

HOST TO HOST DATA MESSAGING PARAMETER

SMART BILLING BPI (BSI PEMBAYARAN INSTITUSI)

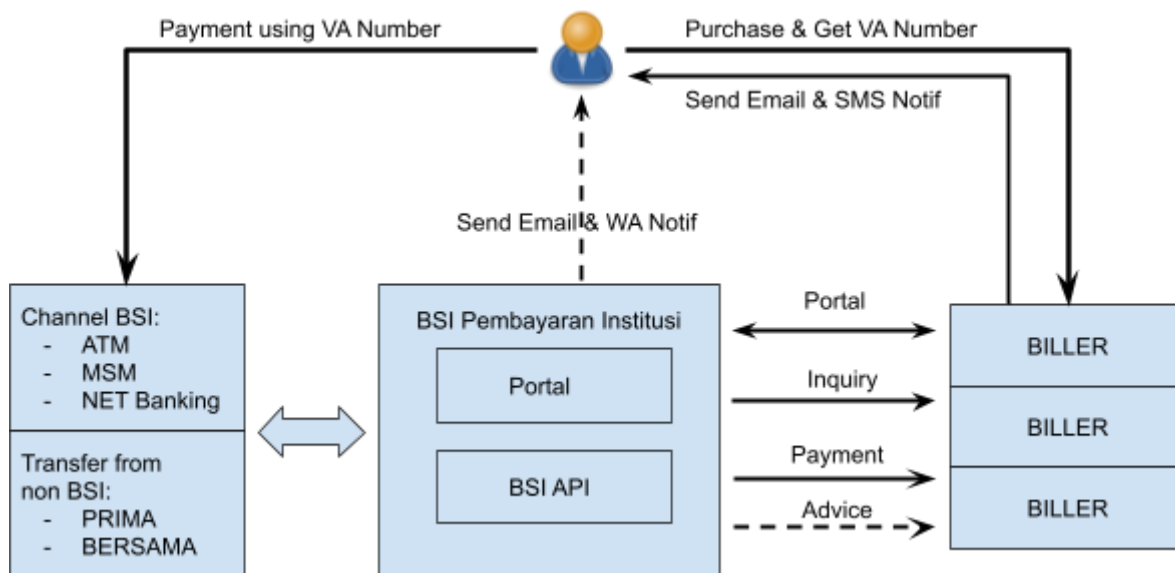
API INTEGRATION



Version 2.11

INTRODUCTION

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



With the H2H method, SmartBilling BPI host server will communicate to Biller server host. Generally, there are 3 operations:

1. INQUIRY

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

3. ADVICE (Optional)

- ADVICE REQUEST Bank checks previous payment status to biller by sending payment number, amount, transaction id, etc.
- ADVICE RESPONSE Biller can reply to the advice request. Biller responds to the request with the paid billing data (name, amount, transaction id, transaction time, etc).

BILLER / CLIENT DETAIL

Biller / client should be able to provide technical data for the migration purpose, which consists of:

- Company Name
- An accessible public endpoint to get data from biller system
- A callback URL to receive payment notification from BSI-H2H

Biller / client will be given a prefix number (**kodeBPI**) and a unique alphanumeric string symmetric key for security purposes (**SECRET_KEY**). All responses should be in JSON format containing RESPONSE CODE and other data that will be described in the next section. Biller should allow and add whitelists for SmartBilling web service requests from these IP: **202.74.236.178**, **103.219.249.4**, and **103.236.151.109**. This load balancing method reduces network problems related to public routing and therefore increasing service availability.

SECRET_KEY will be used to provide a hash using SHA1.

INQUIRY : hash = SHA1(nomorPembayaran + **SECRET_KEY** + tanggalTransaksi)

PAYMENT : hash = SHA1(nomorPembayaran + **SECRET_KEY** + tanggalTransaksi + totalNominal + nomorJurnalPembukuan)

ADVICE : hash = SHA1(nomorPembayaran + **SECRET_KEY** + tanggalTransaksi + totalNominal + nomorJurnalPembukuan)

BILLING NUMBER & PAYMENT METHODS

The **Billing Number** has up to 16 digits long and consists of 2 components, below are the details:

- Bank Assigned prefix **KodeBPI** (4 digits)
- Free Digit **Payment Number** (5 to 12 digits)

Payment methods available:

- Payment using BSI payment channels (ATM, MSM, NET Banking).

ATM

- Choose Payment
- Choose Akademik
- Enter **KodeBPI + Payment Number (max 16 digits)**

MSM

- Choose Payment
- Choose Akademik / Institusi
- Choose Institution Name (**replace 4 digits KodeBPI**)
- Enter **Payment Number (max 12 digits, without KodeBPI)**

NET BANKING

- Choose Payment
- Choose Akademik / Institusi

- Choose Institution Name (**replace 4 digits KodeBPI**)
- Enter **Payment Number (max 12 digits, without KodeBPI)**
- Transfer from **non-BSI using PRIMA / BERSAMA** network (max 19 digits long)
ATM / Mobile Banking / Net Banking
 - Choose menu Transfer (will vary depends on each bank implementation)
 - Choose Transfer using Online Transfer (do not use SKN)
 - Choose BANK SYARIAH MANDIRI
 - Enter VA number: **900 + kodeBPI + Payment Number (total max 19 digits)**
consists of fixed prefix "900" (3) + kodeBPI (4) + Payment Number (12)

RECONCILIATIONS

In data reconciliation, biller should refer to the status of the existence of funds in BSI. Financial transaction cut-off schedule is every 22:00. The following is the operational flow of the reconciliation that will be carried out:

- For transactions on D day 00:00 to 22:00
 - All transactions that occur on D day starting at 00:00 to 22:00 will be reconciled on D+1 at 09:30
 - BSI will settle funds directly to the Institution's account on D+1 day no later than 20:00. However, if it coincides with a holiday, the settlement will be carried out on the next working day
- For transactions on D day of 22:00 to 24:00
 - All transactions that occur on D day starting at 00:00 to 24:00 will be reconciled on D+1 at 20:30
 - BSI will settle funds directly to the Institution's account on D+2 day no later than 22:00. However, if it coincides with a holiday, the settlement will be carried out on the next working day

If there is a data discrepancy between BSI and biller, the BSI reconciliation team will confirm to biller to determine the status of the data and perform flagging and unflagging of data on the biller database system. Reconciliation results will be sent by email or SFTP to biller.

Data reconciliation file uses semicolon separated fields and file naming format as reconciliation time. Format File Naming is `rekon_451_YYYYMMDDhhmmss.csv`. Data order in the reconciliation file is using reconciliation time (not transaction time). Custom report fields can be accommodated as long as values exist in the payment response.

Example:

```
kode_bank;kode_bpi;wkt_rekonsiliasi;wkt_transaksi;nomor_pelanggan;
nama;id_tagihan;total_pembayaran;nomor_jurnal_pembukuan;kode_ft
451;5774;20210607093000;20210606024600;017909;M
ZAKI;1200;97700;2335530609043524000451;070246228346/FT21158SHTR0
451;5654;20210607093000;20210606082900;069181;ROSARIA;1203;463200;
6535530609043524000451;070829483866/FT21158S8MXZ
451;5377;20210607093000;20210606083000;067969;ROSARIA
(1);1204;17200;3835530609043524000451;070831184710/FT211581R1XQ
```

INQUIRY

To get billing information, a biller should query the database using inquiry request parameters. Notes about inquiry:

- Using minimum parameters (nomorPembayaran) to match billing information, billers should query billing information.
- Maximum response time is 10 seconds.

INQUIRY REQUEST parameters:

Parameter	Description	Type	Example
action	Message type (M)	VarChar (max 10)	inquiry
kodeBank	The bank code (M)	VarChar (max 10)	BSI
kodeBiller	The Biller code (kode BPI) (M)	Char (4)	2619
kodeChannel	The channel code (M)	VarChar (max 10)	TELLER, IBANK, ATM, MBANK, FLAGGING
kodeTerminal	The terminal code (M)	VarChar (max 30)	KK3662522
nomorPembayaran	The payment number (M)	VarChar (min 5 digits, max 12 digits)	Cth: 012345
tanggalTransaksi	The inquiry request time (M)	Char (14) YYYYMMDDHHIISS	20190818010101 Example above is for 2019-08-18 01:01:01
idTransaksi	The transaction unique ID (M)	VarChar (max 30)	451119078829920
totalNominalInquiry	Inquiry Amount (M)	Integer	1000000
checksum	Output of SHA1(nomorPembayaran + secretKey + tanggalTransaksi) (M)	Char (40)	d9c315851e9960ae fe4b65fd6a0ce1f62 b3f7539 Example Hash (above) uses nomorPembayaran = 123000123, secretKey = 123123, tanggalTransaksi = 20190818010101

JSON Example:

```
{ "action": "inquiry", "kodeBank": "BSI", "kodeBiller": "5090", "kodeChannel": "ATM", "kodeTerminal": "KK3662522", "nomorPembayaran": "123000123", "tanggalTransaksi": "20190818010101", "idTransaksi": "451119078829920", "totalNominalInquiry": "1000000", "checksum": "d9c315851e9960aefe4b65fd6a0ce1f62b3f7539" }
```

INQUIRY RESPONSE parameters if OK:

Parameter	Description	Type	Example
rc	Response Code (M)	VarChar (max 30)	OK
msg	Message (M)	VarChar (max 50)	Inquiry Success
nomorPembayaran	The payment number (M)	VarChar (min 5 digits, max 12 digits)	12983777
idPelanggan	Member ID (M)	VarChar (min 5 digits, max 20 digits)	088027711122
nama	Name (M)	VarChar (max 20)	JOHN DOE
email	Email (O)	Email Format VarChar (max 25)	email@email.com
nomorHP	Mobile Phone number (O)	Phone number, complete with country code VarChar (max 25)	+62811123456789
totalNominal	The amount to be paid (M)	Numeric	500000
informasi	List of Informations about the bill (M)	JSONArray of label_key (String) and label_value (String)	[{"label_key": "INFO1", "label_value": "Installment"}, {"label_key": "INFO2", "label_value": "Januari 2017"}]
rincian	List of bill details (M)	JSONArray of kode_rincian (String), deskripsi (String), and nominal (Numeric)	[{"kode_rincian": "ADMIN", "deskripsi": "Biaya Admin", "nominal": 100000}, {"kode_rincian":

			"CICILAN", "deskripsi": "Nilai Cicilan", "nominal": 400000}]
totalNominalInquiry	Inquiry Amount (0)	Integer	1000000
minPayment	Minimum Payment Amount (0). Value 0 means there is no minimum payment amount	Integer	10000
maxPayment	Maximum Payment Amount (0). Value 0 means there is no maximum payment amount	Integer	500000
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills. (0) For Inquiry , idTagihan is not Mandatory .	VarChar (max 100)	INV201701001

JSON Example:

```
{
  "rc": "OK",
  "msg": "Inquiry Success",
  "nomorPembayaran": "12983777",
  "idPelanggan": "088027711122",
  "nama": "JOHN DOE",
  "email": "email@email.com",
  "nomorHP": "+62811123456789",
  "totalNominal": 500000,
  "informasi": [
    {
      "label_key": "INFO1",
      "label_value": "30 karakter"
    },
    {
      "label_key": "INFO2",
      "label_value": "30 karakter"
    }
  ],
  "rincian": [
    {
      "kode_rincian": "ADMIN",
      "deskripsi": "Biaya Admin",
      "nominal": 100000
    },
    {
      "kode_rincian": "CICILAN",
      "deskripsi": "Nilai Cicilan",
      "nominal": 400000
    }
  ],
  "minPayment": 10000,
  "maxPayment": 500000,
  "idTagihan": "INV201701001"
}
```

INQUIRY RESPONSE parameters if NOT OK:

Parameter	Description	Type	Example
rc	Response Code (M)	VarChar (max 30)	ERR-ALREADY-PAID
msg	Message (M)	VarChar (max 50)	Bill already paid

JSON Example:

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

PAYMENT

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

- Using minimum parameters (kodeBank, tanggalTransaksi, nomorPembayaran, and totalNominal) to match billing information, the biller should flag the transaction.
- Maximum response time is 10 seconds. If time exceeds, Smartbilling will return timeout response code to payment channel

PAYMENT REQUEST parameters:

Parameter	Description	Type	Example
action	Message type (M)	VarChar (max 10)	payment
kodeBank	The bank code (M)	VarChar (max 10)	BSI
kodeBiller	The Biller code (kode BPI) (M)	Char (4)	5090
kodeChannel	The channel code (M)	VarChar (max 10)	TELLER, IBANK, ATM, MBANK
kodeTerminal	The terminal code (M)	VarChar (max 30)	KK3662522
nomorPembayaran	The payment number (M)	VarChar (min 5 digits, max 12 digits)	123000123
tanggalTransaksi	The payment request time (M)	Char (14) YYYYMMDDHHIISS	20190818010101 Example above is for 2019-08-18 01:01:01
idTransaksi	The transaction unique ID (M)	VarChar (max 30)	451119078829921
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills. (O)	VarChar (max 20)	INV201701001
totalNominal	The amount of payment (M)	Numeric	500000

nomorJurnalPembukuan	The switching/bank journal reference (M)	VarChar (max 30)	8876335525422278863
checksum	Output of SHA1(nomorPembayaran + secretKey + tanggalTransaksi + totalNominal + nomorJurnalPembukuan) (M)	Char (40)	bc7afff197fc61eff89b6ad6e1cad37e71f3e368 Example Hash (above) uses nomorPembayaran = 123000123, secretKey = 123123, tanggalTransaksi = 20190818010101, totalNominal = 500000, nomorJurnalPembukuan = 8876335525422278863

JSON Example:

```
{
  "action": "payment",
  "kodeBank": "BSI",
  "kodeBiller": "5090",
  "kodeChannel": "ATM",
  "kodeTerminal": "KK3662522",
  "nomorPembayaran": "123000123",
  "tanggalTransaksi": "20190818010101",
  "idTransaksi": "121231233456",
  "idTagihan": "INV201701001",
  "totalNominal": "500000",
  "nomorJurnalPembukuan": "8876335525422278863",
  "checksum": "bc7afff197fc61eff89b6ad6e1cad37e71f3e368"
}
```

PAYMENT RESPONSE parameters if OK:

Parameter	Description	Type	Example
rc	Response Code (M)	VarChar (max 30)	OK
msg	Message (M)	VarChar (max 50)	Payment Success
nomorPembayaran	The payment number (M)	VarChar (min 5 digits, max 12 digits)	123000123
idPelanggan	Member ID (M)	VarChar (min 5 digits, max 20 digits)	088027711122
nama	Name (M)	VarChar (max 20)	JOHN DOE

email	Email (O)	Email Format VarChar (max 25)	email@email.com
nomorHP	Mobile Phone number (O)	Phone number, complete with country code VarChar (max 25)	+62811123456789
totalNominal	The amount to be paid (M)	Numeric	500000
informasi	List of Informations about the bill (M)	JSONArray of label_key (String) and label_value (String)	[{"label_key": "INFO1","label_value" : "Installment"},{ "label_key": "INFO2", "label_value": " Januari 2017"}]
rincian	List of bill details (M)	JSONArray of kode_rincian (String), deskripsi (String), and nominal (Numeric)	[{"kode_rincian": "ADMIN", "deskripsi": "Biaya Admin", "nominal": "100000"},{ "kode_rincian": "CICILAN", "deskripsi": "Nilai Cicilan", "nominal": "400000"}]
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills. (M) For Payment , idTagihan is Mandatory	VarChar (max 100)	INV201701001

JSON Example:

```
{
  "rc": "OK",
  "msg": "Payment Success",
  "nomorPembayaran": "123000123",
  "idPelanggan": "088027711122",
  "nama": "JOHN DOE",
  "email": "email@email.com",
  "nomorHP": "+62811123456789",
  "totalNominal": 500000,
  "informasi": [
    {
      "label_key": "INFO1",
      "label_value": "Installment"
    },
    {
      "label_key": "INFO2",
      "label_value": " Januari 2017"
    }
  ],
  "rincian": [
    {
      "kode_rincian": "ADMIN",
      "deskripsi": "Biaya Admin",
      "nominal": 100000
    },
    {
      "kode_rincian": "CICILAN",
      "deskripsi": "Nilai Cicilan",
      "nominal": 400000
    }
  ],
  "idTagihan": "INV201701001"
}
```

PAYMENT RESPONSE parameters if NOT OK:

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

JSON Example:

```
{"rc": "ERR-WRONG-AMOUNT", "msg": "Maaf, nominal bayar tidak sesuai"}
```

ADVICE

Advice is an optional step for BSI to confirm previous payment status. Biller should respond using advice response parameters similar to payment response. Notes about advice:

- Using minimum parameters (kodeBank, tanggalTransaksi, nomorPembayaran, totalNominal, and nomorJurnalPembukuan) to match previous payment transactions, biller should respond with the same exact messages like previous payment response.
- Maximum response time is 2 seconds. If time exceeds, Smartbilling will return timeout response code to payment channel

ADVICE REQUEST parameters:

Parameter	Description	Type	Example
action	Message type (M)	VarChar (max 10)	advice
kodeBank	The bank code (M)	VarChar (max 10)	BSI
kodeBiller	The Biller code (kode BPI) (M)	Char (4)	5090
kodeChannel	The channel code (M)	VarChar (max 10)	TELLER, IBANK, ATM, MBANK
kodeTerminal	The terminal code (M)	VarChar (max 30)	KK3662522
nomorPembayaran	The payment number (M)	VarChar (min 5 digits, max 12 digits)	123000123
tanggalTransaksi	The payment request time (M)	Char (14) YYYYMMDDHHIISS	20190818010101 Example above is for 2019-08-18

			01:01:01
idTransaksi	The transaction unique ID (M)	VarChar (max 30)	451119078829921
idTagihan	The billing reference. Can an Invoice number or other unique ID between bills. (O)	VarChar (max 20)	INV201701001
totalNominal	The amount of payment (M)	Numeric	500000
nomorJurnalPembukuan	The switching/bank journal reference (M)	VarChar (max 30)	8876335525422278863
checksum	Output of SHA1(nomorPembayaran + secretKey + tanggalTransaksi + totalNominal + nomorJurnalPembukuan) (M)	Char (40)	bc7afff197fc61eff89b6ad6e1cad37e71f3e368 Example Hash (above) uses nomorPembayaran = 123000123, secretKey = 123123, tanggalTransaksi = 20190818010101, totalNominal = 500000, nomorJurnalPembukuan = 8876335525422278863

JSON Example:

```
{
  "action": "advice",
  "kodeBank": "BSI",
  "kodeBiller": "5090",
  "kodeChannel": "ATM",
  "kodeTerminal": "KK3662522",
  "nomorPembayaran": "123000123",
  "tanggalTransaksi": "20190818010101",
  "idTransaksi": "121231233456",
  "idTagihan": "INV201701001",
  "totalNominal": "500000",
  "nomorJurnalPembukuan": "8876335525422278863",
  "checksum": "bc7afff197fc61eff89b6ad6e1cad37e71f3e368"
}
```

ADVICE RESPONSE parameters if OK:

Parameter	Description	Type	Example
rc	Response Code (M)	VarChar (max 30)	OK
msg	Message (M)	VarChar (max 50)	Previous Payment Success
nomorPembayaran	The payment number (M)	VarChar (min 5 digits, max 12 digits)	123000123
idPelanggan	Member ID (M)	VarChar (min 5 digits, max 20 digits)	088027711122
nama	Name (M)	VarChar (max 20)	JOHN DOE
email	Email (O)	Email Format VarChar (max 25)	email@email.com
nomorHP	Mobile Phone number (O)	Phone number, complete with country code VarChar (max 25)	+62811123456789
totalNominal	The amount to be paid (M)	Numeric	500000
informasi	List of Informations about the bill (M)	JSONArray of label_key (String) and label_value (String)	[{"label_key": "INFO1", "label_value": "Installment"}, {"label_key": "INFO2", "label_value": "Januari 2017"}]
rincian	List of bill details (M)	JSONArray of kode_rincian (String), deskripsi (String), and nominal (Numeric)	[{"kode_rincian": "ADMIN", "deskripsi": "Biaya Admin", "nominal": "100000"}, {"kode_rincian": "CICILAN", "deskripsi": "Nilai Cicilan", "nominal": "400000"}]

idTagihan	The billing reference. Can an Invoice number or other unique ID between bills. (M) For Payment , idTagihan is Mandatory	VarChar (max 100)	INV201701001
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JSON Example:

```
{
  "rc": "OK",
  "msg": "Previous Payment Success",
  "nomorPembayaran": "123000123",
  "idPelanggan": "088027711122",
  "nama": "JOHN DOE",
  "email": "email@email.com",
  "nomorHP": "+62811123456789",
  "totalNominal": 500000,
  "informasi": [
    {
      "label_key": "INFO1",
      "label_value": "Installment"
    },
    {
      "label_key": "INFO2",
      "label_value": "Januari 2017"
    }
  ],
  "rincian": [
    {
      "kode_rincian": "ADMIN",
      "deskripsi": "Biaya Admin",
      "nominal": 100000
    },
    {
      "kode_rincian": "CICILAN",
      "deskripsi": "Nilai Cicilan",
      "nominal": 400000
    }
  ],
  "idTagihan": "INV201701001"
}
```

ADVICE RESPONSE parameters if NOT OK:

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

JSON Example:

```
{
  "rc": "ERR-WRONG-AMOUNT",
  "msg": "Maaf, nominal bayar tidak sesuai"
}
```

RESPONSE CODE LIST

RC	Implementation Scenario	Use in	Description
OK	Mandatory for All cases	INQ/ PAY/ ADV	Transaction is OK / SUCCESS
ERR-ALREADY-PAID	Mandatory for All cases	INQ/ PAY/ ADV	Billing is already paid
ERR-DB	Mandatory for All cases	INQ/ PAY/ ADV	Database Problem
ERR-SECURE-HASH	Mandatory for All cases	INQ/ PAY/ ADV	Secure Hash invalid
ERR-UNDEFINED	Mandatory for All cases	INQ/ PAY/ ADV	Undefined error
ERR-NOT-FOUND	Mandatory for All cases	INQ/ PAY/ ADV	Payment identity is not found
ERR-PARSING-MESSAGE	Mandatory for All cases	INQ/ PAY/ ADV	Invalid messaging format
ERR-PAYMENT-WRONG-AMOUNT	Optional If biller wants to implement open amount scenario	PAY	Payment amount is wrong
ERR-DB-TIMEOUT	Optional To differentiate between DB error and slow DB response	INQ/ PAY/ ADV	Database Query Timeout in Biller
ERR-BILL-NOT-READY	Optional To differentiate either bill / customer is not exist or not yet	INQ/ PAY	The payment identity is found but there is no available billing

	released		
ERR-BANK-UNKNOWN	Optional If biller wants to filter specific collecting agent	INQ/ PAY	Unrecognized collecting agent/bank
ERR-CHANNEL-UNKNOWN	Optional If biller wants to filter specific delivery channel	INQ/ PAY	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 runs on limited international bandwidth, we strongly recommend to place biller's server host in Indonesia with IIX/openIXP peering.
- Response time should not exceed 10 seconds. We recommend separating other processes from H2H. Another process like sending email that can lengthen response time should be called from another process (eg. cron or background process).
- We consider hashing a secret key and other variables is enough for security purposes.
- SSL Certificate is highly recommended.