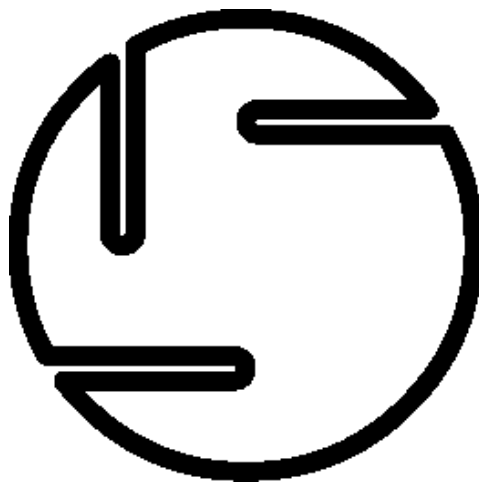


HOST TO HOST DATA MESSAGING PARAMETER

SMART BILLING

API INTEGRATION



Version 2.4

INTRODUCTION

Payment with Host to Host (H2H) method is a suitable option to enable transaction data to be submitted to billers' system in real time. It is different with Point to Host (P2H) method where billers must upload billing data to bank, H2H method enables billers to manage all data in their own systems.

With H2H method, SmartBilling host server will communicate to Biller server host. SmartBilling capability to switch between Point to Host (P2H) to Host to Host (H2H) will help biller to deliver instant solution with easy integration using web service.

Generally, there are 3 operations:

1. INQUIRY

- INQUIRY REQUEST Bank requests billing data to biller by sending payment number (it can be invoice number, customer number, booking code, etc) and other data.
- INQUIRY RESPONSE Biller responds the requests with the billing data (name, amount, etc).

2. PAYMENT

- PAYMENT REQUEST Bank notifies a payment request to biller by sending payment number, amount, time, etc.
- PAYMENT RESPONSE Biller can accept or reject the payment request. Biller responds the request with the billing data (name, amount, etc).

3. REVERSAL

- REVERSAL REQUEST Bank notifies a reversal request to biller by sending payment number, amount, time, etc.
- REVERSAL RESPONSE Biller responds the request with the billing data (name, amount, etc).

Bank and biller share **SECRET KEY** (unique alphanumeric string symmetric key) for security purpose. All responses should be in JSON format containing RESPONSE CODE and other data that will be described in next section.

INQUIRY

To get billing information, a biller should query database using inquiry request parameters.

Notes about inquiry:

- Using minimum parameters (nomorPembayaran) to match billing information, biller should query billing information.
- Maximum response time is 5 seconds.

INQUIRY REQUEST parameters:

Parameter	Description	Type	Example
action	Message type	Alphanumeric	inquiry
kodeBank	The bank code	Alphanumeric	BSM
kodeBiller	The Biller code (kode BPI)	Numeric	5090
kodeChannel	The channel code	Alphanumeric	TELLER, IBANK, ATM, MBANK
kodeTerminal	The terminal code	Alphanumeric	KK3662522
nomorPembayaran	The payment number	Numeric (min 5 digits, max 12 digits)	123000123
tanggalTransaksi	The inquiry request time	Numeric in YYYYMMDDHHIISS	20190818010101 Example above is for 2019-08-18 01:01:01
idTransaksi	The transaction unique ID	Alphanumeric	451119078829920
checksum	Output of SHA1(nomorPembayaran + secretKey + tanggalTransaksi)	Alphanumeric	d9c315851e9960aef e4b65fd6a0ce1f62b 3f7539 Example Hash (above) uses nomorPembayaran = 123000123, secretKey = 123123, tanggalTransaksi = 20190818010101

JSON Example:

```
{ "action": "inquiry", "kodeBank": "BSM", "kodeBiller": "5090", "kodeChannel": "ATM", "kodeTerminal": "KK3662522", "nomorPembayaran": "123000123", "tanggalTransaksi": "20190818010101", "idTransaksi": "451119078829920", "checksum": "d9c315851e9960aefe4b65fd6a0ce1f62b3f7539" }
```

"}

INQUIRY RESPONSE parameters if OK:

Parameter	Description	Type	Example
rc	Response Code	Alphanumeric	OK
msg	Message	Alphanumeric	Inquiry Success
nomorPembayaran	The payment number	Numeric (min 5 digits, max 12 digits)	12983777
idPelanggan	Member ID	Numeric (min 5 digits, max 20 digits)	088027711122
nama	Name	Alphanumeric (max 20 characters)	JOHN DOE
totalNominal	The amount to be paid	Numeric	500000
informasi	List of Informations about the bill	JSONArray of label_key and label_value	[{"label_key": "INFO1", "label_value": "Installment"}, {"label_key": "INFO2", "label_value": "Januari 2017"}]
rincian	List of bill details	JSONArray of kode_rincian and nominal	[{"kode_rincian": "ADMIN", "nominal": "100000"}, {"kode_rincian": "CICILAN", "nominal": "400000"}]
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills.	Alphanumeric (max 20 characters)	INV201701001

JSON Example:

```
{"rc": "OK", "msg": "Inquiry Success", "nomorPembayaran": "12983777",  
"idPelanggan": "088027711122", "nama": "JOHN DOE", "totalNominal": "500000",  
"informasi": [{"label_key": "INFO1", "label_value": "Installment"}, {"label_key": "INFO2",  
"label_value": "Januari 2017"}], "rincian": [{"kode_rincian": "ADMIN", "nominal": "100000"}, {"  
"kode_rincian": "CICILAN", "nominal": "400000"}], "idTagihan": "INV201701001"}
```

INQUIRY RESPONSE parameters if NOT OK:

Parameter	Description	Type	Example
rc	Response Code	Alphanumeric	ERR-ALREADY-PAID
msg	Message	Alphanumeric	Bill already paid

JSON Example:

```
{"rc":"ERR-ALREADY-PAID","msg":"Bill already paid"}
```

PAYMENT

To complete a payment, a biller should update database (status, journal, etc) using payment request parameters. Notes about payment:

- Using minimum parameters (kodeBank, tanggalTransaksi, nomorPembayaran, and totalNominal) to match billing information, biller should flag the transaction.
- Maximum response time is 5 seconds. If time exceeded, Smartbilling will send reversal to unflag the transaction.
- After successful reversal, a normal transaction (from inquiry to payment) should be allowed without require any manual interaction between customer and biller.
- Maximum waiting time for a transaction between reversal and payment is 5 minutes. If time exceeded, response code should be ERR-REVERSAL-DENIED

PAYMENT REQUEST parameters:

Parameter	Description	Type	Example
action	Message type	Alphanumeric	payment
kodeBank	The bank code	Alphanumeric	BSM
kodeBiller	The Biller code (kode BPI)	Numeric	5090
kodeChannel	The channel code	Alphanumeric	TELLER, IBANK, ATM, MBANK
kodeTerminal	The terminal code	Alphanumeric	KK3662522
nomorPembayaran	The payment number	Numeric (min 5 digits, max 12 digits)	123000123
tanggalTransaksi	The payment request time	Numeric in YYYYMMDDHHIISS	20190818010101 Example above is for 2019-08-18 01:01:01
idTransaksi	The transaction unique ID	Alphanumeric	451119078829921
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills.	Alphanumeric (max 20 characters)	INV201701001

totalNominal	The amount of payment	Numeric	500000
nomorJurnalPembukuan	The switching/bank journal reference	Alphanumeric	8876335525422278863
checksum	Output of SHA1(nomorPembayaran + secretKey + tanggalTransaksi + totalNominal + nomorJurnalPembukuan)	Alphanumeric	bc7aff197fc61eff89b6ad6e1cad37e71f3e368 Example Hash (above) uses nomorPembayaran = 123000123, secretKey = 123123, tanggalTransaksi = 20190818010101, totalNominal = 500000, nomorJurnalPembukuan = 8876335525422278863

JSON Example:

```
{
  "action": "payment",
  "kodeBank": "BSM",
  "kodeBiller": "5090",
  "kodeChannel": "ATM",
  "kodeTerminal": "KK3662522",
  "nomorPembayaran": "123000123",
  "tanggalTransaksi": "20190818010101",
  "idTransaksi": "121231233456",
  "idTagihan": "INV201701001",
  "totalNominal": "500000",
  "nomorJurnalPembukuan": "8876335525422278863",
  "checksum": "bc7aff197fc61eff89b6ad6e1cad37e71f3e368"
}
```

PAYMENT RESPONSE parameters if OK:

Parameter	Description	Type	Example
rc	Response Code	Alphanumeric	OK
msg	Message	Alphanumeric	Payment Success
nomorPembayaran	The payment number	Numeric (min 5 digits, max 12 digits)	123000123
idPelanggan	Member ID	Numeric (min 5 digits, max 20 digits)	088027711122
nama	Name	Alphanumeric (max 20 characters)	JOHN DOE

totalNominal	The amount to be paid	Numeric	500000
informasi	List of Informations about the bill	JSONArray of label_key and label_value	[{"label_key": "INFO1", "label_value": "Installment"}, {"label_key": "INFO2", "label_value": "Januari 2017"}]
rincian	List of bill details	JSONArray of kode_rincian and nominal	[{"kode_rincian": "ADMIN", "nominal": "100000"}, {"kode_rincian": "CICILAN", "nominal": "400000"}]
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills.	Alphanumeric (max 20 characters)	INV201701001

JSON Example:

```
{
  "rc": "OK",
  "msg": "Payment Success",
  "nomorPembayaran": "123000123",
  "idPelanggan": "088027711122",
  "nama": "JOHN DOE",
  "totalNominal": "500000",
  "informasi": [
    {
      "label_key": "INFO1",
      "label_value": "Installment"
    },
    {
      "label_key": "INFO2",
      "label_value": "Januari 2017"
    }
  ],
  "rincian": [
    {
      "kode_rincian": "ADMIN",
      "nominal": "100000"
    },
    {
      "kode_rincian": "CICILAN",
      "nominal": "400000"
    }
  ],
  "idTagihan": "INV201701001"
}
```

PAYMENT RESPONSE parameters if NOT OK:

Parameter	Description	Type	Example
rc	Response Code	Alphanumeric	ERR-DB
msg	Message	Alphanumeric	DATABASE ERROR

JSON Example:

```
{
  "rc": "ERR-DB",
  "msg": "DATABASE ERROR"
}
```


REVERSAL

To cancel previous transaction, a biller should match previous payment transaction using reversal request parameters and unflag the previous transaction. Notes about reversal:

- Reversal can be sent from Smartbilling or from Bank. Smartbilling send reversal on previous payment response timeout. Bank send reversal on any error.
- Using minimum parameters (kodeBank, tanggalTransaksiAsal, nomorPembayaran, totalNominal and nomorJurnalPembukuan) to match previous payment request, biller should unflag the transaction.
- After successful reversal, a normal transaction (from inquiry to payment) should be allowed without require any manual interaction between customer and biller.
- Maximum waiting time for a transaction between reversal and payment is 5 minutes. If time exceeded, response code should be ERR-REVERSAL-DENIED

REVERSAL REQUEST parameters:

Parameter	Description	Type	Example
action	Message type	Alphanumeric	reversal
kodeBank	The bank code	Alphanumeric	BSM
kodeBiller	The Biller code (kode BPI)	Numeric	5090
kodeChannel	The channel code	Alphanumeric	TELLER, IBANK, ATM, MBANK
kodeTerminal	The terminal code	Alphanumeric	KK3662522
nomorPembayaran	The payment number	Numeric (min 5 digits, max 12 digits)	123000123
tanggalTransaksi	The reversal request time	Numeric in YYYYMMDDHHIISS	20190818010120 Example above is for 2019-08-18 01:01:20
tanggalTransaksiAsal	The payment request time	Numeric in YYYYMMDDHHIISS	20190818010101 Example above is for 2019-08-18 01:01:01
idTransaksi	The transaction unique ID	Alphanumeric	451119078829921

idTagihan	The billing reference. Can an Invoice number or other unique ID between bills.	Alphanumeric (max 20 characters)	INV201701001
totalNominal	The amount of payment	Numeric	500000
nomorJurnalPembukuan	The switching/bank journal reference	Alphanumeric	8876335525422278863
checksum	Output of SHA1(nomorPembayaran + secretKey + tanggalTransaksi + totalNominal + nomorJurnalPembukuan)	Alphanumeric	bdb42921a2bb06972e41ba8be75547a8c8cc8172 Example Hash (above) uses nomorPembayaran = 123000123, secretKey = 123123, tanggalTransaksi = 20190818010120, totalNominal = 500000, nomorJurnalPembukuan = 8876335525422278863

JSON Example:

```
{
  "action": "reversal",
  "kodeBank": "BSM",
  "kodeBiller": "5090",
  "kodeChannel": "ATM",
  "kodeTerminal": "KK3662522",
  "nomorPembayaran": "123000123",
  "tanggalTransaksi": "20190818010120",
  "tanggalTransaksiAsal": "20190818010101",
  "idTransaksi": "451119078829921",
  "idTagihan": "INV201701001",
  "totalNominal": "500000",
  "nomorJurnalPembukuan": "8876335525422278863",
  "checksum": "bdb42921a2bb06972e41ba8be75547a8c8cc8172"
}
```

REVERSAL RESPONSE parameters if OK:

Parameter	Description	Type	Example
rc	Response Code	Alphanumeric	OK
msg	Message	Alphanumeric	Reversal Success
nomorPembayaran	The payment number	Numeric (min 5 digits, max 12 digits)	123000123
idPelanggan	Member ID	Numeric (min 5 digits, max 20 digits)	088027711122
nama	Name	Alphanumeric (max 20 characters)	JOHN DOE
totalNominal	The amount to be paid	Numeric	500000
informasi	List of Informations about the bill	JSONArray of label_key and label_value	[{"label_key": "INFO1", "label_value": "Installment"}, {"label_key": "INFO2", "label_value": "Januari 2017"}]
rincian	List of bill details	JSONArray of kode_rincian and nominal	[{"kode_rincian": "ADMIN", "nominal": "100000"}, {"kode_rincian": "CICILAN", "nominal": "400000"}]
idTagihan	The billing reference	Alphanumeric (max 20 characters)	INV201701001

JSON Example:

```
{
  "rc": "OK",
  "msg": "Reversal Success",
  "nomorPembayaran": "123000123",
  "idPelanggan": "088027711122",
  "nama": "JOHN DOE",
  "totalNominal": "500000",
  "informasi": [
    {
      "label_key": "INFO1",
      "label_value": "Installment"
    },
    {
      "label_key": "INFO2",
      "label_value": "Januari 2017"
    }
  ],
  "rincian": [
    {
      "kode_rincian": "ADMIN",
      "nominal": "100000"
    },
    {
      "kode_rincian": "CICILAN",
      "nominal": "400000"
    }
  ],
  "idTagihan": "INV201701001"
}
```

REVERSAL RESPONSE parameters if NOT OK:

Parameter	Description	Type	Example
rc	Response Code	Alphanumeric	ERR-DB
msg	Message	Alphanumeric	DATABASE ERROR

JSON Example:

```
{"rc":"ERR-DB","msg":"DATABASE ERROR"}
```

RESPONSE CODE LIST

RC	Implementation Scenario	Use in	Description
OK	Mandatory for All cases	INQ/ PAY/ REV	Transaction is OK / SUCCESS
ERR-ALREADY-PAID	Mandatory for All cases	INQ/ PAY	Billing is already paid
ERR-DB	Mandatory for All cases	INQ/ PAY/ REV	Database Problem
ERR-SECURE-HASH	Mandatory for All cases	INQ/ PAY/ REV	Secure Hash invalid
ERR-UNDEFINED	Mandatory for All cases	INQ/ PAY/ REV	Undefined error
ERR-NOT-FOUND	Mandatory for All cases	INQ/ PAY	Payment identity is not found
ERR-PARSING-MESSAGE	Mandatory for All cases	INQ/ PAY	Invalid messaging format
ERR-PREVIOUS-TRANSACTION-NOT-FOUND	Mandatory for All cases	REV	Reversal can not be done because no payment request received
ERR-REVERSAL-DENIED	Optional If biller wants to implement non-reversal scenario	REV	Reversal can not be done because previous payment has updated biller's database
ERR-PAYMENT-WRONG-AMOUNT	Optional If biller wants to implement open amount scenario	PAY/ REV	Payment amount is wrong
ERR-DB-TIMEOUT	Optional To differentiate between DB error and slow	INQ/ PAY/ REV	Database Query Timeout in Biller

	DB response		
ERR-BILL-NOT-READY	Optional To differentiate either bill / customer is not exist or not yet released	INQ/ PAY	The payment identity is found but there is no available billing
ERR-BANK-UNKNOWN	Optional If biller wants to filter specific collecting agent	INQ/ PAY/ REV	Unrecognized collecting agent/bank
ERR-CHANNEL-UNKNOWN	Optional If biller wants to filter specific delivery channel	INQ/ PAY/ REV	Delivery channel is not supported
ERR-MAX-PAYMENT-AMOUNT	Optional If biller wants to limit max trx amount	PAY	Maximum payment amount is exceeded
ERR-BILL-EXPIRED	Optional To differentiate either bill is not available or bill is expired	INQ/ PAY	Payment identity is expired
ERR-INTERVAL-PAYMENT	Optional If biller wants to limit max transaction frequency	PAY	Payment interval is too close

ANOTHER CONSIDERATIONS

- SmartBilling run on limited international bandwidth, we strongly recommend to place biller's server host in Indonesia with IIX/openIXP peering.
- Response time should not exceed 5 seconds. We recommend to separate other processes from H2H. Another process like sending email that can lengthen response time should be called from another process (eg. infinite background process).
- We consider hashing secret key and another variables is enough for security purpose. We will provide IP addresses to be added into biller's whitelist for additional security layer.
- SSL Certificate is highly recommended.