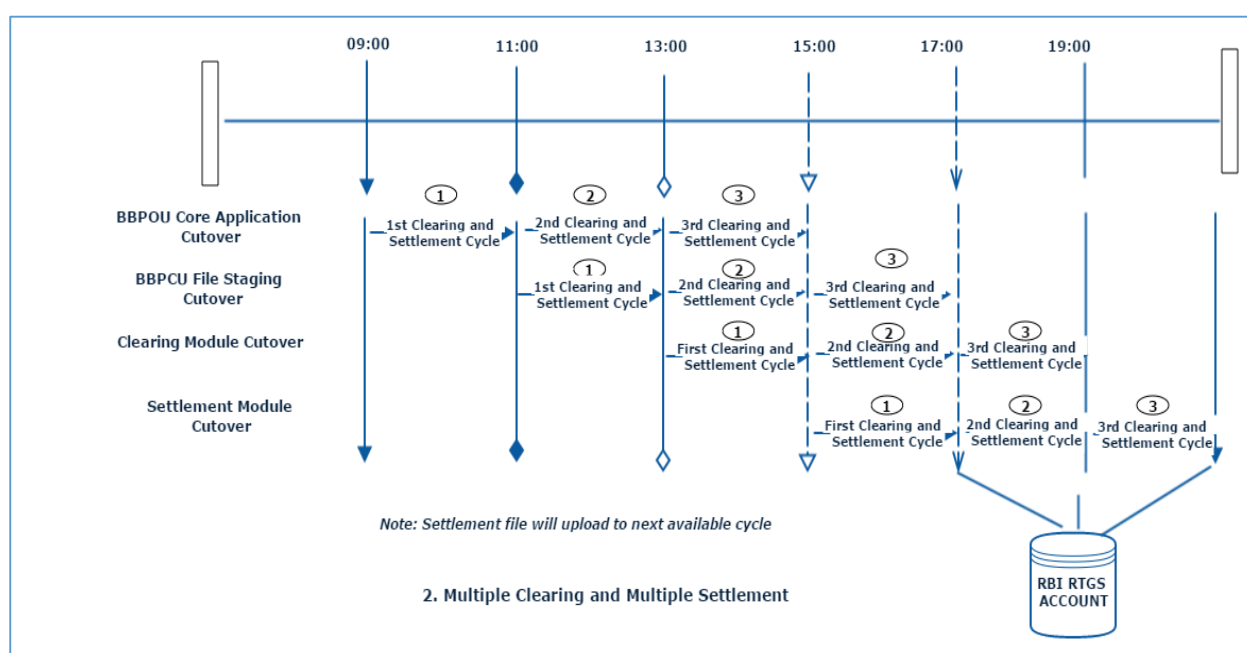


Figure 29: Multiple Clearing and Multiple Settlement

17.4 TAT for Clearing and Settlement

For all transactions execute in BBPS, BBPCU core server cutover are occurred as per below table. The clearing and settlement of all such transaction will be affected on the next working RTGS cycle after the settlement fund transfer cutover. On RTGS Holidays and Sundays, final settlement or movement of funds will be effective as per available subsequent RTGS cycle.

Multiple Clearing & Multiple Settlement			
Cutovers	First Clearing & settlement CycleTime in(hours)	2nd Clearing & settlement CycleTime in(hours)	3rd Clearing & settlement CycleTime in(hours)
BBPOU Core applciation cutover	900	1100	1300
File Staging cutover	1100	1300	1500
Clearing Module cutover	1300	1500	1700
Settlement Module cutover	1500	1700	1900
Settlement file will upload to next available cycle			

Table 40: TAT for Multiple Clearing and Settlement

18 Testing Requirements

18.1 Tools / Simulators for Testing

The simulators developed for BBPCU systems for execution of test cases would allow simulation of various message / file interchanges or network, hosts, devices etc. Testing of various scenarios like multiple message exchanges and multiple devices connected together must be possible. The simulators should also be installed for clearing and settlement. Testing tools or simulators must support key exchange, loading of standard and newly created test cases, modification of test cases etc. BBPCU would provide the BBPCU simulated environment to member BBPOUs for carrying out offline testing and certification.

18.2 Test Case Execution and Exception Testing

Test cases execution would be carried out for demonstrating the capabilities of the implemented solution. Acceptance test cases execution would be carried out by BBPCU Technical Team or BBPCU may also engage a third party for carrying out the testing of implemented solution.

18.3 Load Testing and Stress Testing

The BBPOU system should be able to perform under high load. CPU utilization must not cross beyond acceptable levels at any time of processing. Load testing should include test cases for demonstration of linear scalability. Load testing test cases should also cover scenarios like fraudulent transactions, Liquidity rules, transaction posted from BBPOU website. NPCI may engage third party to conduct load testing.

Stress testing scenario must be simulated in order to ensure that system should come down in a graceful way.

18.4 User Acceptance Test

BBPCU technical team or a third party engaged by NPCI will conduct User Acceptance Test. The

BBPCU will accept the UAT commencement only after the completion of the following;

1. All testing reports including successful functional test cases passed by the BBPOU as part of their validation and number of errors identified, solved and open errors which would be reviewed regularly in meetings with BBPCU.
2. Zero Critical errors, non-critical errors to be less than five, and resolution dates for non-solved non-critical errors.
3. SW quality report.

18.5 Audit of all Hardware and Software and Third Party Application

BBPCU would conduct or may engage a third party auditor for auditing of all software, hardware third party application. BBPCU may undergo PCI DSS and PA DSS audit, if required, and any changes suggested needs to be incorporated by the BBPOUs.

19 API Specification

BBPS has been designed keeping in mind easy integration with prospective BBPOUs. The messages have been designed in native XML so that it can be easily integrated.

XML structure and tag names have been kept to ensure relevance to specific Bill pay transactions and have been verified and vetted by key players and external experts.

19.1 Key attributes

1. The message specification contains two legs: bill fetch & **response and payment request & response**
2. Bill fetch and response has its own message ID (msgId), similarly payment request and response has its own message ID
3. These two legs have a common reference ID (refId). In the scenario where bill fetch is mandatory before the payment is made, this refId will validate the information from bill fetch against payment request. In scenario where the bill fetch is not mandatory (Offline - B), ref ID will still be generated at payment leg.
4. Transaction ID (txnRefId) is generated only at the time of initiation of payment request and this is the ID which will be communicated to the customer. Transaction reference ID has the logic of 12 characters, first 4 resembles the BBPOU ID and 8 digit sequential number
5. Bill fetch will contain configurable parameter required to identify the user with the biller at the time of bill fetch for e.g.: Customer Account Number and Cycle Number may be required to identify a user with the biller.
6. Bill Fetch response will contain name - value pairs for multiple billing scenarios - for e.g.: early payment, late payment.
7. Bill fetch response message will be signed by the biller BBPOU and this signed message will be added in the Payment Request by customer BBPOU
8. Payment related information will flow to the biller on need to know basis thus the biller will only get information that is relevant for posting in their records.
9. Heartbeat intervals will be configured at the time of BBPOU on-boarding.
10. For offline file transfer, BBPCU will adopt https protocol and will maintain BINS for every BBPOU whereby the BBPOU's will be able to access their files
11. The XML messages will contain agent and biller ID's etc, other related details for such entity will be fetched from respective tables. Master data table will reside at BBPCU level and the copy of the same will be shared across the BBPOU's at a defined interval.

12. The system will have provision to add default BBPOU and more than one BCP BBPOU
13. The messages are designed in a manner that it can support any invoice based payment (one time / repetitive, push/pull)
14. Message specification will support complaint registration & enquiries, and enquiries for payment transactions using mobile number and transaction ID
15. The system has the capability to process bulk bill fetch and payment request through offline integration
16. All file formats will initially be in XML format any other format can be configured later
17. For certain data entries the system will refer to set tables provided by BBPCU for e.g.: pincode, GEO Code, IFSC etc.
18. List of all the error codes with description will be provided
19. Every leg of the online message will be responded with an acknowledgment message from the responding participant. However, if the sender fails to receive this acknowledgement then a reversal request can be generated by it instantly (only for payment request/response). Bill payment customer will thus either get a receipt of bill paid or will get his money back for every payment request.
20. In case the transaction is not initiated from the agent location, a fixed default agent ID and Agent Institute ID will be generated and will be passed in the message for any other initiating channel.
21. In payment response message the compliance response codes are conditional tags which will be executed in the event of transaction failure
22. Below table gives a snapshot of ID generation stage:

Type of transaction	Online & Offline (A)		Online & Offline (A)		Offline (B)	
	BillFetch Request	BillFetch Response	Payment Request	Payment Response	Payment Request	Payment Response
msgID	Generated	Carried from BillFetch Request	Generated	Carried from Payment Request	Generated	Carried from Payment Request
refID	Generated	Carried from BillFetch Request	Carried from BillFetch Request	Carried from BillFetch Request	Generated	Carried from Payment Request
txnRefID	NA	NA	Generated	Carried from Payment Request	Generated	Carried from Payment Request

Table 41: ID generation

19.2 Transactions Set

A list of prospective transactions that have been envisaged as the part of the system and attached as Annexure “Transactions Set”. This is an indicative list only and all the transactions listed may not be relevant during launch.

Some of these transactions may be handled through an interface and may not necessarily be a part of online or offline communication.

19.3 Online Specification

This section pertains to message structure of all online messages like Bill Fetch Request/Reponses, Payment Request/Response, and Diagnostics etc. The online specs contains approx. 100 + data elements where most of these elements will be generated by customer BBPOU and the balance will be supplied biller BBPOU. Few elements related to routing will be system generated i.e. BBPCU

Some of the key elements will be validated at the BBPCU level for e.g.:

- Customer information related fields
- Population of customer related field from fetch message to payment message
- Payment information related fields
- Payment acknowledgment related fields

19.3.1 Design Principle

The following principles related to online messages will apply throughout the document and supersede in case of any conflict in message specifications:

There will be no case sensitivity at any point in the messages where alphabetical characters are involved, e.g. both “ABCDE1234F” and “abcde1234f” will be accepted for a customer’s PAN

All monetary values will be expressed in paise, i.e. a value of Rs 100 will be represented as “10000”

Currency codes will be represented through a Code set that follows the ISO 4217 convention for representation of currencies. For instance, Indian Rupee (INR) is represented by the standard 3-digit code 356

All date and time values follow the ISODateTime standard YYYY-MM-DDThh:mm:ssZ+/-hh:mm, where T represents a separator between date and time, and Z is the time zone designator, the default value of which is GMT / UTC.

Please refer to the Annexure “Online Message Specifications”

19.4 Offline File Formats

This section pertains to the technical aspects of the clearing and settlement file formats. It describes the clearing messages and file structures, their formats; and the data fields used which are entailed for all transactions routed through the BBPS network.

Clearing is the movement of transaction information, post approval from a BBPOU to BBPCU network or from the BBPCU network to a BBPOU. It consists of all the post approval information exchanges regarding the transaction, including the dispute resolution lifecycles. However, the clearing process does not include the final exchange of funds between the different parties.

Settlement is the last step of the entire processes and involves the generation of final fund exchange records and actual transfer of funds to the relevant BBPOUs' accounts.

BBPS clearing and settlement system is a three party system consisting of customer acquiring BBPOU, biller acquiring BBPOU and BBPCU itself. The application is operational throughout the year. It downloads the payment leg transactions from the central switch / online application and based on that, processes the clearing files transmitted by the BBPOUs, and forwards the net settlement information derived to the settlement house.

19.4.1 Design principles:

The following principles related to offline data elements and file formats apply throughout the document and supersede in case of any conflict:

There will be no case sensitivity at any point in the messages where alphabetical characters are involved, e.g. "Amit Kumar", "amit kumar" and "AMIT KUMAR" will be accepted for the name of the customer

All monetary values will be expressed in paise, i.e. a value of Rs 100 will be represented as "10000"

Currency codes will be represented through a Code set that follows the ISO 4217 convention for representation of currencies. For instance, Indian Rupee (INR) is represented by the standard 3-digit code 356

All date and time values follow the format DDMMYYYYhhmmss without any space or special characters. For instance, if a transaction is carried out at 15:28:43 hrs on 15 February 2016, the date and time value will be 15022016152843.

19.4.2 Raw Data

BBPCU generates the raw data file for all online payment leg transactions to its BBPOUs. BBPCU shares separate raw data file for customer and biller BBPOU BBPOUs. The message format is XML and fixed length padded with zero '0' wherever data are not available.

<i>Data Element</i>	<i>Tag Names</i>	<i>Length</i>	<i>Field Type</i>	<i>Possible Values</i>
Record Number	<RecNum>	8	Numeric	00000007
Transaction Type	<MsgId>	2	Numeric	01 - Bill fetch 02 - Payment message
Action code	<ActCd>	1	Alpha	A - Approved D - Declined
Response code	<responseCode>	2	Numeric	00 - Approved
Transaction ID	<txnReferenceId>	12	Alphanumeric	TR3456789123
Bill fetch ID	<refId>	35	Alphanumeric	HENSVVVR4QOS7X1UGPY7JGUV444PL9T2C3QM

Approval reference number	<approvalRefNum>	6	Alphanumeric	ABC321
Payment message date	<PymntMsgDt>	10	Numeric	29102015
Payment message time	<PymntMsgTm>	8	Numeric	121415
Biller ID / code	<billerid>	14	Alphanumeric	VODA00000MUM03
Agent ID	<Agentid>	10	Alphanumeric	AB11002343
Total payment amount	<amount>	1-18	Numeric	56666
Customer BBPOU code	<forwardingInst>	4	Alphanumeric	AB22
Biller BBPOU code	<receivingInst>	4	Alphanumeric	CB22
Transaction currency code	<currency>	3	Numeric	356
Split payment amount	<SplitPayAmount>	1-18	Numeric	1111
Payment mode	<paymentMode>	2-20	Numeric	02
Biller BBPOU code	<receivingInst>	4	Alphanumeric	CB12
Biller Name	<BilrNme>	1-70	AlphanumericSpecial	ABCD Limited
Customer registration number	<Id>	10	Numeric	0000546281
Telephone number	<mobileNum>	12	NumericSpecial	+919830098300
Agent name	<name>	1-35	AlphanumericSpecial	Gupta and Sons
Agent location and address	<Location>	1-70	AlphanumericSpecial	Nirlon Knowledge Park
Biller category code	<BlrCatCd>	4	Alphanumeric	AB22
Reference field 1	<RefFld1>	30	AlphanumericSpecial	20 character field, as configured by billers
Reference field 2	<RefFld2>	30	AlphanumericSpecial	20 character field, as configured by billers
Reference field 3	<RefFld3>	30	AlphanumericSpecial	20 character field, as configured by billers
Reference	<RefFld4>	30	AlphanumericSpecial	20 character field, as configured

e field 4			cial	by billers
Reference field 5	<RefFld5>	30	AlphanumericSpecial	20 character field, as configured by billers
Reference field 6	<RefFld6>	30	AlphanumericSpecial	20 character field, as configured by billers
Reference field 7	<RefFld7>	30	AlphanumericSpecial	20 character field, as configured by billers
Payment information	<PaymentInformation>	100	Alphanumeric	Auth code/Card number/IFSC/Account number/Aadhar/IIN

Table 42: Raw data for Offline specifications

19.4.2.1 Raw Data for Customer BBPOU

BBPCU sends the raw data file to the Customer BBPOU with following file naming convention.

01001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	01	01 - Signifies the file is a Raw Data file which is received by customer BBPOU.
Clearing cycle number	001	001 - signifies the 1st clearing cycle
Participant ID	AB12	This is the ID assigned by BBPCU to the member.
Date of file generation	20150924	Format = YYYYMMDD, i.e. year - 2015, month - 09, date - 24
Sequence number	00	00 - signifies that this is the default sequence number.

Table 43: Raw data for customer BBPOU

19.4.2.2 Raw Data for Biller BBPOU

BBPCU sends the Raw Data file to the biller BBPOU with following file naming convention.

02001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	02	02 - Signifies the file is a Raw Data file which is received by biller BBPOU.
Clearing cycle number	001	001 - signifies the 1st clearing cycle
Participant ID	AB12	This is the ID assigned by BBPCU to the member.
Date of file generation	20150924	Format = YYYYMMDD, i.e. year - 2015, month - 09, date - 24
Sequence number	00	00 - signifies that this is the default sequence number.

Table 44: Raw data for biller BBPOU

19.4.3 Inbound File

BBPCU generates inbound files which are received by BBPOU BBPOUs for all successful bill payment transactions and subsequently for all financial dispute lifecycles which are raised through the file. The BBPOUs will receive the file both in XML and MS Excel format.

Data Element	Constraint	Tag Names	Length	Field Type	Possible Values
MTI	M	<MTI>	4	Numeric	1600

Function code	M	<FnCd>	3	Numeric	121
Record number	M	<RecNum>	8	Numeric	00000007
Date and time of payment transaction	M	<timeStamp>	14	Numeric	15092015130514
Transaction ID	M	<txnReferencId>	12	Numeric	TR3456789123
Bill fetch ID	M	<refId>	10	Numeric	HENSVVR4QOS7X1 UGPY7JGUV444PL 9T2C3QM
Approval reference number	M	<approvalRefNum>	6	Alphanu meric	ABC321
Agent ID	M	<ID>	20	Alphanu meric	OU01OXYG0000 01123456
Transaction Amount	M	<amount>	1-18	Numeric	10012
Transaction currency code	M	<currency>	3	Numeric	356
Transaction originator ID code	M	<forwardingInst>	4	Alphanu meric	AB22
Transaction destination ID code	M	<receivingInst>	4	Alphanu meric	CD12
Settlement date	M	<StlmntDt>	8	Numeric	15092015
Settlement DR/CR indicator	M	<StlmntDCInd>	1	Alpha	D
Settlement currency code	M	<StlmntCcyCd>	3	Numeric	356
Settlement amount	M	<StlmntAmt>	1–18	Numeric	10011
Fee code 1	M	<FeeCd1>	3	Numeric	111
Fee code 2	C	<FeeCd2>	3	Numeric	112
Fee code 3	C	<FeeCd3>	3	Numeric	113
Fee code 4	C	<FeeCd4>	3	Numeric	114
Fee code 5	C	<FeeCd5>	3	Numeric	115
Commission category 1	M	<CommCat1>	3	Numeric	234
Fee amount 1	M	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	M	<CommAmt>	1-18	Numeric	121
Fee DR/CR indicator	M	<FeeDCInd>	1	Alpha	D
Fee currency	M	<FeeCcy>	3	Numeric	356
Record rejection indicator	C	<RejInd>	1	Alpha	Y
Record rejection reason code	C	<RjctRsnCd>	3	Numeric	666

Table 45: Data elements for inbound file

19.4.3.1 BBPCU Generated Inbound File Naming Convention

The inbound file for a BBPOU generated by the network in the first clearing and settlement cycle will follow the naming convention mentioned below:

03001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	03	03 - signifies that this file is a network generated

		inbound message
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of Member	AB12	This is the participant ID assigned by BBPCU to the member.
Date of file generation	20150924	Format = YYYYMMDD, i.e. year = 2015, month = 09 and date = 24
Sequence number	00	00 - signifies that this is the default sequence number.

Table 46: Inbound file naming convention

19.4.4 Outbound File

BBPCU generates outbound files which are received by BBPOU BBPOUs for all successful bill payment transactions and subsequently for all financial dispute lifecycles which are raised through the file. The BBPOUs will receive the files both in XML and MS Excel format.

Data Element	Constraint	Tag Names	Length	Field Type	Possible Values
MTI	M	<MTI>	4	Numeric	1600
Function code	M	<FnCd>	3	Numeric	121
Record number	M	<RecNum>	8	Numeric	00000007
Date and time of payment transaction	M	<timeStamp>	14	Numeric	15092015130514
Transaction ID	M	<txnReferen celd>	12	Alphanu meric	TR3456789123
Bill fetch ID	M	<refId>	35	Alphanu meric	HENSVVR4QOS7X1UGPY7JGUV 444PL9T2C3QM
Approval reference number	M	<ApprovalRe fNum>	6	Alphanu meric	ABC321
Agent ID	M	<ID>	20	Alphanu meric	OU01OXYG000001123456
Transaction Amount	M	<Amount>	1-18	Numeric	10012
Transaction currency code	M	<Currency>	3	Numeric	356
Transaction originator ID code	M	<Forwarding Inst>	4	Alphanu meric	AB22
Transaction destination ID code	M	<ReceivingIn st>	4	Alphanu meric	CD12
Settlement date	M	<StlmntDt>	8	Numeric	15092015
Settlement DR/CR indicator	M	<StlmntDCIn d>	1	Alpha	D
Settlement currency code	M	<StlmntCcyC d>	3	Numeric	356
Settlement amount	M	<StlmntAmt >	1-18	Numeric	10021
Fee code 1	M	<FeeCd1>	3	Numeric	111
Fee code 2	C	<FeeCd2>	3	Numeric	112
Fee code 3	C	<FeeCd3>	3	Numeric	113
Fee code 4	C	<FeeCd4>	3	Numeric	114
Fee code 5	C	<FeeCd5>	3	Numeric	115
Commission category 1	M	<CommCat1 >	3	Numeric	234
Fee amount 1	M	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	C	<FeeAmt3>	1-18	Numeric	121

Fee amount 4	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	M	<CommAmt>	1-18	Numeric	1211
Fee DR/CR indicator	M	<FeeDCInd>	1	Alpha	D
Fee currency	M	<FeeCcy>	3	Numeric	356
Record rejection indicator	C	<RejInd>	1	Alpha	Y
Record rejection reason code	C	<RjctRsnCd>	3	Numeric	666

Table 47: Data elements for outbound file

19.4.4.1 BBPCU Generated Outbound File Naming Convention

The outbound file for a BBPOU generated by the network in the first clearing and settlement cycle will follow the naming convention mentioned below:

04001AB122015092401

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	04	04 - signifies that this file is a network generated outbound message
Clearing Cycle Number	001	001 - signifies the first clearing cycle
Participant ID of Member	AB12	This is the participant ID assigned by BBPCU to the member.
Date of file generation	20150924	Format = YYYYMMDD, i.e. year = 2015, month = 09 and date = 24
Sequence Number	00	00 - signifies that this is the default sequence number.

Table 48: Outbound file naming convention

19.4.5 Web Inbound File

BBPCU generates web inbound files which are received by BBPOU BBPOUs for all successful lifecycles which are raised by the web UI option, such as arbitration. The BBPOUs will receive the file both in XML and MS Excel format.

Data Element	Constraint	Tag Names	Length	Field Type	Possible Values
MTI	M	<MTI>	4	Numeric	1000
Function code	M	<FnCd>	3	Numeric	121
Record number	M	<RecNum>	8	Numeric	00000007
Date and time of payment transaction	M	<timeStamp>	14	Numeric	15092015130514
Transaction ID	M	<txnRefere nceld>	12	Alphanumeric	TR3456789123
Bill fetch ID	M	<refId>	35	Alphanumeric	HENSVVR4QOS7X1UGPY7JG UV444PL9T2C3QM
Approval reference number	M	<approvalR efNum>	6	Alphanumeric	ABC321
Agent ID	M	<ID>	20	Alphanumeric	OU01OXYG000001123456
Transaction Amount	M	<amount>	1-18	Numeric	10012
Transaction currency	M	< currency>	3	Numeric	356

code					
Transaction originator ID code	M	<forwardingInst>	4	Alphanumeric	AB22
Transaction destination ID code	M	<receivingInst>	4	Alphanumeric	CD12
Settlement date	M	<StlmntDt>	8	Numeric	15092015
Settlement DR/CR indicator	M	<StlmntDCInd>	1	Alpha	D
Settlement currency code	M	<StlmntCcyCd>	3	Numeric	356
Settlement amount	M	<StlmntAmt>	1-18	Numeric	10012
Fee code 1	M	<FeeCd1>	3	Numeric	111
Fee code 2	C	<FeeCd2>	3	Numeric	112
Fee code 3	C	<FeeCd3>	3	Numeric	113
Fee code 4	C	<FeeCd4>	3	Numeric	114
Fee code 5	C	<FeeCd5>	3	Numeric	115
Commission category 1	M	<CommCat1>	3	Numeric	234
Fee amount 1	M	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	M	<CommAmt>	1-18	Numeric	1121
Fee currency	M	<FeeCcy>	3	Numeric	356
Document Indicator	C	<DocInd>	1	Alpha	Y/N
Member message information	C	<MsgTxt>	200	Alphanumeric Special	Dispute raised

Table 49: Web inbound file

19.4.5.1 BBPCU Generated Web Inbound File Naming Convention

The inbound file for a BBPOU generated by the network in the first clearing and settlement cycle will follow the naming convention mentioned below:

05001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	05	05 - signifies that this file is a network generated inbound message for web based transactions
Clearing Cycle Number	001	001 - signifies the first clearing cycle
Participant ID of Member	AB12	This is the participant ID assigned by BBPCU to the member.
Date of file generation	20150924	Format = YYYYMMDD, i.e. year = 2015, month = 09 and date = 24
Sequence Number	00	00 - signifies that this is the default sequence number.

Table 50 : BBPCU generated web inbound file naming convention

19.4.6 Web Outbound File

BBPCU generates web outbound files which are received by BBPOU BBPOUs for all financial lifecycles which are raised by web UI option. The BBPOUs will receive the file both in XML and MS Excel format. Outbound file is received by BBPOUs when a particular BBPOU initiates transactions which are outgoing in nature by the web UI option.

<i>Data Element</i>	<i>Constraint</i>	<i>Tag Names</i>	<i>Length</i>	<i>Field Type</i>	<i>Possible Values</i>
MTI	M	<MTI>	4	Numeric	1600
Function code	M	<FnCd>	3	Numeric	121
Record number	M	<RecNum>	8	Numeric	00000007
Date and time of payment transaction	M	<timeStamp>	14	Numeric	15092015130514
Transaction ID	M	<txnReferenceld>	12	Alphanumeric	TR3456789123
Bill fetch ID	M	<refId>	10	Alphanumeric	HENSVVR4QOS7X1UGPY7JGUV444PL9T2C3QM
Approval reference number	M	<approvalRefNum>	6	Alphanumeric	ABC321
Agent ID	M	<ID>	20	Alphanumeric	OU01OXYG000001123456
Transaction Amount	M	<amount>	1-18	Numeric	10011
Transaction currency code	M	< currency>	3	Numeric	356
Transaction originator ID code	M	<forwardingInst>	4	Alphanumeric	AB22
Transaction destination ID code	M	<receivingInst>	4	Alphanumeric	CD12
Settlement date	M	<StlmntDt>	8	Numeric	15092015
Settlement DR/CR indicator	M	<StlmntDCInd>	1	Alpha	D
Settlement currency code	M	<StlmntCcyCd>	3	Numeric	356
Settlement amount	M	<StlmntAmt>	1-18	Numeric	10011
Fee code 1	M	<FeeCd1>	3	Numeric	111
Fee code 2	C	<FeeCd2>	3	Numeric	112
Fee code 3	C	<FeeCd3>	3	Numeric	113
Fee code 4	C	<FeeCd4>	3	Numeric	114
Fee code 5	C	<FeeCd5>	3	Numeric	115
Commission category 1	M	<CommCat1>	3	Numeric	234
Fee amount 1	M	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	M	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	M	<FeeDCInd>	1	Alpha	D
Fee currency	M	<FeeCcy>	3	Numeric	356

Table 51: Web outbound file data elements

19.4.6.1 BBPCU Generated Web Outbound File Naming Convention

The outbound file for a BBPOU generated by the network in the second clearing and settlement cycle will follow the naming convention mentioned below:

06001AB122015092401

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	06	06 - signifies that this file is a network generated outbound message for web based transactions
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the member
Date of file generation	20150924	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 24
Sequence number	01	01 - signifies that this is the second incoming file that has been generated for this particular participant for the specified date

Table 52: BBPCU generated web outbound file naming convention

19.4.7 Refund File

The message will be used by the biller BBPOU to process the refund of the bill payments received through the agent assisted or online payment mode. The biller BBPOU will use the below format for processing refund to the customer BBPOU. The BBPOUs will receive the file both in .xml and .csv format.

19.4.7.1 Refund Message Format

Data Element	Outgoing (Customer BBPOU)	Outbound (Customer BBPOU)	Inbound (BBPOU Biller)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Date and time of the transaction	M	M	M	<FinDtTm>	14	Numeric	15092015 130514
Biller ID	M	M	M	< BlrId >	14	Alphanu meric	VODA0000 0MUM03
Transaction ID	M	M	M	<TxnRefere nceld>	12	Alphanu meric	TR345678 9123
Transaction currency code	M	M	M	<Currency>	3	Numeric	356
Transaction amount	M	M	M	<amount>	3-13	Numeric	10012
Message reason code	M	M	M	<RsnCd>	3	Numeric	144
Document indicator	M	M	M	<DocInd>	1	Alpha	Y/N
Transaction originator ID code	M	M	M	<Forwarding Inst>	4	Alphanu meric	AB22
Transaction destination ID code	-	M	M	<ReceivingIn st>	4	Alphanu meric	CD12

Reference field 1	M	M	M	<RefFld1>	20	Alphanu meric Special	Reference fields that may be customised according to the requirements of specific billers at the time of on-boarding. Sample data that may be entered in these fields include Customer account number (for electricity suppliers) , Cycle number (for landline operators) etc. These data elements would, of course, be conditional - which is to say that they would be mandatory for specific billers only.
Reference field 2	C	C	C	<RefFld2>	20	Alphanu meric Special	
Reference field 3	C	C	C	<RefFld3>	20	Alphanu meric Special	
Reference field 4	C	C	C	<RefFld4>	20	Alphanu meric Special	
Reference field 5	C	C	C	<RefFld5>	20	Alphanu meric Special	
Reference field 6	C	C	C	<RefFld6>	20	Alphanu meric Special	
Reference field 7	C	C	C	<RefFld7>	20	Alphanu meric Special	
Settlement date	-	M	M	<StlmtDt>	8	Numeric	15092015
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee code 2	-	C	C	<FeeCd2>	3	Numeric	112
Fee code 3	-	C	C	<FeeCd3>	3	Numeric	113
Fee code 4	-	C	C	<FeeCd4>	3	Numeric	114
Fee code 5	-	C	C	<FeeCd5>	3	Numeric	115

Commission category 1	-	C	C	<CommCat1>	3	Numeric	234
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee amount 2	-	C	C	<FeeAmt2>	1-18	Numeric	121
Fee amount 3	-	C	C	<FeeAmt3>	1-18	Numeric	121
Fee amount 4	-	C	C	<FeeAmt4>	1-18	Numeric	121
Fee amount 5	-	C	C	<FeeAmt5>	1-18	Numeric	121
Commission amount	-	C	C	<CommAmt>	1-18	Numeric	1121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Member message information	M	M	M	<MsgTxt>	200	AlphanumericSpecial	Customer name
Settlement DR/CR indicator	-	M	M	<StlmntDCInd>	1	Alpha	D
Settlement currency code	-	M	M	<StlmntCcyCd>	3	Numeric	356
Settlement amount	-	M	M	<StlmntAmt>	1-18	Numeric	10011
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection reason code	-	C	C	<RejRsnCd>	3	Numeric	666

Table 53: Refund message format

19.4.7.2 Naming Convention: Outgoing File from Biller BBPOU

The first outgoing file processed / staged by a BBPOU and uploaded in the clearing and settlement application for the first clearing and settlement cycle will follow the naming convention mentioned below:

00001AB122015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File type	00	00 - signifies that this file is a member generated outgoing file
Clearing cycle number	001	001 - signifies the first clearing cycle
Participant ID of member	AB12	This is the participant ID assigned by BBPCU to the OU
Date of file generation	20150924	Format - YYYYMMDD, i.e. year - 2015, month - 09 and date - 24
Sequence number	00	00- signifies that this is the first outgoing file that has been generated for this particular participant for the specified date

Table 54: Refund outgoing file naming convention

19.4.8 Biller Management File

Biller management file contains details of all billers which gets on-boarded in BBPS ecosystem. Biller management file is generated by BBPCU after each clearing cycle. The file

contains a header, biller details and trailer. All the messages present in the biller management file will be of fixed length format. Each data element will be identified by the pre-defined fixed length.

Each biller management file contains one header and trailer message.

Srl No	Field Name	XML tag	Max Length	Format	Sample Value
1	Header Identifier	<Hdr>	3	A	HDR
2	File Generated Date	<FlGnDt>	8	N	11022016
3	Version	<Vr>	6	NNN.NN	100.11

Table 55: Header message structure of biller management file

Sl No	Data Element	XML tag	Length	Field Type	Possible Values
1	Biller ID	<BlrId>	14	Alphanumeric	VODA00000MUM03
2	Biller category code	<BlrCatCd>	4	Alphanumeric	AB11
3	Default BBPOU code	<DfltOUCd>	4	Alphanumeric	AB22
4	Second BBPOU code	<ScndOUCd>	4	Alphanumeric	CD22
5	Third BBPOU code	<ThrdOUCd>	4	Alphanumeric	EF22
6	Biller name	<BlrNm>	30	AlphanumericSpecial	Vodafone Mumbai
7	Reference field 1	<RefFld1>	20	AlphanumericSpecial	Customer account number
8	Reference field 2	<RefFld2>	20	AlphanumericSpecial	Customer bill number
9	Reference field 3	<RefFld3>	20	AlphanumericSpecial	Circle code
10	Reference field 4	<RefFld4>	20	AlphanumericSpecial	Meter Number / Policy Number
11	Reference field 5	<RefFld5>	20	AlphanumericSpecial	Bill / K / DO / Binder number / ERO
12	Reference field 6	<RefFld6>	20	AlphanumericSpecial	Billing Unit
13	Reference field 7	<RefFld7>	20	AlphanumericSpecial	Reference field
14	Biller response field 1	<BlRspFld1>	20	Alphanumeric	Payment mode accepted
15	Biller response field 2	<BlRspFld2>	20	Alphanumeric	Late payment acceptance indicator
16	Biller response field 3	<BlRspFld3>	20	Alphanumeric	02
17	Biller response field 4	<BlRspFld4>	20	Alphanumeric	Split payment acceptance indicator
18	Biller response field 5	<BlRspFld5>	20	Alphanumeric	Reserved for future use
19	Biller response field 6	<BlRspFld6>	20	Alphanumeric	Reserved for future use
20	Amount 1	<Amt1>	20	Alphanumeric	Total amount due
21	Amount 2	<Amt2>	20	Alphanumeric	Late payment fee
22	Amount 3	<Amt3>	20	Alphanumeric	Per configuration at the time of on-boarding
23	Amount 4	<Amt4>	20	Alphanumeric	Per configuration at the time of on-boarding
24	Amount 5	<Amt5>	20	Alphanumeric	Per configuration at

					the time of on-boarding
25	Amount 6	<Amt6>	20	Alphanumeric	Per configuration at the time of on-boarding
26	Biller currency code	<BlrCcyCd>	4	Numeric	356
27	Biller activation date	<BlrActDt>	8	Numeric	15092015
28	Block / suspend date	<BlckSuspndDt>	8	Numeric	15092015
29	Date of deletion	<DtofDel>	8	Numeric	15092015
30	Partial payment indicator	<PartPayInd>	1	Alpha	Y/N
31	Status flag	<StsFlg>	1	Alpha	E - Existing/No Change A - Addition D - Deletion

Table 56: Biller detail message structure for biller management file

Sl No	Field Name	XML tag name	Max Length	Format	Sample value
1	Trailer Identifier	<TrlInd>	3	A	TRL
2	Number Of Records	<NoRcd>	6	N	123456
3	Version Number	<VrsnNo>	6	NNN.NN	100.11

Table 57: Trailer message structure of biller management file

19.4.8.1 BBPCU Generated Biller Management File Naming Convention

BBPCU sends the biller management file to its BBPOUs with following file naming convention details.

10001CU012015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	10	10 - Signifies that this file is a biller management file.
Clearing Cycle Number	001	001 - signifies the 1st clearing cycle
Participant ID of BBPCU	CU01	This is the participant ID of BBPCU
Date	20150924	Format = YYYYMMDD, i.e. year - 2015, month -09, date - 24
Sequence Number	00	00 - signifies that this is the default sequence number.

Table 58: BBPCU generated biller management file naming convention

19.4.9 Agent Management File

Agent management file contains details of all agents who get on-boarded in BBPS eco-system. Agent management file is generated by BBPCU after each clearing cycle. The file contains header, biller details and trailer. All the messages present in the agent management file will be of fixed length format. Each data element will be identified by the pre-defined fixed length.

Each agent management file contains one header and trailer message.

S. No	Field Name	Max Length	Format	Sample value
1	Header Identifier	3	A	HDR

2	File Generated Date	8	N	11022016
3	Version	6	NNN.NN	100.11

Table 59: Header message structure of agent management file

S. No	Data Element	Length	Field Type	Possible Values
1	Agent / Agent Institution ID	10	Alphanumeric	AB11002343
2	Default BBPOU	4	Alphanumeric	AB22
3	Second BBPOU code	4	Alphanumeric	CD22
4	Third BBPOU code	4	Alphanumeric	EF22
5	Agent Name	35	Alphanumeric Special	Gupta & Sons
6	Agent institution name	35	Alphanumeric Special	Ahmed & Co.
7	Location and address	70	Alphanumeric Special	252, Nirlon Knowledge Park
8	Location ID (latitude/longitude)	12	NumericSpecial	12.3456,78.9012
9	IP address / IMEI	25	Alphanumeric	123456789098765
10	Agent activation date	8	Numeric	15092015
11	Agent block / suspend date	8	Numeric	15092015
12	Date of deletion	8	Numeric	15092015
13	Location category	4	Alpha	FIXD, NMDC, HOME
14	Payment mode acceptance	2-20	Numeric	010203040506
15	Agent / Agent Institution flag	1	Alpha	A-Agent I - Agent Institution

Table 60: Biller details message structure of biller management file

Sl No	Field Name	Max Length	Format	Sample value
1	Trailer Identifier	3	A	TRL
2	Number Of Records	6	N	123456
3	Version Number	6	NNN.NN	100.11

Table 61: Trailer message structure of agent management file

19.4.9.1 BBPCU Generated Agent Management File Naming Convention

BBPCU sends the agent management file to its BBPOUs with following file naming convention details.

20001CU012015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	20	20 - Signifies that this file is an agent management file
Clearing Cycle Number	001	001 - signifies the 1st clearing cycle
Participant ID of BBPCU	CU01	This is the participant ID of BBPCU
Date	20150924	Format = YYYYMMDD, i.e. year - 2015, month -09, date - 24
Sequence Number	00	00 - signifies that this is the default sequence number

Table 62: BBPCU generated agent management file naming convention

19.4.10 BBPOU Management File

BBPOU management file contains details of all BBPOUs who get on-boarded in BBPS eco-system. BBPOU management file is generated by BBPCU after each clearing cycle. The file contains header, BBPOU details and trailer. All the messages present in the agent management file will be of fixed length format. Each data element will be identified by the pre-defined fixed length.

S. No	Field Name	Max Length	Format	Sample value
1	Header Identifier	3	A	HDR
2	File Generated Date	8	N	11022016
3	Version	6	NNN.NN	100.11

Table 63: Header message structure of BBPOU management file

Sl No	Data Element	Length	Field Type	Possible Values
1	BBPOU code	4	Alphanumeric	AV12
2	Customer BBPOU flag	1	Alpha	Y / N
3	Biller BBPOU flag	1	Alpha	Y / N
4	Date of activation	8	Numeric	24092015
5	Status flag	1	Alpha	E - Existing/No Change A - Addition D - Deletion

Table 64: BBPOU details message structure of BBPOU management file

Sl No	Field Name	Max Length	Format	Sample value
1	Trailer Identifier	3	A	TRL
2	Number Of Records	6	N	123456
3	Version Number	6	NNN.NN	100.11

Table 65: Trailer message structure of BBPOU management file

19.4.10.1 BBPCU Generated BBPOU Management File Naming Convention

BBPCU sends the BBPOU management file to its members with following file naming convention details.

30001CU012015092400

The file name may be deconstructed as follows:

Description	Value	Interpretation
File Type	30	30 - Signifies that this file is an OU management file
Clearing Cycle Number	001	001 - signifies the 1st clearing cycle
Participant ID of BBPCU	CU01	This is the participant ID of BBPCU
Date	20150924	Format = YYYYMMDD, i.e. year - 2015, month -09, date - 24
Sequence Number	00	00 - signifies that this is the first sequence number

Table 66: BBPCU generated BBPOU management file naming convention

19.4.11 MTI and Function Code

MTI	Function code	Description	Financial / Non-financial
0200 - Payment message	200	Payment message	Financial
1250 - Administrative message	999	Header message	NA
	998	Trailer message	NA

1251 - Corporate payments	501	Corporate payment - Quick Pay	Financial
	502	Corporate payment - Refund	Financial
1252 - Bill presentment	551	Bill presentment request	Non-financial
	552	Bill presentment response	Non-financial
	553	Standing instructions	Financial
1260 - Adjustments and refund	601	Debit adjustment	Financial
	602	Refund	Financial
1270 - Disputes	701	Dispute initiation request	Non-financial
	702	Dispute initiation response	Financial / Non-financial
	703	Good faith raise	Non-financial
	704	Good faith response	Financial / Non-financial
1280 - Fees	801	Fee collection	Financial
1290 - Complaints	901	Complaint response	Non-financial

Table 67: MTI and function code list

19.4.12 Header Record

The following format of header record will be present for all inbound, outbound, web inbound, web outbound, outgoing messages.

Sl No	Field name	XML tag	Customer BBPOU			Biller BBPOU		
			Outgoing	Outbound	Inbound	Outgoing	Outbound	Inbound
1	MTI	<MTI>	M	M	M	M	M	M
2	Function code	<FnCd>	M	M	M	M	M	M
3	Record number	<RecNum>	M	M	M	M	M	M
4	Date and time of the file generation	<DtTmFlGen>	M	M	M	M	M	M
5	Settlement date	<StlmtDt>	-	M	M	-	M	M
6	Originator ID code	<TxnOrgID>	M	M	M	M	M	M
7	File name	<FlNm>	M	M	M	M	M	M
8	Version number	<VerNum>	M	M	M	M	M	M
9	Full file rejection indicator	<FlRejInd>	-	C	-	-	C	-
10	File reject reason code	<FlRejRsnCd>	-	C	-	-	C	-

Table 68: Header record format

19.4.13 Trailer Record

The following format of trailer record will be present for all inbound, outbound, web inbound, web outbound, outgoing messages.

Sl No	Field name	XML tag	Customer BBPOU			Biller BBPOU		
			Outgoing	Outbound	Inbound	Outgoing	Outbound	Inbound
1	MTI	<MTI>	M	M	M	M	M	M
2	Function code	<FnCd>	M	M	M	M	M	M
3	Record number	<RecNum>	M	M	M	M	M	M
4	File name	<FlNm>	M	M	M	M	M	M
5	Transaction count	<TxnCnt>	M	M	M	M	M	M
6	Run total amount	<RnTlAmt>	M	M	M	M	M	M

Table 69: Trailer record format

19.4.14 File Type Master

Sl No	Type of file	File type
1	Outgoing	00
2	Raw data for customer BBPOU	01
3	Raw data for biller BBPOU	02
4	Inbound file	03
5	Outbound file	04
6	Web inbound file	05
7	Web outbound file	06
8	Biller management file	10
9	Agent management file	20

Table 70: File type details

19.4.15 Response Code Master

Response code	Response description
00	Approved
01	Time out at BBPOU2
02	Time out at BBPOU1
03	Time out at biller
04	Time out at BBPCU
05	Payment not accepted post due date
06	Payment mode not accepted
07	Quick pay not accepted
08	Split payment not accepted
09	Split payment mode not accepted
10	Invalid transaction
11	Invalid amount
12	Invalid biller

13	Format error
14	Suspected fraud
15	Cut-off in process
16	No routing available
17	Duplicate transaction
18	Compliance - BBPOU1
19	Compliance - BBPOU2

Table 71: Response code Response description

19.4.16 Compliance

19.4.16.1 General Compliance for customer BBPOU

1. Message sent to BBPCU must be formatted per the specification defined in this manual.
2. Customer BBPOU must not store any sensitive information from the bill payment transaction.
3. Customer BBPOU will take all care for configuring the agent /agent institution's devices correctly.
4. In a situation wherein BBPCU system encounters a format error with the request message sent by customer BBPOU, BBPCU will send a decline message to the customer BBPOU.

19.4.16.2 General Compliance for biller BBPOU

1. Biller BBPOU when responding back the message back to BBPCU must be formatted per the specification defined in this manual.
2. Biller BBPOU needs to verify all authentication related data like customer and its bill details.
3. Biller BBPOU needs to respond the request within the time out parameter, failing which BBPCU will generate the response back to the customer BBPOU as transaction timed out.
4. For all successful payment transactions biller BBPOU needs to populate approval reference number.

19.4.16.3 General compliance at BBPCU

1. BBPCU online module must validate the presence of all the mandatory tags present in the request messages. If optional tags are linked to any ISO20022 data elements, the tags should be mandatorily present in the request message.
2. BBPCU online module must validate the XML schemas as defined in the specification.
3. BBPCU online module must validate the format of the value provided in request message as defined in the specification.

4. BBPCU online module must validate the fixed value provided by the BBPOUs as defined in the specifications.

19.4.17 Matching Parameters

Sl No	Matching parameter
Bill fetch message	
1	msgld
2	Ts
Payment message	
1	msgld
2	Ts
Bill fetch and payment message	
1	refld

Table 72: Matching parameters

19.4.18 Fee Collection

The message will be used by BBPCU for raising any fee from any specific members depending upon the business requirement. The message format is described below:

Data Element	Outgoing (Customer BBPCU)	Outbound (BBPCU)	Inbound (BBPOU Biller/ Customer)	Tag Names	Length	Field Type	Possible Values
MTI	M	M	M	<MTI>	4	Numeric	1600
Function code	M	M	M	<FnCd>	3	Numeric	121
Record number	M	M	M	<RecNum>	8	Numeric	00000007
Transaction originator ID code	M	M	M	<ForwardingInst>	4	Alphanumeric	CU00
Message reason code	M	M	M	<RsnCd>	3	Numeric	144
Transaction destination ID code	-	M	M	<ReceivingInst>	4	Alphanumeric	CD12
Member message information	M	M	M	<MsgTxt>	200	AlphanumericSpecial	Reason for the fee collection
Fee code 1	-	C	C	<FeeCd1>	3	Numeric	111
Fee amount 1	-	C	C	<FeeAmt1>	1-18	Numeric	121
Fee DR/CR indicator	-	C	C	<FeeDCInd>	1	Alpha	D
Fee currency	-	C	C	<FeeCcy>	3	Numeric	356
Settlement amount	-	M	M	<StlmntAmt>	1-18	Numeric	10011
Settlement currency code	-	M	M	<StlmntCcyCd>	3	Numeric	356
Record rejection indicator	-	C	C	<RejInd>	1	Alpha	Y
Record rejection	-	C	C	<RejRsnCd>	3	Numeric	666

reason code							
-------------	--	--	--	--	--	--	--

Table 73: Fee collection message format

19.5 Offline Data Elements

Srl. No.	Data Element Name	Data Element Description	Length of Field	Data Type	Fixed / Variable	Example	Compliance	Message Reference
1	Transaction Type	This data element denotes the type of the transaction, whether it is a bill fetch / payment message	2	N	Fixed	01 - Bill fetch 02 - Payment message	NA	Raw data
2	Action code	This data element carries whether the transaction is approved or declined	1	A	Fixed	A - Approved D - Declined	NA	Raw data
3	Response code	This data element contains the response code returned during the online message	2	N	Fixed	00 - Approved	NA	Raw data
4	Bill fetch ID	This data element will carry a code which is generated by the OU that acquires the customer for every bill fetch transaction initiated.	10	AN	Fixed	AB12CDE345	Value validation - Yes Additional compliance - No	Raw data, Inbound, Outbound, Web inbound, Web outbound
5	Auth code / reference number	This represents a combination of a unique code assigned by the issuer of the cardholder for a successful transaction and the reference number generated.	18	AN	Fixed	123456788 8UNI01234	NA	Raw data
6	Payment message date	The data element will carry the date of the payment request message.	8	N	Fixed	29022016	NA	Raw data

7	Payment message time	The data element will carry the time of the payment request message.	6	N	Fixed	121212	NA	Raw data
8	Biller ID / code	Biller ID is the unique number which identifies the biller.	14	AN	Fixed	VODA0000 0MUM03	Value validation - Yes Additional compliance - No	Raw data Biller managem ent file Debit adjustme nt Refund
9	Total payment amount	This data element will carry the total amount of the payment message	1-18	N	Variable	56666	NA	Raw data
10	Customer BBPOU code	It is a unique code allocated by BBPCU for determining the financial institution acting as the customer acquiring BBPOU	4	AN	Fixed	AB22	NA	Raw data
11	Split payment amount	Split payment amount denotes the amount paid using a second mode of payment, and the value cannot be higher than the total payment amount. This field must be populated if the Split Payment Indicator value is 01	1-18	N	Variable	1111	NA	Raw data
12	Biller BBPOU code	It is a unique code allocated by BBPCU for determining the financial institution acting as the biller BBPOU	4	AN	Fixed	CB22	NA	Raw data
13	Customer registration number	This data element will carry the	10	N	Fixed	000054628 1	NA	Raw data

		customer registration number of the customer which is generated by BBPS						
14	Telephone number	This data element will carry the customer's telephone number	13	NS	Fixed	+91919830098300	NA	Raw data
15	Agent location and address	This data element represents the agent location / city / state of the agent.	1-70	ANS	Variable	Nirlon Knowledge Park	NA	Raw data
16	Date and time of payment transaction	The data element will carry the date and time of the Payment request message.	14	N	Fixed	15092015130514	Value validation - Yes Additional compliance - No	Inbound Outbound Web inbound Web outbound
17	Agent ID	Agent ID is a unique number assigned to agents by its OUs	20	AN	Fixed	OU010XYG000001123456	Value validation - No Additional compliance - No	Inbound Outbound Web inbound Web outbound
18	Agent Institution ID code	Agent institution ID is a unique number assigned to agent institution which is directly connected to the OU	4	N	Fixed	0001	Value validation - No Additional compliance - No	Inbound Outbound Web inbound Web outbound
19	File rejection indicator	This field defines whether the file is rejected	1	A	Fixed	Y	NA	Inbound Outbound Web inbound Web outbound
20	File rejection reason code	This data element carries the specific reason code of the file rejection	3	N	Fixed	456	NA	Inbound Outbound Web inbound Web outbound
21	Biller category code	Biller category code contains the type of utility bill payment that	4	AN	Fixed	AB12	NA	Raw data Biller management file

		the customer wants to initiate.						
22	Default OU code	This carries the default OU code of the specific biller / agent	4	AN	Fixed	AB22	NA	Biller management file Agent management file
23	Biller name	This depicts the name of the biller for which the customer wants to pay a bill	1-30	ANS	Variable	ABCD Limited	NA	Raw data Biller management file
24	Payment mode	The payment mode which is accepted from the customer, i.e. credit card / debit card / IMPS / internet banking	2-20	N	Variable	010203040506	NA	Raw data Biller management file Agent management file
25	Quick payment acceptance indicator	This will denote the payment initiated is quick pay in nature	2	N	Fixed	02	NA	Biller management file
26	Split payment acceptance indicator	This will denote whether payments made in multiple modes are accepted by the biller	2	N	Fixed	02	NA	Biller management file
27	Biller currency code	This field defines the currency which is accepted by the biller	3	N	Fixed	356	NA	Biller management file
28	Biller activation date	This field defines the activation date of the biller	8	N	Fixed	15092015	NA	Biller management file
29	Block / suspend date	This field defines the block / suspension date of the biller	8	N	Fixed	15092015	NA	Biller management file Agent management file
30	Status flag	This data element carries the status of the biller in the biller management	1	A	Fixed	E - Existing/ No Change A - Addition D -	NA	Biller management file

		file				Deletion		
31	Second OU code	This data element carries the second OU code which is opted by the biller / agent	4	AN	Fixed	FC22	NA	Biller management file Agent management file
32	Third OU code	This data element carries the third OU code which is opted by the biller / agent	4	AN	Fixed	FC22	NA	Biller management file Agent management file
33	Agent Name	This represents the name of the bill acceptor i.e. the official name of the agent	1-35	ANS	Variable	Gupta and Sons	NA	Raw data Agent management file
34	Agent institution name	This field represents the name of the agent institution	1-35	ANS	Variable	Ahmed & Co.	NA	Raw data Agent management file
35	Geo code(latitude/longitude)	This data element carries the location ID of the agent	15	NS	Fixed	12.9667,77.5667	NA	Agent management file
36	IP address / IMEI	This data element carries the IP address / IMEI of the mobile device	25	ANS	Variable	192.168.1.1	NA	Agent management file
37	Agent activation date	This data element carries the agent activation date	8	N	Fixed	15092015	NA	Agent management file
38	Agent block / suspend date	This element carries the agent blocking / suspension date	8	N	Fixed	15092015	NA	Agent management file
39	Date of deletion	This data element carries the date on which the agent / biller has been deleted from the application	8	N	Fixed	15092015	NA	Agent management file Biller management file
40	Location category	This field carries the location category of the	4	ANS	Fixed	FIXD, NMDC, HOME	NA	Agent management file

		agent						
41	Payment mode acceptance	The data element will carry which payment mode is accepted from the customer by the biller, i.e. credit card / debit card / IMPS / Internet banking	2-20	N	Variable	010203040506	NA	Agent management file
42	Agent / Agent Institution flag	This field denotes whether the entity is an agent or agent institution	1	A	Fixed	A-Agent I - Agent Institution	NA	Agent management file
43	Message reason code	This field defines the reason for which the message is sent to the other entity	3	N	Fixed	133	Value validation - Yes Additional compliance - No	Debit adjustment Refund
44	Document indicator	This field indicates the presence or absence of supporting transaction documentation.	1	A	Fixed	Y	Value validation - Yes Additional compliance - No	Debit adjustment Refund Inbound Outbound Web inbound Web outbound
45	Date and time of bill presentment transaction	This field defines the date and time of the bill presentment done by the customer BBPOU	14	N	Fixed	15092015130514	Value validation - Yes Additional compliance - No	Bill presentment request
46	Date and time of bill presentment response transaction	This field defines the date and time of the bill presentment response done by the biller BBPOU	14	N	Fixed	15092015130514	Value validation - Yes Additional compliance - No	Bill presentment response
47	Date and time of standing transaction	This field defines the date and time of the bill presentment done by the	14	N	Fixed	15092015130514	Value validation - Yes Additional compliance - No	Bill presentment response

		customer BBPOU						
48	Due date	This field denotes the due date of the bill	8	N	Fixed	27092015	Value validation - Yes Additional compliance - No	Bill presentment response Standing instructions
49	Late payment acceptance indicator	This data element will denote whether payments after the due date are accepted by the biller.	1	A	Fixed	Y	Value validation - No Additional compliance - No	Biller management file Bill presentment response Standing instructions
50	MTI	This element defines a group of clearing messages which indicates the type of a message	4	N	Fixed	1400	Value validation - Yes Additional compliance - No	Inbound Outbound Web inbound Web outbound Debit adjustment Refund Bill presentment request Bill presentment response Standing instructions Corporate payments - quick pay Corporate payments - refund

51	Function code	This element indicates the purpose of the different types of clearing messages.	3	N	Fixed	121	Value validation - Yes Additional compliance - No	Inbound Outbound Web inbound Web outbound Debit adjustment Refund Bill presentment request Bill presentment response Standing instructions Corporate payments - quick pay Corporate payments - refund
52	Record number	Identifies the record number for a record in a file. This record could be pertaining to financial/ non-financial transactions.	8	N	Fixed	00000007	Value validation - No Additional compliance - Shouldn't be duplicate in transaction message	Inbound Outbound Web inbound Web outbound Debit adjustment Refund Bill presentment request Bill presentment response Standing instructions Corporate payments - quick pay Corporate payments

								- refund
53	Transaction ID	This data element will contain a unique ID for all BBPS payment transactions	12	AN	Fixed	TR3456789123	Value validation - Yes Additional compliance - No	Raw data Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Corporate payment - quick pay Corporate payment - refund
54	Approval reference number	This is a code for the biller's BBPOU to indicate acceptance of the payment request message.	6	AN	Fixed	ABC121	Value validation - No Additional compliance - No	Raw data Inbound file Outbound file Web inbound file Web outbound file Corporate payments - quick pay Corporate payments - refund

55	Corporate ID	This field denotes the corporate ID which has been allocated to the specific corporate	5	AN	Fixed	SS999	Value validation - Yes Additional compliance - No	Bill presentment request Bill presentment response Corporate payment - quick pay Corporate payment - refund
56	Transaction Amount	This field denotes the transaction amount	1--18	N	Variable	10011	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Bill presentment request Bill presentment response Standing instructions Corporate payments - Quick pay Corporate payments - refund

57	Transaction currency code	This field denotes the transaction currency code	3	N	Fixed	356	Value validation - Yes Additional compliance - Currency code will be equal to previous cycle transaction currency code	Raw data Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Corporate payments - quick pay Corporate payments - refund
58	Transaction originator ID code	It carries the identification of transaction originator institution. It is a valid unique member id assigned by BBPS for settlement purpose.	4	AN	Fixed	AB11	Value validation - Yes Additional compliance - No	Raw data Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Bill presentment request Bill presentment response Corporate payments - quick pay Corporate payments - refund

59	Transaction destination ID code	It carries the identification of transaction destination institution. It is a valid unique member id assigned by BBPS for settlement purpose.	4	AN	Fixed	ZZ11	Value validation - Yes Additional compliance - No	Raw data Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Bill presentment request Bill presentment response Corporate payments - quick pay Corporate payments - refund
60	Settlement date	This field contains the date on which the transaction is processed for clearing.	8	N	Fixed	15092015	Value validation - Yes Additional compliance - No	Raw data Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Bill presentment request Bill presentment response Corporate payments - quick

								pay Corporat e payments - refund
61	Customer Account Number	Reference fields that may be customised according to the requirements of specific billers at the time of on-boarding. Sample data that may be entered in these fields include Customer account number (for electricity suppliers), Cycle number (for landline operators) etc. These data elements would be conditional, i.e. mandatory for specific billers only.	1-30	ANS	Variable	ABC123	Value validation - No Additional compliance - No	Raw data Biller managem ent file Debit adjustme nt Refund Bill presentm ent request Bill presentm ent response Standing instructio ns Corporat e payments - quick pay Corporat e payment - refund
62	Customer bill number					A1234321	Value validation - No Additional compliance - No	
63	Reference Field 1					Circle code	Value validation - No Additional compliance - No	
64	Reference Field 2					Meter Number / Policy Number	Value validation - No Additional compliance - No	
65	Reference Field 3					Bill / K / DO / Binder number / ERO	Value validation - No Additional compliance - No	
66	Reference Field 4					Billing Unit	Value validation - No Additional compliance - No	
67	Settlement DR/CR indicator	This element carries an indicator which defines whether the settlement amount is credited or debited to the	1	A	Fixed	D - Debit C - Credit	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound

		member.						file Debit adjustme nt Refund Standing instructio ns Corporat e payments - Quick pay Corporat e payments - refund
68	Settlement currency code	This element defines the currency code of the settlement amount.	3	N	Fixed	356	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustme nt Refund Standing instructio ns Corporat e payments - Quick pay Corporat e payments - refund
69	Settlement amount	It carries the settlement amount in the settlement currency.	1--18	N	Variable	11111	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustme nt Refund Standing instructio

								ns Corporat e payments - Quick pay Corporat e payments - refund
70	Fee code 1	This element is used to capture the type of fee levied to the destination member for the transaction. There could be upto 5 categories of fees in one transaction.	3	N	Fixed	110	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file
71	Fee code 2					112	Value validation - No Additional compliance - No	file Web outbound file Debit adjustme
72	Fee code 3					113	Value validation - No Additional compliance - No	nt Refund Standing instructio
73	Fee code 4					114	Value validation - No Additional compliance - No	ns Corporat
74	Fee code 5					115	Value validation - No Additional compliance - No	e payments - Quick pay Corporat e payments - refund
75	Commission category 1	This element is used to capture the commission category for the transaction, if applicable	3	N	Fixed	222	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustme nt Refund SI Corporat e payments

								- Quick pay Corporate payments - refund
76	Fee amount 1	This element is used to capture the fee amount applied to the destination member for the transaction. There could be upto 5 categories of fees one transaction can carry.	1--18	N	Variable	122	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file
77	Fee amount 2						Value validation - No Additional compliance - No	file Web outbound file
78	Fee amount 3						Value validation - No Additional compliance - No	Debit adjustment
79	Fee amount 4						Value validation - No Additional compliance - No	Refund Standing instructions
80	Fee amount 5						Value validation - No Additional compliance - No	Corporate payments - Quick pay Corporate payments - refund
81	Commission amount	This element is used to capture the commission amount for the transaction, if applicable	1-18	N	Variable	11166	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Standing instructions Corporate

								e payments - Quick pay Corporate payments - refund
82	Fee DR/CR indicator	This element is used to capture the indicator, which defines that fee amount will be debited or credited to the member.	1	A	Fixed	D - Debit C - Credit	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Bill presentment request Bill presentment response Standing instructions Corporate payments - Quick pay Corporate payments - refund
83	Fee currency	This element defines the three digit code that identifies the currency fee amount.	3	N	Fixed	356	Value validation - No Additional compliance - No	Inbound file Outbound file Web inbound file Web outbound file Debit adjustment Refund Bill presentment

								ent request Bill presentm ent response Standing instructio ns Corporat e payments - Quick pay Corporat e payments - refund
84	Reject reason code	This element in the outbound file defines the reason code for the rejection.	3	N	Fixed	555	Value validation - No Additional compliance - No	Debit adjustme nt Refund Bill presentm ent request Bill presentm ent response Standing instructio ns Corporat e payments - quick pay Corporat e payments - refund
85	Member message information	It's a free text and member can enter short text description here.	1-200	ANS	Variable	Refund processing for bill	Value validation - No Additional compliance - No	Web inbound Debit adjustme nt Refund Bill presentm ent request Bill presentm ent response Corporat e payments

								- refund
--	--	--	--	--	--	--	--	----------

Table 74: Offline data elements

19.6 File Management

For all files generated by the system participants, naming convention has been defined in the document in their respective sections. The files uploaded by the participants and the files generated by the system shall bear the file names as per the file naming convention provided below.

19.6.1 File Naming Convention

The following table defines the file naming convention:

Field Name	Field Length	Field Type
File type	2	Numeric
Clearing cycle number	3	Numeric
Participant ID of BBPOU	4	Alphanumeric
Date of file generation	8	Date
Sequence number	2	Numeric

Table 75: File naming convention

Description:

Field Name	Interpretation
File type	It is a 2-character numeric field which defines the type of file. For example: 00 - BBPOU generated outgoing file 01 - BBPCU generated inbound file 02 - BBPCU generated outbound file 03 - BBPCU generated web inbound file 04 - BBPCU generated web outbound file 05 - BBPCU generated acknowledgement file 06 - BBPCU generated web acknowledgement file 07 - BBPCU generated settlement file 80 - ON-US transaction file 81 - BBPCU generated biller management file 82 - BBPCU generated agent management file 83 - BBPCU generated raw data file for Customer BBPOU 84 - BBPCU generated raw data file for Biller BBPOU
Clearing cycle number	3-characters numeric field denoting the clearing cycle number in which the transactions are processed at BBPCU end '000' denotes the default clearing cycle number The BBPOU outgoing file to have default clearing cycle number as 000 BBPCU generated files types to contain the corresponding clearing cycle number in which the transactions contained in the BBPOUs' outgoing files are processed / cleared
Participant ID of BBPOU	This is the participant ID of 4 alphanumeric characters assigned by BBPCU to the BBPOU

Date of file generation	Date Format - YYYYMMDD, i.e. year - 2015, month - 09 and day - 24 For a BBPOU generated file, date will be the date on which BBPOU processes the transactions and generates outgoing file For a BBPCU generated acknowledgement file, the date will be the file processed / generated date as mentioned in the BBPOU's outgoing file (BBPCU will generate acknowledgment file for each of the outgoing files received from BBPOUs) For a BBPCU generated file, the date will be the settlement date
Sequence number	2-character numeric field which defines the file sequence number for a particular date. For example: 00 - 1 st file 01 - 2 nd file 99 - 100 th file

Table 76: Description of fields used for naming a file

19.6.2 Files Uploaded by BBPOUs

1. There are separate zones (data area) envisaged for BBPOUs for communicating different type of files. Different type of communication includes letters / circulars / manuals / clearing and settlement files / pre-defined reports / forms. These separate data areas require periodical archiving and purging.
2. All BBPOU generated outgoing files uploaded by them shall be placed in a separate BIN area and shall be picked by the system for structural validations.
3. After validation, the BBPOU's outgoing files will be moved to the staging area for processing upon user confirmation.
4. After clearing and settlement process, the BBPOU outgoing files are moved from staging area to storage area and shall be available to the respective participants as reference for 3 days (configurable).
5. These outgoing files older than 3 days (configurable) will be purged and will be available in archived area in participant-wise and date-wise folders.
6. The files will be stored and maintained in encrypted form.
7. All BBPOU generated outgoing files will be linked to system with reference number and unique file identifier under the respective participant / BBPOU ID.

19.6.3 Files Generated by BBPCU

1. All files generated by the system post clearing and settlement process shall be stored in current pool area and will be available to the authorized system participants / BBPOUs for download for that day. A participant / BBPOU will be able to view and download only the file pertaining to itself.
2. The next day all these files will be moved to storage area and shall be available the participants / BBPOUs for 7 days (configurable). These files shall be stored in participant-wise and date-wise folders.

3. All system generated files older than 7 days (configurable) will be purged and will be available in archived area in participant-wise and date-wise folders.
4. The files will be stored and maintained in encrypted form.
5. All system generated files will be linked to system with reference number and unique file identifier under the respective participant ID.

19.6.4 File Handling

19.6.4.1 File Upload

1. File uploading process should allow the user to upload the files from their local system to BBPCU system. On clicking the “Upload” option from the main menu, the following menu options will be displayed:
 - File Upload
 - File Validation
 - File Status Summary Report
 - File Staging
2. Browse option should be displayed to allow the user to select the path and file to be uploaded.
3. In browse option, only encrypted files should be displayed to the user.
4. At a time, single file will be selected by the user for uploading.
5. The system should display the information on progress bar regarding successful or unsuccessful file transmission.
6. Display the list of all the successful uploaded files that are not staged yet with details like file name, uploaded date and time, file size, etc.
7. File Validation:
8. Once the files are successfully uploaded, the system should start validating the file. All the structural validations will be performed on each and every message in a file.
9. Once validated, the system will show the validation status of the file (Y/N) and allow the user to view the File Status Summary Report about successful and unsuccessful records by clicking on the validation status.
10. User should be able to download the rejected report containing transaction details of rejections / unsuccessful records for each validated file. In case there is no rejection in an uploaded file, rejection report will be blank with message “No rejected data for this file”.
11. After the validation process is over, user should be given an option to stage a file or discard a file for staging.
12. File will remain in the file uploading area for 3 days (configurable) after which it will be deemed discarded for staging by the system.

13. User will have to upload the same file again if required for staging.
14. File will not be allowed for staging in case all the records in a file gets rejected in a validation process or there is a file level reject.

19.6.4.2 File Status Summary Report:

Financial		
Successful	Count	Amount
Unsuccessful	Count	Amount
Non-Financial		
Successful	Count	Amount
Unsuccessful	Count	Amount

Table 77: File status summary report

The rejected report format for record level rejection is shown below:

- S. No.
- File ID
- Function Code
- Record No.
- Rejection Reason Code
- Rejection Description

19.6.4.3 File Staging

1. Only validated files will be allowed for staging.
2. Once the file is staged, it will no longer remain in the file uploading area.
3. System should allow the user to select all or selective files for staging.
4. Activity status window should be displayed to show the progress of the staging activity.
5. File staging option will list staged file name, date and time, file size, etc.
6. User should be able to generate the file status report for every file staged on a day.
7. File will remain in the file staging area for 3 days (configurable).

19.6.4.4 File Download

1. File download process should allow the user to download the files from the BBPCU system to its local system. When the user clicks on the download option from the main menu, the following download menu options will be displayed:
 - Acknowledgment Files
 - Notification Files
 - Others Files
 - Reports
 - On Request (Ad-Hoc) Reports
2. On clicking the Acknowledgement Files option, the following will occur:
3. All the downloadable files will be listed with file name, date and time, file size, etc.
4. System should allow the user to select all or selective files for downloading.

5. Once the user clicks on the download tab, browse option should be displayed to take the path input from the user for saving the downloadable files.
6. Activity status window should be displayed to show the progress of the download activity.
7. Once the download process is over for the selected files, system should display the dialog window showing the successful and unsuccessful file count (for multiple files)
8. After 7 days (configurable) all the downloadable files will be moved to the archive area. Similar process will be followed for rest of the options in the download menu.

20 Annexures

20.1 Online Message Specifications



Online Message
Specifications.pdf

20.2 Transactions Set



Transactions
Set.xlsx

20.3 CMS and DMS: Edge Case Scenarios



CMS and DMS -
Edge Case Scenarios

20.4 MDM& Biller Configuration List



MDM & Biller
Configuration.xlsx

20.5 Roles User Permission



Role User
Permission Matrix.xls

20.6 Sample Report Structure



Sample Report
format.xlsx

20.7 File Naming Convention



File naming
convention.xlsx

List of Abbreviations

Abbreviation	Full Form
ANS	Alphabetical, Numeric and Special
API	Application Program Interface
ATR	Audit Trail Reporting
BBPCU	Bharat Bill Payment Central Unit
BBPOU	Bharat Bill Payment Operating Unit
BBPS	Bharat Bill Payment System
CMS	Complaint Management System
CNP	Card Not Present
COTS	Commercial Off-the-Shelf
CPU	Central Processing Unit
CRUD	Create, Read, Update, Delete
CSV	Comma Separated Values
CVV	Card Verification Value
DAM	Distributed Administration
DMS	Dispute Management System
DMZ	Demilitarized Zone
DND	Do Not Disturb
DR	Disaster Recovery
ESB	Enterprise Service Bus
ETL	Extract, Transform and Load
FRM	Fraud and Risk Management
GR	General Requirements
GUI	Graphical User Interface
HSM	Hardware Security Module
HTML	Hypertext Markup Language
HTTPS	Hypertext Transfer Protocol Secure
IAM	Identity and Access Management
ID	Identity
IDPS	Intrusion Detection and Prevention System
IMPS	Immediate Payment Service
IPS	Intrusion Prevention System
ISO	International Organization for Standardization
IT	Information Technology
IVRS	Interactive Voice Response System
JPG	Joint Photographic Experts Group
KB	Kilobyte
KPI	Key Performance Indicator
KYC	Know Your Customer
LDAP	Lightweight Directory Access Protocol
MDM	Master Data Management
MIS	Management Information Systems

MPLS	Multi-protocol Label Switching
MTI	Message Type Indicator
NPCI	National Payments Corporation of India
NR	Network Requirements
OASIS	Organization for the Advancement of Structured Information
ODS	Operational Data Store
OLAP	Online Analytical Processing
OS	Operating System
OTP	One Time Password
OWASP	Open Web Application Security Project
PAN	Permanent Account Number
PCI-DSS	Payment Card Industry Data Security Standard
PDF	Portable Document Format
PII	Personal Identification Information
PIN	Postal Index Number
PM	Performance and Monitoring
PO	Post Office
POS	Point of Sale
PR	Primary Recovery
PSTN	Public Switched Telephone Network
RAID	Redundant Array of Independent Disks
RBI	Reserve Bank of India
RDBMS	Relational Database Management System
RPO	Recovery Point Objective
RTO	Recovery Time Objective
SAML	Secure Assertion Markup Language
SAN	Storage Area Network
SFTP	Secure File Transfer Protocol
SGF	Settlement Guarantee Fund
SI	System Integrity/Standing Instructions
SLA	Service Level Agreement
SME	Small and Medium Sized Enterprises
SMS	Short Message Service
SOA	Service Oriented Architecture
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
SSL	Secure Sockets Layer
SSO	Single Sign-on
TAT	Turn Around Time
TB	Terabyte
TCP / IP	Transmission Control Protocol / Internet Protocol
TLS	Transport Layer Security
TPS	Transactions Per Second
VPN	Virtual Private Network

VSAT	Very Small Aperture Terminal
W3C	World Wide Web Consortium
WAF	Web Application Firewall
WAN	Wide Area Network
XKMS	XML Key Management specifications
XML	Extensible Markup Language
XSS	Cross-site Scripting
YOY	Year on Year