

iGTB CONNECT

Implementation Guide

FOR NEW AND EXISTING
CORPORATE HOST-TO-HOST SOLUTION OF BOCHK



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Welcome to iGTB WORLD



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About iGTB CONNET



The All-New Corporate Host-to-host of BOCHK

New experience of transaction banking service

iGTB, the intelligent Global Transaction Banking Platform of BOCHK, provides full range of transaction banking services online to corporate customers in the region. The all-new host-to-host channel, iGTB CONNET supports full spectrum of transaction banking services with straight through experience including operating account enquiry, payment, payroll, account receivable management and information management.

Regional Focus

Aligning with the Belt and Road initiative, iGTB CONNET provides a full range of high quality online transaction banking services to the ASEAN region.

Global Connection

Managing your corporate accounts globally has never been easier. Through iGTB CONNET, you can simply connect to your global BOC group accounts and manage account transactions in real time.

Explore iGTB CONNECT

Secure and Seamless Host-to-Host Solution

Nowadays, global corporates continue to pursue an efficient and effective way to handle financial information and treasury activities. To gain flexibility and efficiency in processing large volume of account payables and receivables on a timely basis, you require a secured integrated banking solution to assist your business.

iGTB CONNECT is a secured host-to-host solution that can reduce your operational costs, improve operational efficiencies and optimise the use of cash balances. Our solution enables you to integrate your existing enterprise resource planning (ERP) system, accounting and treasury systems with iGTB CONNECT – helping you to facilitate account and transaction enquiries, as well as other financial transactions, to ensure timeliness and security in information exchange. All enquiries and transaction instructions will be submitted to the bank on a real-time basis, and the bank will also revert with the execution results and sought-after information instantly.

Combination and Connectivity

iGTB Connect, iGTB NET and iGTB MOBILE are interoperable.

Integration and Connection

Seamlessly connect your own Enterprise Resource Planning (ERP) system, accounting and treasury systems with our Host-to-Host Solution to simplify your treasury activities.

Automation and Security

Allow secure, fast, 7x24x365 automated exchanges of payment instructions, account reporting and files between your in-house systems and iGTB CONNECT.

Effectiveness and Efficiency

Easily manage and process global transactions with real-time visibility and control...

Our way to connect your business

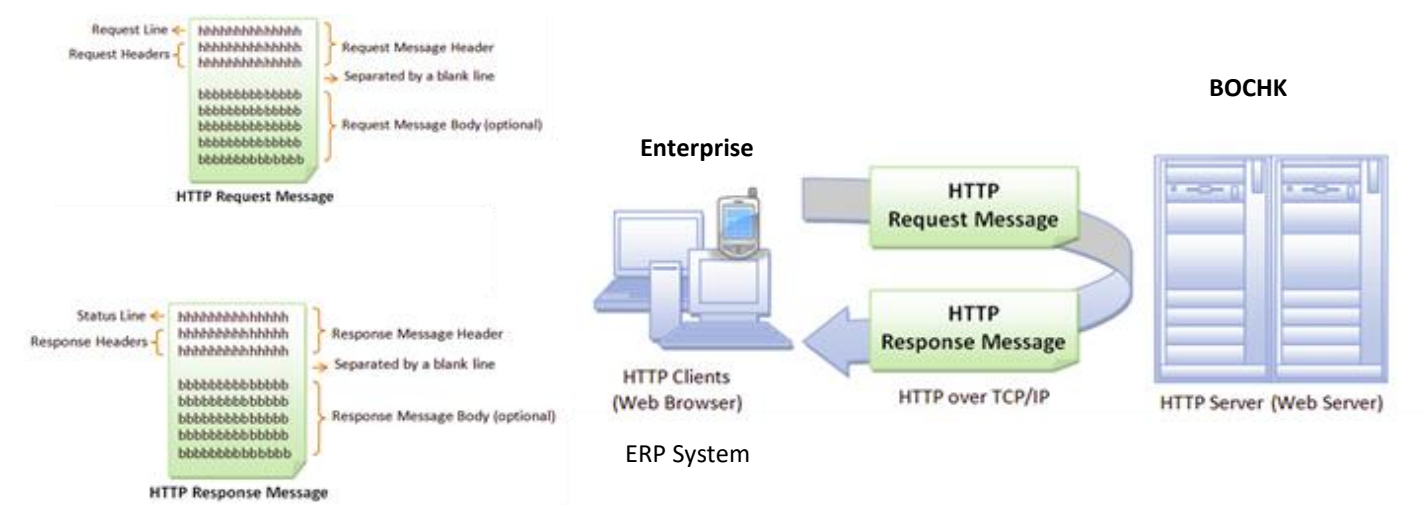
Connect through HTTPS; Communicate through XML

The iGTB CONNECT offers a solution that is more compatible with today's technologies while helping to maintain security. Prerequisite: You must maintain your own ERP or accounting or treasury systems. Your ERP system sends transaction/enquiry requests to iGTB CONNECT, iGTB CONNECT replies the transaction result / enquiry information.

How does it work?

1. Your ERP system submits instruction (XMLformat) via HTTPS to Front-end machine.
2. Front-end machine receives and validates XML format instruction and signs the xml content with e-cert.
3. Front-end machine sends the signed xml content via HTTPS to iGTB CONNECT.
4. iGTB CONNECT checks IP address, unique auto generated ID (PackageID) and submission time stamp for transaction validity (considered Time Zone) and e-cert information before sending the instruction to bank backend system
5. After processed the transaction, encrypted result sends back to Front-end machine via HTTPS.
6. Front-end machine decrypted result and reply to your ERP system

*Remark: all transactions/actions initiated by your ERP system and stateless connection between front-end machine and iGTB CONNECT



Connect through HTTPS; Communicate through XML

HTTPS stands for Hyper Text Transfer Protocol Secure. It is a protocol for securing the communication between your ERP system and iGTB CONNECT. XML (Extensible Markup Language) is a text-based format for storing and transporting data. You can send a xml message/xml file over HTTPS protocol and get the response result back. Therefore, HTTPS is the way we connected; xml is the language we communicated.

Why we use HTTPS?

Secure Connection

HTTPS makes a secure connection by establishing an encrypted link between your ERP and iGTB CONNECT.

Privacy and Integrity

HTTPS provides data integrity by encrypting the data and thus hackers cannot read or modify it. No communication data will be leaked out.

Speedy Data Transfer

HTTPS increases the speed of data transfer by encrypting and reducing the size of the data.

How we communicate using xml?

Easy to understand xml

1. Each request initiated from your side will be followed with a feedback xml from our Bank. The xml instruction is sent through https as a secured transmission. The xml communication process is conducted in real time, meaning our bank receives and processes your requests in a real time manner.
2. Each request initiated from your side will comprise of information like <BOCHKE2B> as an identifier of your xml and passwords etc.

```
<?xml version="1.0" encoding="UTF-8"?>
<BOCHKE2B>
  <Head>
    <PackageId>..... </PackageId>
    <CBSAcctNo>.....</CBSAcctNo>
    <UserId>.....</UserId>
    <Password>.....</Password>
```

3. Each request being replied by our Bank will comprise of information like <BOCHKB2E> as an identifier of our xml and <TxStatus> under <Head>. If the instruction fails, our xml will indicate the <ErrorCode>.

```
<?xml version="1.0" encoding="UTF-8"?>
<BOCHKB2E>
  <Head>
    <PackageId>..... </PackageId>
    <CBSAcctNo> .....</CBSAcctNo>
    <UserId>.....</UserId>
    <TxStatus>.....</TxStatus>
    <ErrorCode>.....</ErrorCode>
    <ErrorDesc>.....</ErrorDesc>
  </Head>
  <Tx>
```

Structure of XML

- 1) The first line indicates the encoding of the XML
- 2) The second line indicates the xml is initiated from your ERP to our Bank
- 3) The third line <Head></Head> indicates the user information, i.e. the user who initiates the transaction
- 4) The fourth line <Tx></Tx> indicates the transaction content. In this example, it is a request to inquire what transactions are initiated today. We could see <InternalTrans> means there is an internal transfer transaction happened today.

5) The xml contains multiple layers where the exact transactions are indicated inside the condensed message.

```
<?xml version="1.0" encoding="UTF-8"?>
<BOCHKE2B>
  <Head>
    <PackageId>20070401115522001</PackageId>
    <CBSAacctNo>01287500000000</CBSAacctNo>
    <UserId>USERID</UserId>
    <Password>PWD</Password>
    <NewPwd>NEWPWD</NewPwd>
    <ConfirmNewPwd>NEWPWD</ConfirmNewPwd>
    <ECertName>abc.p12</ECertName>
    <ECertPwd>123</ECertPwd>
  </Head>
  <Tx>
    <TodayActivityREQ>
      <AcctNo>01287510000001</AcctNo>
    </TodayActivityREQ>
  </Tx>
</TransferREQ>
  <DebitAcctNo>.....</DebitAcctNo>
  <DebitCur>.....</DebitCur>
  <Requests noOfRecord=".....">
    <Record>
      <InternalTrans>
        <DDebitAcctNo>.....</DDebitAcctNo>
        <DDebitCur>.....</DDebitCur>
```

Getting Started with iGTB CONNECT

Smarter way to process onboarding

This section is used to help you get started with iGTB CONNECT. Here is where you can find everything you need to get your application off the ground. Before implementing iGTB CONNECT, we recommend you to go through 3-Steps prerequisites for the success of implementation.

1	2	3
Application Document A dedicated Implementation Manager (IM) will be assigned once you confirm your application of iGTB CONNECT. IM will prepare a set of application documents including Board Resolutions, Terms & Conditions and Services Set Up Forms. Worry about the application process? Our dedicated IM will work closely to ensure a smooth application is taken.	68 iGTB Profile Our Implementation Manager will assist you to set up/maintain a 68 iGTB profile with BOCHK after all the application documents are validated. You may link your BOC group accounts to 68 iGTB profile thus these accounts can be operated via iGTB CONNECT. And you can assign designated iGTB CONNECT users (CU) who are going to operate the portal.	iGTB Platform Setting Login to iGTB NET and check if your iGTB CONNECT is ready. We show you step-by-step checking flow as below. Follow these steps to ensure your iGTB CONNECT setting is well established.

Check you iGTB Platform Setting

1

Login to iGTB NET.
Select from menu
Control Centre then
click Platform Setting.
Make sure the iGTB
CONNECT is active.

Control Centre

Only Primary User and authorised Delegate User may configure platform control setting across all user, channel and company. Visit our Training section for more details.

User Access

- Permission Profile Setting**
Setup profile with different combination of function and account access right.
- User Setting**
Setup a user profile and assign permission profile to user.
- Authorisation Setting**
Setup authorisation matrix across accounts and transaction types.

Company and Account

- Company Setting**
Setup company profile and manage operating company account.
- Account Setting**
Setup alias for Intra-Group Accounts.

Platform Control

- Platform Setting**
Setup various features across the platform.
- Channel Setting**
Setup authorisation mode across different channels.
- Limit Control Setting**
Setup daily debit limit in platform, channel, company, account and user level.
- File Encryption Setting**
File Encryption Setting

Platform Setting

INFRASTRUCTURE COMPANY (STRICTLY RESTRICTED FOR IGTB USE ONLY) -----

iGTB Platform Number: 052- -6
Principal location : BRUNEI DARUSSALAM

Platform Summary

Number of Companies >	5	Number of Users >	16
Number of Cash Accounts >	8	Number of Global Trade Accounts >	0

Platform Setting

iGTB NET > Active	iGTB MOBILE > Active
Restrict to Enquiry functions only	Off
iGTB CONNECT > Active	Off

2

Select from menu Control Centre then click Channel Setting and validate the setting is well established (i.e. Encryption and IP address)

Work Queue Enquiry Information Management Payment Global Trade Centre Collection Treasury Liquidity Management Local Services

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Setup profile with different combination of function and account access right.

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File Encryption Setting

Work Queue Enquiry Information Management Payment Global Trade Centre Collection Treasury Liquidity Management Local Services

Channel Setting

< Back Add to My Shortcuts

IGTB NET/IGTB MOBILE **IGTB CONNECT**

Setting

IGTB CONNECT (restricted to Enquiry only)
Off

Encryption

Upload Encryption > Off Download Encryption > Off

IP Address

IP Address 1 : GMT +00:00	10.181.83.97	IP Address 2 : GMT +00:00	10.41.10.87
IP Address 3 : GMT +00:00	10.96.41.242	IP Address 4 : GMT +00:00	10.96.59.91

3

Select from menu Control Centre then click Limit Control Setting.

Confirm the Channel Limit for iGTB CONNECT is well set if you will send payment instruction via iGTB CONNECT.

Work Queue

Enquiry

Information Management

Payment

Global Trade Centre

Collection

Treasury

Liquidity Management

Local Services

Control Centre

Only Primary User and authorised Delegate User may configure platform control setting across all user, channel and company.

Visit our Training section for more details.

User Access

1

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Setup profile with different combination of function and account access right.

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File Encryption Setting

File Encryption Setting

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Enquiry

Information Management

Payment

Global Trade Centre

Collection

Treasury

Liquidity Management

Local Service

IGTB Number: 012-550-68-99110-4

Platform Limit

Platform Daily Debit Limit

HKD 999,999,999.99

Debit Limit

To Platform Registered Account Daily Limit

HKD 5,000,000.00

To Registered Beneficiary Daily Limit

HKD 5,000,000,000.00

To Non-Registered Beneficiary Daily Limit

HKD 100.00

Payroll Limit

HKD 9,999,999.00

Channel Limit

IGTB NET & IGTB MOBILE

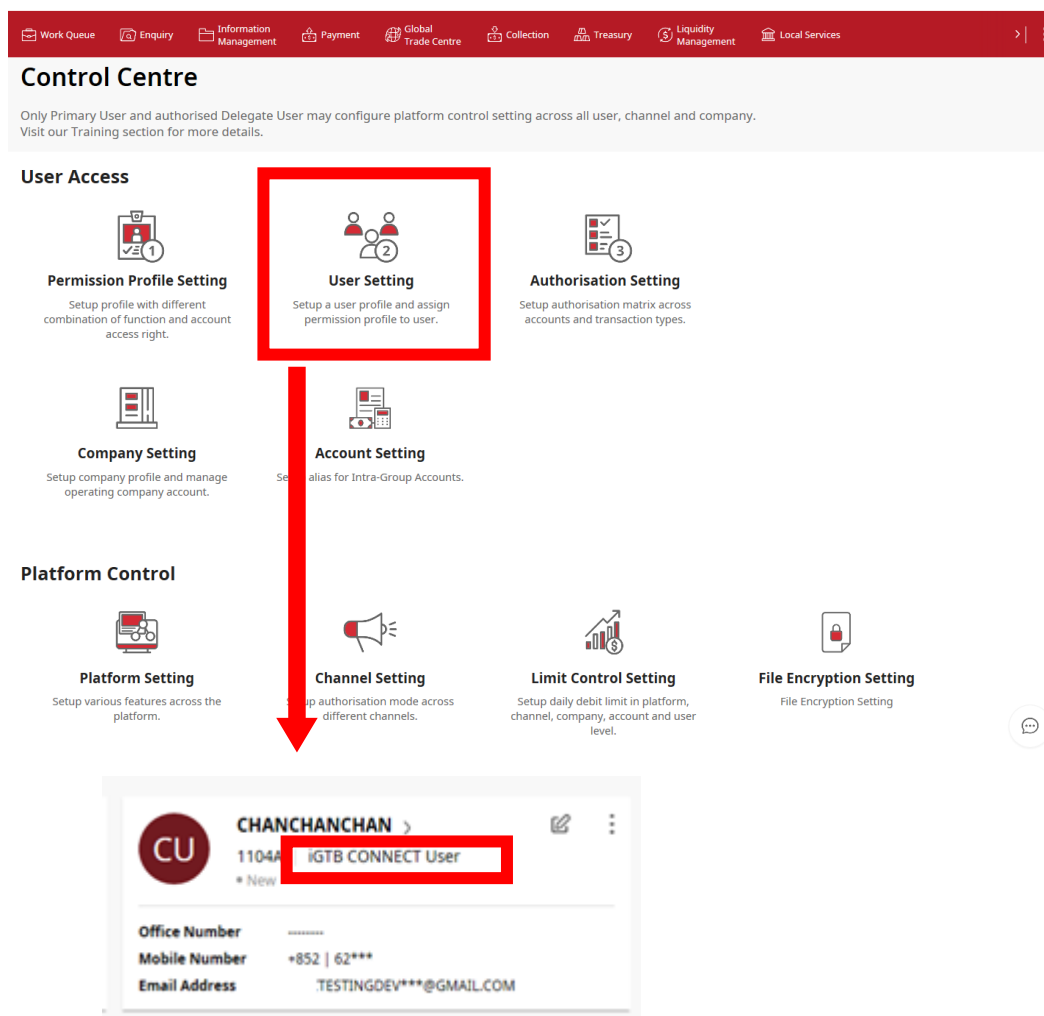
HKD 1,000,000,000.00

IGTB CONNECT

HKD 1,000,000,000.00

4

Select from menu Control Centre then click User Setting. Check if an iGTB CONNECT User is well established.



What is iGTB CONNECT User?

iGTB CONNECT User is an user who can operate iGTB CONNECT. For those instructions which are sent through iGTB CONNECT to the bank would regard as the instructions sent by the dedicated iGTB CONNECT User. The accessible functionalities of iGTB CONNECT depend on the setting of iGTB CONNECT User. Thus, it is important to create a proper iGTB CONNECT User and grant the access right accordingly. In order to meet your business needs, you may create more than one iGTB CONNECT user as an operational backup purpose.

If you need to create an iGTB CONNECT User, you may follow the steps below:

- 1) Apply for the e-Certificate and I-key in order to fulfil dual authentications requirement
- 2) For going through the KYC requirement of iGTB CONNECT User, please submit your user identity proof and valid address proof together with application form to BOCHK

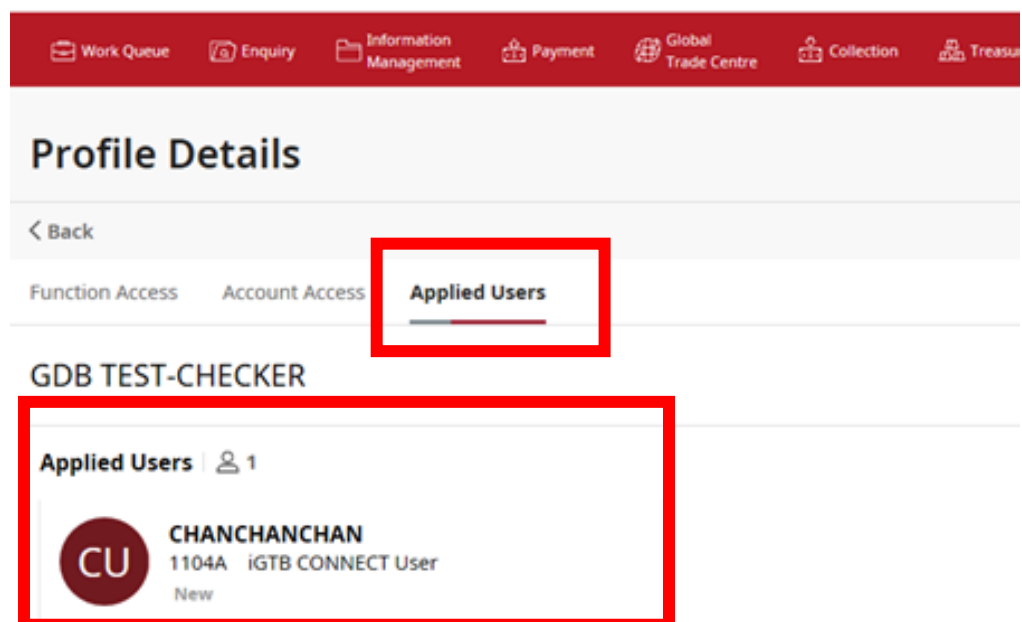
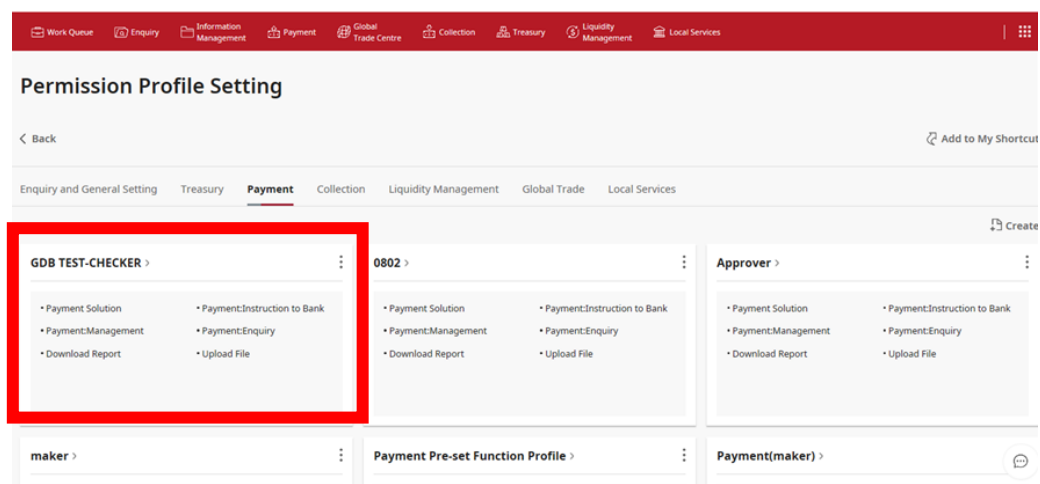
To know more about the application process, speak to your BOC representative

5

Select from menu Control Centre then click Permission Profile Setting.

Click on the concerned Permission Profile (e.g. “GDB TEST-CHECKER” in this case) under Payment to make sure this profile can access iGTB CONNECT.

Then go to Applied Users page to confirm users are included under the profile (User’s status is active).



Commonly Used Functions

Intensive reference which serve you better

iGTB CONNECT provides functions with great flexibility and wide geographical coverage, more importantly the functions are able to be implemented and traceable in a single platform, in a real time manner and are applicable to all the region we cover, significantly reducing the hassle of managing the account activities among different channels.

This section is created to provide quick understanding on how iGTB CONNECT works. Below examples illustrate a few commonly used functions and some essential features supported by iGTB CONNECT.

iGTB CONNECT helps you on the capital management with various dimensions. Below examples illustrate a few commonly used enquires from user's perspective.

iGTB CONNECT responses with a xml named <ACCTActivityRLY>. This xml consists of the following financial information:

i) Detailed balance information comprising of historical account balance, transactions and payer/payee information at one xml

iii) payee/payer information

iv) Up to 4,500 transactions can be enquired in one single request

1) Refer to FS section 7 of "ACCOUNT STATEMENT (REGION) +TODAY" under transaction name

Extract of <ACCTActivityRLY>

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2) Account Balance

iGTB CONNECT provides a variety of dimensions into account balance enquiries. See below examples.

2.1) Instant account balance inquiry <RgAcctBalanceREQ>

The responding xml is <RgAcctBalanceRLY>.

i) Account balance of all geographical coverage can be inquired in one single request

ii) Up to 100 accounts can be inquired in one single request

iii) OD facilities usage and availability can be inquired

Side note:

1) Up to 5000 records can be inquired in one single request, 100 accounts under 50 companies of the same group

2) Refer to FS section 7 of "ACCOUNT BALANCE (REGION)" under transaction name

<RgAcctBalanceREQ>

```
<RgAcctBalanceREQ>
  <Requests noOfRecord=".....">
    <Record>
      <AcctNo>.....</AcctNo>
      <Region>.....</Region>
    </Record>
  </Requests>
</RgAcctBalanceREQ>
```

Extract from <RgAcctBalanceRLY>

```
<BalInfo>
  <TotalAvalBalAmt>.....</TotalAvalBalAmt>
  <TotalLedBalAmt>.....</TotalLedBalAmt>
  <ResultTotalAccts>.....</ResultTotalAccts>
  <Cur>.....</Cur>
  <ResultnoOfRecord=".....">
    <Record>
      <AcctNo>.....</AcctNo>
      <Region>.....</Region>
      <AcctName>.....</AcctName>
      <AcctAliasName>.....</AcctAliasName>
    </Record>
    <Result>
      <AvalBalGrp>
        <HoldBalAmt>.....</HoldBalAmt>
        <FloatBalAmt>.....</FloatBalAmt>
        <AvalCashAmt>.....</AvalCashAmt>
        <UsedCreditLimitAmt>.....</UsedCreditLimitAmt>
        <AvalCreditLimitAmt>.....</AvalCreditLimitAmt>
        <AvalAsOdLimitAmt>.....</AvalAsOdLimitAmt>
        <AvalShOdLimitAmt>.....</AvalShOdLimitAmt>
        <AvalShFclLimitAmt>.....</AvalShFclLimitAmt>
        <AvalShIodLimitAmt>.....</AvalShIodLimitAmt>
      </AvalBalGrp>
      <LastUpdateTime>.....</LastUpdateTime>
    </Result>
  </Result>
</BalInfo>
```

2.2 Cross channel account activity enquiry <ActivityLogREQ>

The responding xml is <ActivityLogRLY>

i) **Support cross channel enquiry, i.e. iGTB NET, iGTB CONNECT & iGTB MOBILE**

ii) Package ID is not a mandatory search criteria, more search criteria options are available (for eg, file ref #)

iii) **up to 9,000 transactions can be inquired**

Side note:

1) If Package ID is entered as search criteria, other fields must not be filled in. Vice versa, if package ID cannot be provided, "Channel" must be filled in. Remaining fields are optional.

2) Refer to FS section 7 of "ACTIVITY LOG" under transaction name

<ActivityLogREQ>

```
<ActivityLogREQ>
  <EnqPackageId>.....</EnqPackageId>
  <UserId>.....</UserId>
  <TransStatus>.....</TransStatus>
  <TransType>.....</TransType>
  <IGTBRef>.....</IGTBRef>
  <FromDate>.....</FromDate>
  <ToDate>.....</ToDate>
  <FileRefNo>.....</FileRefNo>
  <Requests noOfRecord=".....">
    <Record>
      <Channel>.....</Channel>
    </Record>
  </Requests>
</ActivityLogREQ>
```

Extract from <ActivityLogRLY>

```
<ActivityLogRLY>
  <EnqPackageId>.....</EnqPackageId>
  <UserId>.....</UserId>
  <TransStatus>.....</TransStatus>
  <TransType>.....</TransType>
  <IGTBRef>.....</IGTBRef>
  <FromDate>.....</FromDate>
  <ToDate>.....</ToDate>
  <FileRefNo>.....</FileRefNo>
  <Result noOfRecord=".....">
    <Record>
      <Channel>.....</Channel>
    </Record>
  </Result>
  <NoticeMsg>.....</NoticeMsg>
  <TransInfo>
    <Result noOfRecord=".....">
      <Record>
        <EnqPackageId>.....</EnqPackageId>
        <TransType>.....</TransType>
        <IGTBRef>.....</IGTBRef>
        <TransStatus>.....</TransStatus>
        <UserId>.....</UserId>
        <UserIdFE>.....</UserIdFE>
        <InputByFE1>.....</InputByFE1>
        <InputByFE2>.....</InputByFE2>
        <TransTime>.....</TransTime>
        <AcctNo>.....</AcctNo>
        <EffectiveDate>.....</EffectiveDate>
        <FileRefNo>.....</FileRefNo>
        <Channel>.....</Channel>
        <ActionType>.....</ActionType>
      </Record>
    </Result>
  </TransInfo>
</ActivityLogRLY>
```

Transaction Initiation and Its Corresponding XML Feedbacks

Below example illustrates some of the payment methods, plus some new features available.

1) Initiating in-home transfer <InsTransferREQ>, RTGS <InsRTGSREQ> and Outward Remittance <InsTeleTransferREQ>

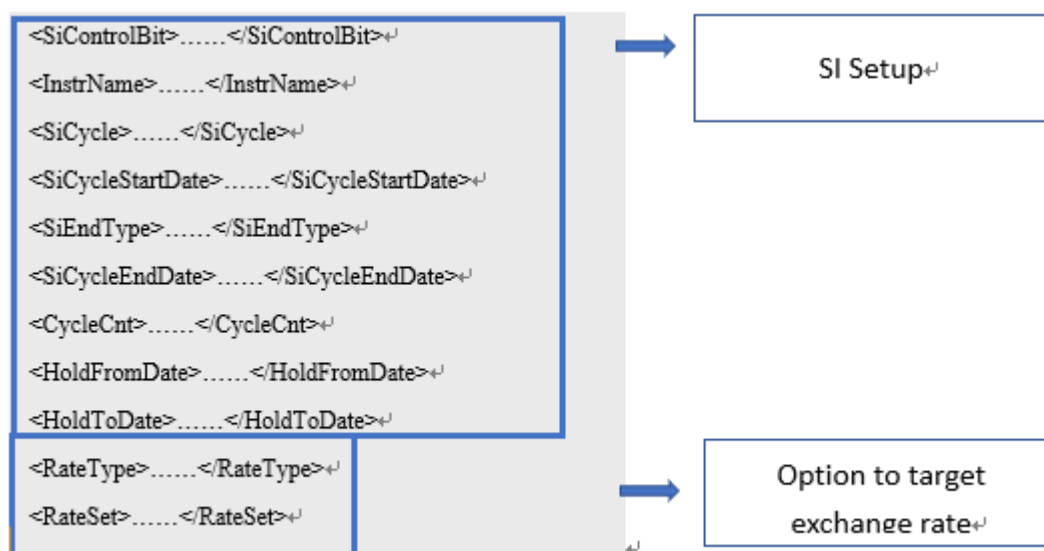
The responding xml is <InsTransferRLY>, <InsRTGSRLY> and <InsTeleTransferRLY> respectively. Common features are as follow:

- i) Support initiating payments from accounts of all region managed under the platform
- ii) Support sending up to 10 notification emails to recipients that the payment is successfully initiated from our bank for free
- iii) Support sending carbon copy email to the payer
- iv) Uploading of supplementary documents are supported, catering to the payment practice in some SEA countries <SupplePackageId>. Such document package ID is obtained from <UpdFileREQ>.

Some special features of in-home transfer:

- i) Standing instruction can be setup in the xml instruction by enabling function bit <SiControlBit> in the xml instruction
- ii) Target exchange rate can be setup for transactions in different currency
- iii) Payment purpose code for various regions are supported (for eg China, Malaysia)

Extract from <InsTransferREQ>



Side note:

- 1) Details of input guidance refer to FS section 7 of "Transfer (REGION)", "RTGS (REGION)", "Telegraphic Transfer (REGION)" under transaction name

Extract of common payment features:

```
<InsRTGSREQ>+  
  <DebitRegion>.....<DebitRegion>+  
  <DebitAccNo>.....<DebitAccNo>+  
  <DebitCur>.....<DebitCur>+  
  <DebitAmt>.....<DebitAmt>+  
  <BeneType>.....<BeneType>+  
  <BeneBankCode>.....<BeneBankCode>+  
  <BeneAccNo>.....<BeneAccNo>+  
  <BeneAccName>.....<BeneAccName>+  
  <BeneAddr>+  
    <Line>.....<Line>+  
    <Line>.....<Line>+  
    <Line>.....<Line>+  
  <BeneAddr>+  
  <BeneRegion>.....<BeneRegion>+  
  <BeneBankName>.....<BeneBankName>+  
  <PaymentCur>.....<PaymentCur>+  
  <EqvAmt>.....<EqvAmt>+  
  <ChargesOption>.....<ChargesOption>+  
  <ChargeAccRegion>.....<ChargeAccRegion>+  
  <ChargeAccNo>.....<ChargeAccNo>+  
  <ChargeCur>.....<ChargeCur>+  
  <PaymentDetail>+  
    <Line>.....<Line>+  
    <Line>.....<Line>+  
    <Line>.....<Line>+  
    <Line>.....<Line>+  
  <PaymentDetail>+
```

(Managing account of different region)

```

<Requests noOfRecord=".....">+
  <Record>+
    <SupplePackageId>.....</SupplePackageId>+
  </Record>+
</Requests>+
<BeneEmailBit>.....</BeneEmailBit>+
<BeneEmail1>.....</BeneEmail1>+
<BeneEmail2>.....</BeneEmail2>+
<BeneEmail3>.....</BeneEmail3>+
<BeneEmail4>.....</BeneEmail4>+
<BeneEmail5>.....</BeneEmail5>+
<BeneEmail6>.....</BeneEmail6>+
<BeneEmail7>.....</BeneEmail7>+
<BeneEmail8>.....</BeneEmail8>+
<BeneEmail9>.....</BeneEmail9>+
<BeneEmail10>.....</BeneEmail10>+
<CarbonToMyEmail>.....</CarbonToMyEmail>+
<SiControlBit>.....</SiControlBit>+
<InstrName>.....</InstrName>+
<SiCycle>.....</SiCycle>+
<SiCycleStartDate>.....</SiCycleStartDate>+
<SiEndType>.....</SiEndType>+
<SiCycleEndDate>.....</SiCycleEndDate>+
<CycleCnt>.....</CycleCnt>+
<HoldFromDate>.....</HoldFromDate>+
<HoldToDate>.....</HoldToDate>+
<RateType>.....</RateType>+

```

(Including beneficiary email address and supp. doc)

2) Initiating a bulk payment by uploading payment files <UpdFileREQ>

- i) Support uploading payment file in xml format
- ii) Support up to 10MB of file size (for eg, 50,000 payroll transactions)
- iii) Support file with or without encryption
- iv) Transactions type supported include autopay, local and overseas payroll, cashier's orders issuance, remittance, transfer, RTGS, import LC.

The resulting feedback <UpdFileRLY> will indicate the transaction type and file name for transfer, RTGS, telegraphic and import LC, for the other payments method, file reference number will be indicated. User can make use of these returned information to inquire the transaction result.

Side note:

- 1) Refer to FS section 7 of "Upload Bulk Payment " under transaction name

<UpdFileREQ>

```
<UpdFileREQ>␣  
  <TransType>.....</TransType>␣  
  <FileName>.....</FileName>␣  
  <FileContent>.....</FileContent>␣  
  <FileHash>.....</FileHash>␣  
</UpdFileREQ>␣
```

<UpdFileRLY>

```
<UpdFileRLY>␣  
  <FileRefNum>.....</FileRefNum>␣  
  <TransType>.....</TransType>␣  
  <FileName>.....</FileName>␣  
</UpdFileRLY>␣
```

Keep track of iGTB Instruction

WorkQueue Enquiry (WorkQueueREQ)

iGTB Work Queue gives you an overview of all your transactions at a glance. The life cycle and status of an instruction including Draft, Pending Authorisation, Received by Bank, Processing and Completion for every single instruction and transaction are shown via iGTB NET and iGTB CONNECT. You may initiate an enquiry request by WorkQueueREQ.

WorkQueue (WORKQUEUEREQ)

```
<WorkQueueREQ>

  <EnqPackageId>.....</EnqPackageId>

  <UserId>.....</UserId>

  <TransType>..... </TransType>

  <FileRefNo>.....</FileRefNo>

  <IGTBRef>..... </IGTBRef>

  <CustRef>..... </CustRef>

  <InstrNo>..... </InstrNo>

  <Region>..... </Region>

  <GlobalTradeAc>..... </GlobalTradeAc>

  <DebitAcctNo>..... </DebitAcctNo>

  <Cur>..... </Cur>

  <MinAmt>..... </MinAmt>

  <MaxAmt>..... </MaxAmt>

  <FromDate>..... </FromDate>

  <ToDate>..... </ToDate>

  <Status>..... </Status>

</WorkQueueREQ>
```


There are two alternatives to initiate WorkQueue Enquiry request:

I. By packageId: PackageId is the unique number for each Instruction initiated via iGTB CONNECT. You may input packageId for precise search. In this situation, you have to ignore other search criteria.

II. By search criteria: You may also use search criteria to request search results, both single and multiple criteria are supported.

Tag	Field	Format	Status	Dependency	Notes
<WorkQueueREQ>	BOCHKE2B Request Block	---	M	---	<ul style="list-style-type: none"> Mandatory Request Header
<EnqPackageId>	Package Id	C(17)	O	---	<ul style="list-style-type: none"> Either search by Package iD or other searching criteria
<UserId>	User Id	C(7)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<TransType>	Transaction Type	C(50)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<FileRefNo>	File Reference	C(11)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<IGTBRef>	IGTB Reference	C(11)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<CustRef>	Customer Reference	C(16)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<InstrNo>	Instrument Number	C(11)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<Region>	Region	C(3)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<GlobalTradeAc>	Global Trade Account	C(35)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<DebitAcct>	Debit Account	C(17)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<Cur>	Currency	C(3)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<MinAmt>	Minimum Amount	C(13.2)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >
<MaxAmt>	Maximum	C(13.2)	O	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId >

	Amount				
<FromDate>	Transaction From Date	YYYY/ MM/D D	0	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId > Future Date would not be accepted
<ToDate>	Transaction To Date	YYYY/ MM/D D	0	<EnqPackageId> <FromDate>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId > Same or after <FromDate> Future Date would not be accepted
<Status>	Status	C(5)	0	<EnqPackageId>	<ul style="list-style-type: none"> Ignore if you had provided < EnqPackageId > Please refer to STATUS LIST ANNEX for details

Keep track of Uploaded File Transaction Result

Download File (DnldFileREQ)

iGTB CONNECT provides file download function, including original transaction file and result file for different products. You would be able to download the following Auto-pay / Payroll related file by the instruction request. You may search by Request ID, Package ID or apply specific criteria for

- ACH Payment (Payment Type) Pre-check transaction result file
- ACH Payment (Payment Type) transaction result file
- ACH Payment transaction result file
- ACH Payment (Group's overseas region) Transaction File
- Autopay-In (Payment Type) Pre-check Transaction Result File
- Autopay-In (Payment Type) Transaction Result File
- ACH Collection Transaction File
- Payroll (Payment Type) Pre-check Transaction Result File
- Payroll (Payment Type) Transaction Result File
- Payroll File
- Payroll (Group's overseas region) File

Auto-pay/Payroll File Download (DnldFileREQ)

```

<DnldFileREQ>

  <RequestId>.....</RequestId>

    <ReportId>.....</ReportId>

      <EnqPackageld>.....</EnqPackageld>

        <FileFormat>.....</FileFormat>

          <ReportName>.....</ReportName>

            <AcctNo>.....</AcctNo>

              <Date>.....</Date>

                <PayTypeCode>.....</PayTypeCode>

      </DnldFileREQ>

```

Tag	Field	Format	Status	Dependency	Notes
<DnldFileREQ>	BOCHKE2B Request Block	---	M	---	<ul style="list-style-type: none"> Mandatory Request Header
<RequestId>	Request Id	C(13)	O	<ReportId>	<ul style="list-style-type: none"> Either provide <RequestId> or <ReportId> <RequestId> is accrued from OnlineRequestREQ
<ReportId>	Report Id	C(25)	O	<RequestId>	<ul style="list-style-type: none"> Either provide <ReportId> or <RequestId> Support Report following Report Id : PY0102 / PY0104 / PY0105 / CL0102 / CL0104 / PY0602 / PY0603 / PY0604 Details please refer to DnldFileREQ ANNEX
<EnqPackageld>	Package Id for the upload file	C(17)	O	<ReportId> <RequestId>	<ul style="list-style-type: none"> Ignore if you had provided <Request ID> For download by <Report ID>, you may either (1) provide the Package Id here or (2) leave it blank and refer to DnldFileREQ ANNEX
<FileFormat>	File Format	C(3)	O	<ReportId>	<ul style="list-style-type: none"> CSV or DAT Ignore if you had provided <Request ID> Depends on the Report Type, this field could be required, please refer to DnldFileREQ ANNEX for details
<ReportName>	Report Name	C(25)	O	<ReportId>	<ul style="list-style-type: none"> Ignore if you had provided <Request ID> Ignore if NOT related to Report Id PY0602 / PY0603, please refer to DnldFileREQ ANNEX for details
<AcctNo>	Account Number	C(32)	O	<ReportId>	<ul style="list-style-type: none"> Ignore if you had provided <Request ID> Ignore if you had provided <EnqPackageld> For download by <Report ID>, this field is mandatory. Please refer to DnldFileREQ ANNEX for more details
<Date>	Date	YYYY/M M/DD	O	<ReportId>	<ul style="list-style-type: none"> Ignore if you had provided <Request ID> Ignore if you had provided <EnqPackageld> For download by <Report ID>, this field is mandatory. Please refer to DnldFileREQ ANNEX for more details
<PayTypeCode>	Payment Type	C(32)	O	<ReportId>	<ul style="list-style-type: none"> Ignore if you had provided <Request ID> Ignore if you had provided <EnqPackageld> For download by <Report ID>, this field is required only for report ID PY0102 / CL0102. Please refer to DnldFileREQ ANNEX for more details

DnldFileREQ ANNEX

Report Id	Report Name	<FileFormat>	<AcctNo>	<Date>	<PayTypeCode>	<ReportName>
PY0102	ACH Payment (Payment Type) tx result file	Ignore	Required	Required	Required	Ignore
PY0104	ACH Payment tx result file	Required	Required	Required	Ignore	Ignore
PY0105	ACH Payment (Group's overseas region) Transaction File	Ignore	Required	Required	Ignore	Ignore
CL0102	Autopay-In (Payment Type) Transaction Result File	Ignore	Required	Required	Required	Ignore
CL0104	ACH Collection Transaction File	Required	Required	Required	Ignore	Ignore
PY0602	Payroll (Payment Type) Transaction Result File(For Hong Kong, China Debit A/C)	Required	Required	Required	Ignore	AFT02
PY0602	Payroll (Payment Type) Transaction Result File	Required	Required	Required	Ignore	AFT03
PY0603	Payroll Summary File	Required	Required	Required	Ignore	SUMMARY
PY0603	Payroll Detail File	Required	Required	Required	Ignore	DETAIL
PY0604	Payroll (Group's overseas region) File	Ignore	Required	Required	Ignore	Ignore

Implementation Checklist

1. Before Implementation

- ☒ Make sure you have compatible equipment. Refer to section 1.1 under the installation guide

2. Document Execution

- ☒ Corporate Electronic and Online Services Application Form

The service application form will require you to fill in the parameters required, for example, IPs, channel limit, user information

Please contact your Product Manager/Relationship Manager for walking through the application procedures

- ☒ Board Resolution
- ☒ Subscriber Application Form for e-certificate

To apply for e-certificate and to designate CONNECT user

You will receive a password letter and need to sign on it before we can release the CONNECT user

3. System UAT

Our bank provides you with the following testing support:

- ☒ Testing user account credentials (user id, user password, ikey password)
- ☒ Testing hardware (SafeNet in CD, ikey)
- ☒ Testing software (a testing software compliment to Tomcat, Tomcat)
- ☒ Installation guide, file specification, schema

You need to follow below steps:

- ☒ Provide our Bank your testing IPs
- ☒ Install the testing software provided by our bank in accordance with the installation guide
- ☒ Suggest initiate a testing xml to our Bank as a preliminary system connectivity test. The rest of the UAT lies on your demand of the functions which require deep functional development between our technical crews

Side note:

- 1) To facilitate the implementation process, step 2 and 3 can be conducted in parallel
- 2) Refer to Terminal Installation Guide & Interface File Layout for connectivity test requirement

4. How to conduct key exchange for encryption in UAT environment?

- ☒ Send us your production PGP public key via email
- ☒ We will provide you our testing public key
- ☒ Send us the test file encrypted with your production private key and our testing public key by email
- ☒ We will confirm you via email whether the testing file can be decrypted

5. How to enroll your encryption key after successful UAT

- ☒ You will receive a notification letter of our production public key information. You are required to sign the acknowledgment form on receiving our production public key and the key enrolment form of your production public key.
- ☒ We will enroll your production public key into our production server and inform you the setup is completed.

Secure Your Transmission

File Encryption Service

Online security is always one of the major considerations for customers using electronic banking services. Bank of China (Hong Kong) Limited ("BOCHK") offers File Encryption Service tailored to help corporate customers enhance security control over the uploading of instruction files through the Internet. With File Encryption Service, customers can encrypt the files once generated to prevent unauthorised access or alteration to the files during the uploading process.

Product Features

File Encryption Service is compatible with the formats of S/MIME or OpenPGP standard, and supports a maximum of 4,096 bits for encryption. Customers can use encryption software at their own choice.

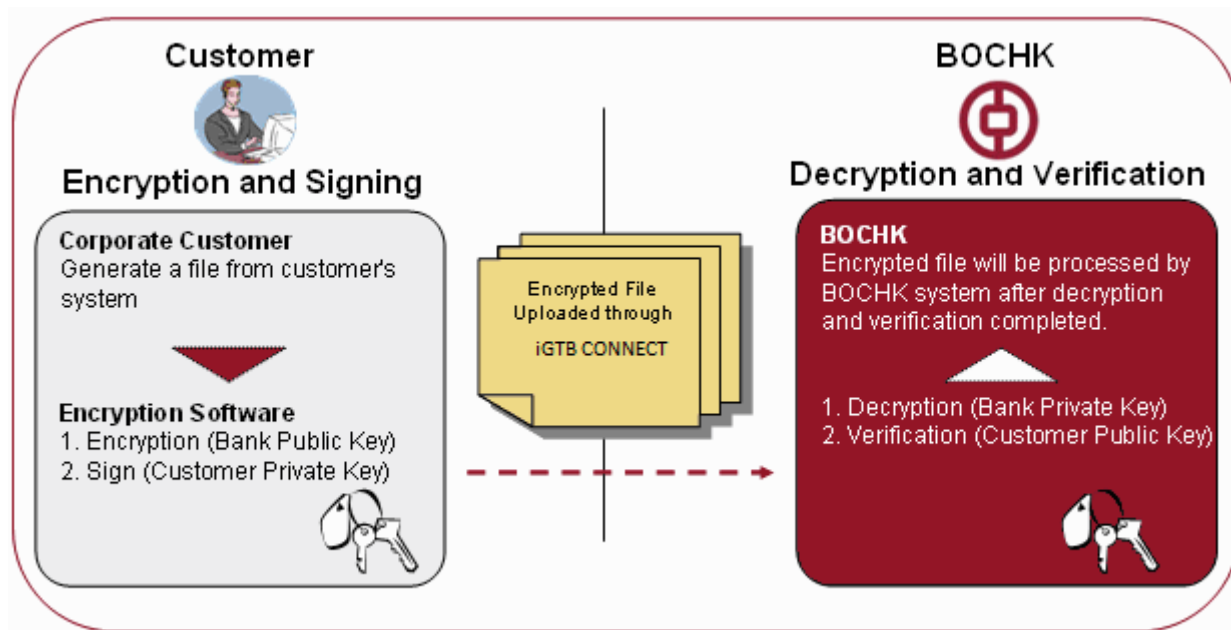
Customers can encrypt the instruction files once generated to prevent unauthorised or alteration to the files during the process of uploading to BOCHK through the Internet.

With the adoption of the asymmetric cryptography, both public and private keys are used in the authentication process to ensure that only customers and the Bank are able to access the file content for enhanced security.

The service is supported by both iGTB NET and iGTB CONNECT.

Encryption Solution for Customers

Based on the current procedures, customers can generate instruction files using the Bulk Payment Editor or create such files using the file format agreed by BOCHK. The files should then be encrypted and signed by customers using their encryption software, and subsequently uploaded to BOC through iGTB NET and iGTB CONNECT. The encrypted files will be processed by BOC system upon successful decryption and verification.



The Public Keys must be exchanged between BOCHK and customers before activation of the File Encryption Service.

Customer Support

Our customer service representatives are ready to help



Customer Service Hotline

 **3988-1333**

(9:00am–6:00pm, Mon–Fri)

Online Customer Service

Live text chat service connecting you to our staff instantly. Our customer service representative would be pleased to provide assistance to you.

Online - Chat to our staff online when you have a query

Instant – Via text, video or audio and get instant answers in real time

Simple - Click on the tab on the screen and start text chat

Online Training

We provide various types of training online to meet your needs where you can easily find useful information.

Save time – Get your needed information and guidance quickly

Convenient – Have your training anytime, anywhere

Interactive – A new way to increase interaction with customers

Classroom Training

We are delighted to have you in our classroom training session. Meet us face to face for a sharing on our hassle-free online operation.

Face-to-face – Convenient training location for meeting trainers

Group interaction – Learn as group from peers and trainer

Instant reply – Let us reply your questions directly

Appendix

READY FOR iGTB CONNECT OPERATION

All technical notes about iGTB CONNECT may be found in this section.

Appendix 1

iGTB CONNCET Terminal Installation Guide

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Installation Steps

Step 1: Install JAVA



Step 2: Install Safenet



Step 3: Install Apache Tomcat



Step 4: Terminal Configuration

iGTB CONNECT Terminal System Requirement

Recommended Hardware

- **No. of Terminal:** 2 Terminals for both Production and Backup purpose
- **OS Platform:** Windows 10 Service Pack 1 (64-bit)
- **CPU:** Pentium® Dual-Core or above
- **Memory:** 4GB or above
- **Hard Disk:** 60G or above
- **Network:** Internal and External Network (with Firewall installed)
- **USB port:** 1 USB Port

Recommended Software

- **USB Key:** SafeNET Authentication Client 8.00.101.8800
- **Java:** Java SE Development Kit 8u112 or above (32-bit)
- **Tomcat:** Will be installed by client side (32-bit)
- **Anti-virus:** Recommend Client always install Antivirus program with the terminal

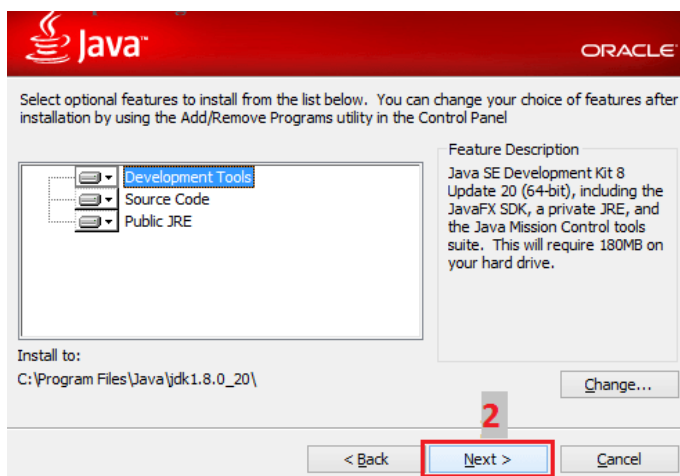
Installation Procedure

*Tips: Ensure you have the appropriate access right to install all the programs.

Install Java SE Development Kit 8u112 or above

Visit oracle website via <https://www.oracle.com/> to download the installation kit.

The following screens are the demonstration for the installation of 8u20 version.



Install Safenet Authentication Client 8.0

SafeNet AuthenticationClient-x64-8.00.msi (For 64 bit Windows)

- Please remove Token before start the installation procedure.



- Select the interface languages and click "Next"
- Select "I accept the license agreement" and then click "Next"
- You can see the path of the destination folder and then click "Next" to complete the installation



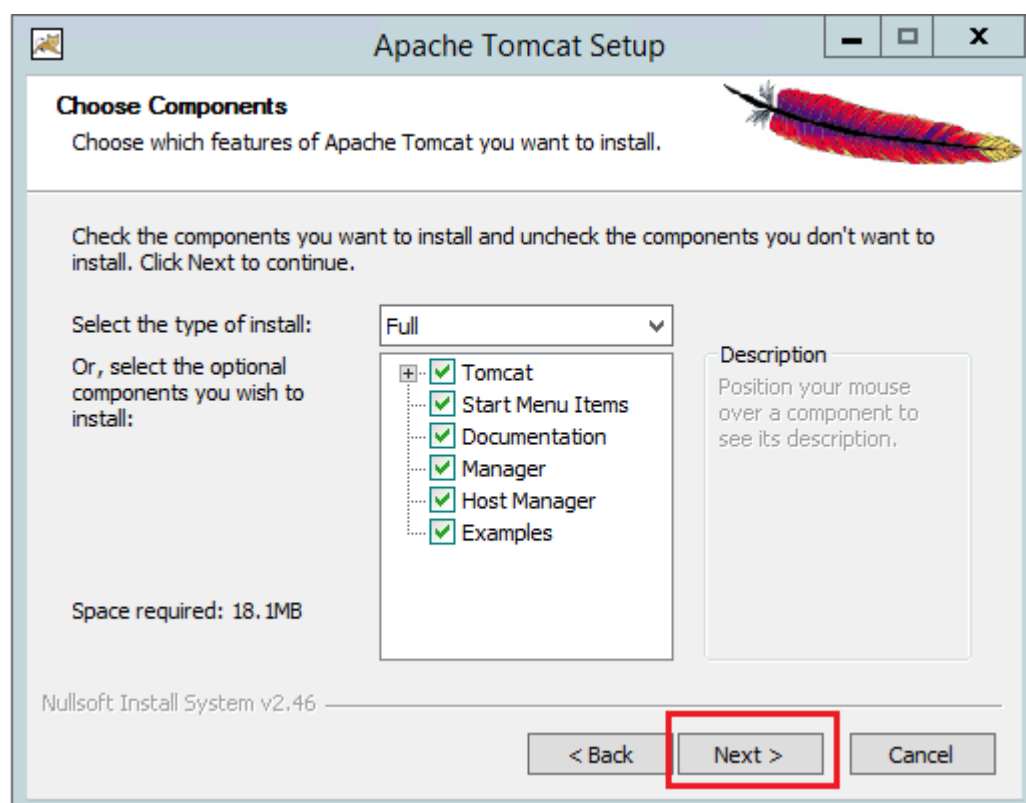
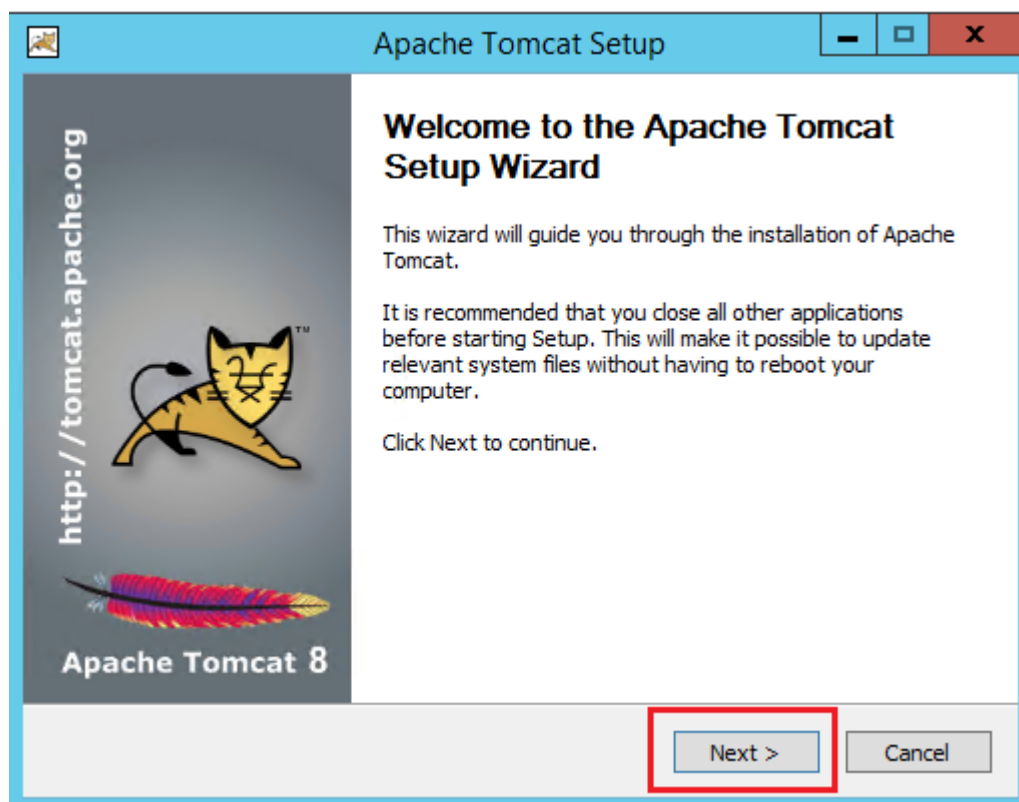
- Please reboot PC after the Installation.

**Tips: To check the installation, please refer to appendix A.*

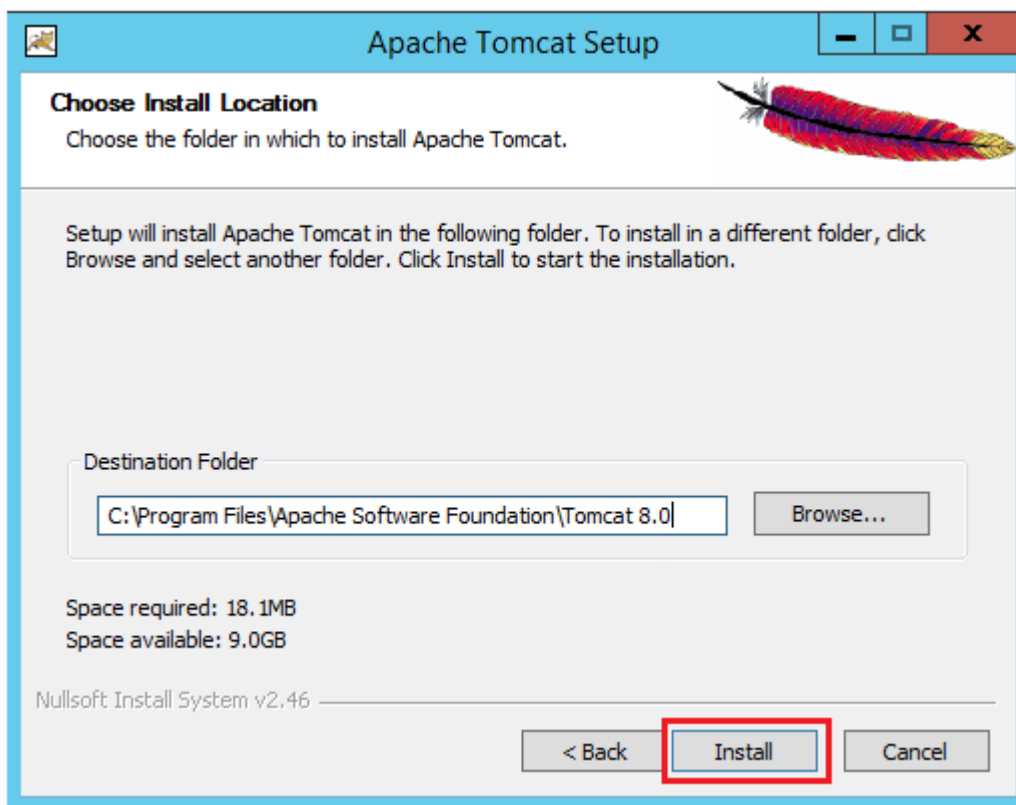
Install Tomcat 8.5.9 (32-bit)

Visit oracle website via <https://tomcat.apache.org> to download the software.

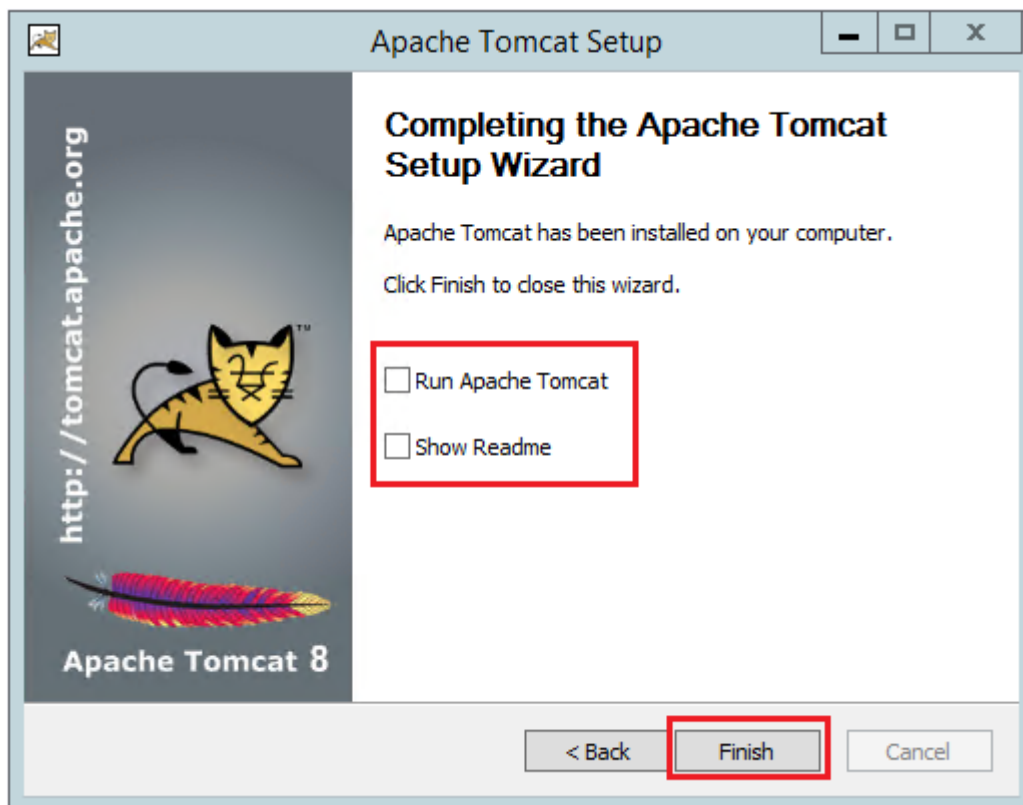
The following screens are the demonstration for the installation of Tomcat version 8.0



*Tips: This Install directory will be used later in settings section, please keep this record for further use.



Deselect the two options as below then click “Finish” to complete the installation.



iGTB CONNECT Terminal Configuration

Configuration Steps

Step 1: Edit Environment variable



Step 2: Config iGTB CONNECT Terminal Files



Step 3: Certificate Settings



Step 4: IP Address and other configuration



Step 5: Getting Start

iGTB CONNECT Terminal Configuration

1. Edit Environment variable

****Preparation:** Locate the “JAVA install location\jre” and save in text.

(For example, C:\Progran Files (x86)\Java\jdk1.8.0_131\jre)

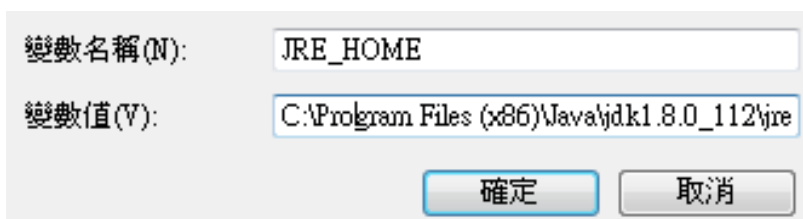
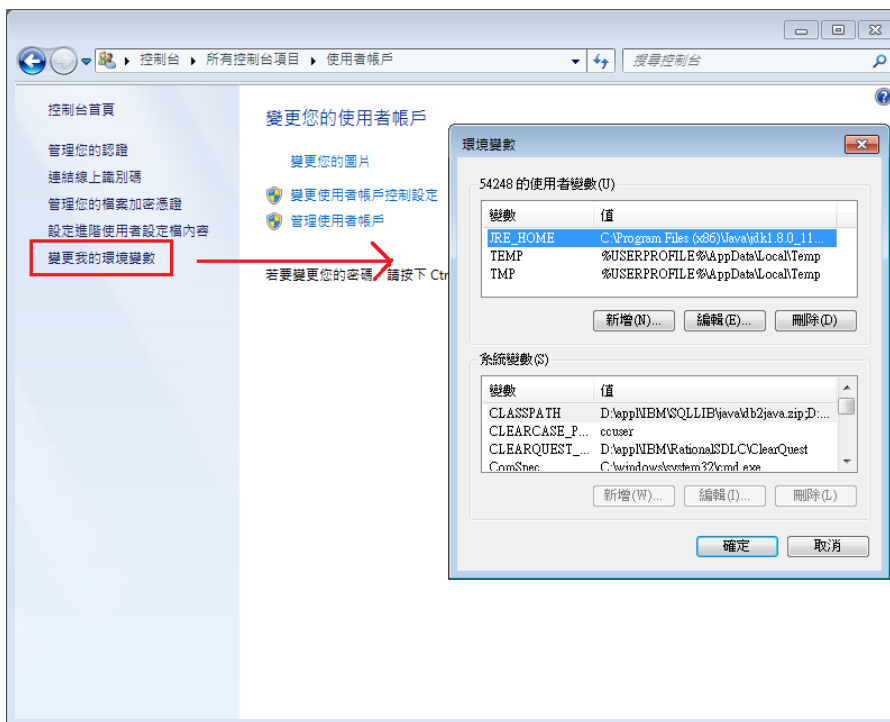
Control panel→User Accounts→Change my environment variables

Edit 2 entries:

1. Edit **JAVA_HOME** ;
2. Edit **JRE_HOME** variables (or add if not exist)

The values of both variables are: JAVA install location\jre

The below screen demonstrates JRE_HOME. Please be reminded that we have to edit both **JAVA_HOME** and **JRE_HOME**



iGTB CONNECT Terminal Configuration

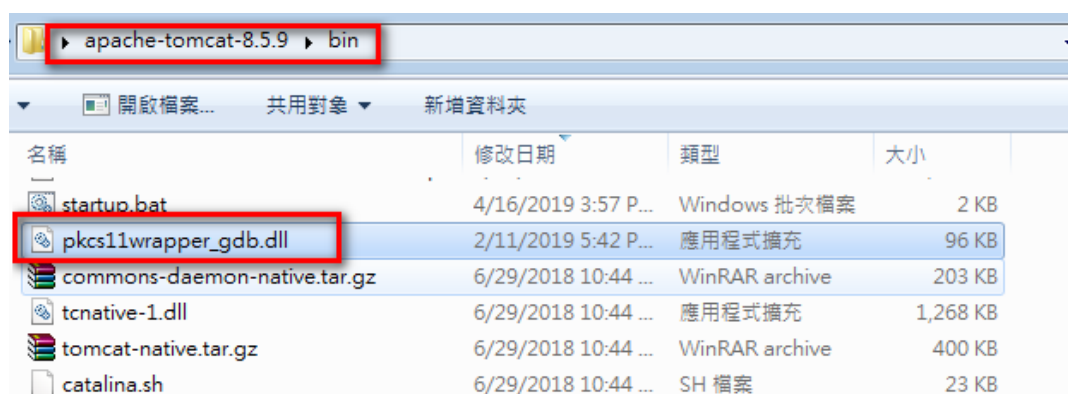
2. Config iGTB CONNECT Terminal Files

****Preparation:** Locate the Apache Tomcat “<install location>” and save in text.

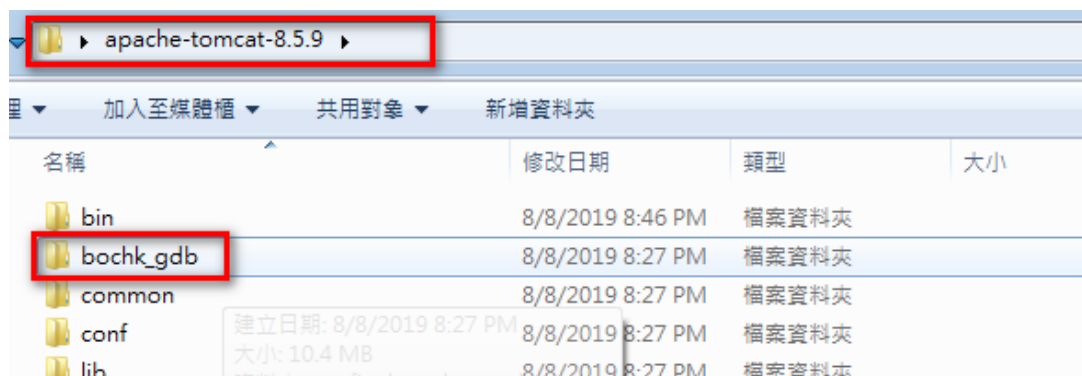
(For example, C:\Program files\Apache Software Foundation\apache-tomcat-8.5.9\)

By the Configuration File provide by the Bank, please proceed with following steps:

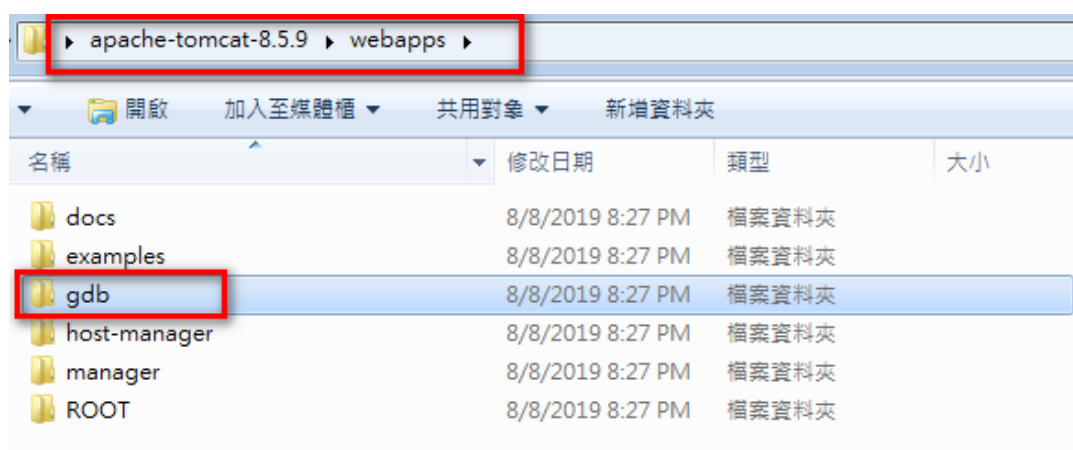
- (1) Copy the file “pkcs11wrapper_gdb.dll” to “<install location>\bin”



- (2) Copy the “bochk_gdb” folder to “<install location>”



- (3) Copy the file “gdb folder” to “<install location>/webapps”



iGTB CONNECT Terminal Configuration

3. Certificate Settings

****Preparation:** Decide a Password which will use the same in the followings 3 entries.

(1) tomcat.keystore

- Open the CMD.exe: **Start - > Run CMD**
- **Go to** "<JAVA_HOME>\bin" or "<JRE_HOME>\bin".
(For example: "C:\jdk1.8.0_131\bin")
- Enter the following command in sequence:

keytool -genkey -keyalg RSA -alias tomcat -keystore tomcat.keystore -storepass **password** -validity 3600 -keysize 2048
- Please note that for the "**password**", this "password" is only an example. Customer should decide their own certificate password and replace in above script.

```
D:\appl\IBM\WebSphere\AppServer\java\8.0\jre\bin>keytool -genkey -keyalg RSA -alias tomcat -keystore tomcat.keystore -storepass password123 -validity 3600 -keysize 2048
What is your first and last name?
[Unknown]:
What is the name of your organizational unit?
[Unknown]:
What is the name of your organization?
[Unknown]:
What is the name of your City or Locality?
[Unknown]:
What is the name of your State or Province?
[Unknown]:
What is the two-letter country code for this unit?
[Unknown]:
Is CN=Unknown, OU=Unknown, O=Unknown, L=Unknown, ST=Unknown, C=Unknown correct?
<type "yes" or "no">
[no]: yes

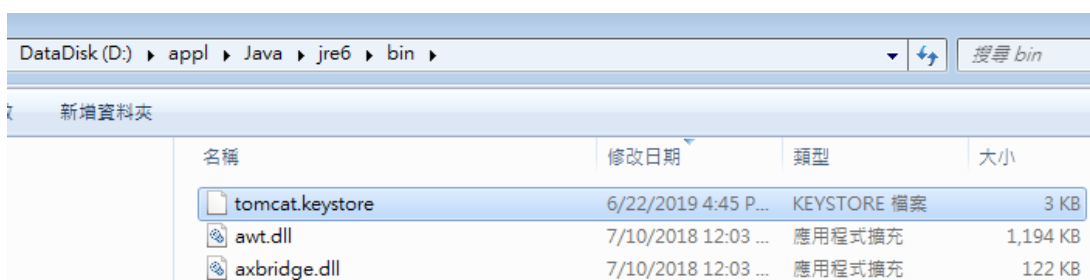
Enter key password for <tomcat>:
<RETURN if same as keystore password>:
```

- The password used in 1 and 2 above should be in sync.
- This notepad may help for copy and paste, remember to edit the password:



keytool genkey.txt

- Once the genkey process completed, Tomcat.keystore is generated in the <JAVA_HOME>\bin or <JRE_HOME>\bin directory

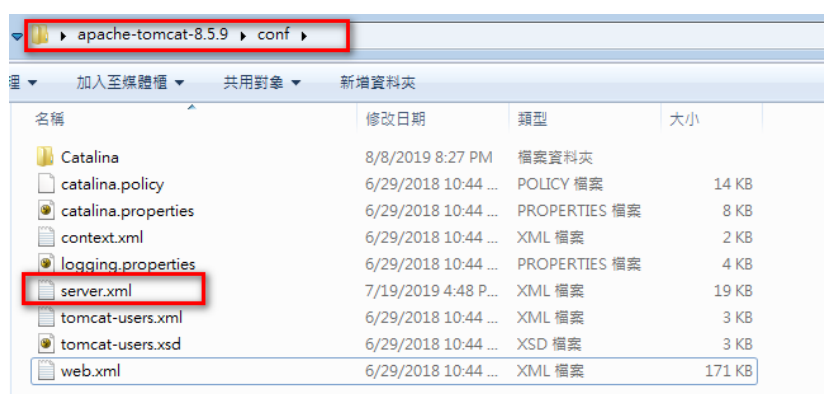


名稱	修改日期	類型	大小
tomcat.keystore	6/22/2019 4:45 P...	KEYSTORE 檔案	3 KB
awt.dll	7/10/2018 12:03 ...	應用程式擴充	1,194 KB
axbridge.dll	7/10/2018 12:03 ...	應用程式擴充	122 KB

- Copy the generated tomcat.keystore file to the following folder

"<install location>\bochk_gdb\keys"

(2) Edit "<install location>\conf\server.xml" file



名稱	修改日期	類型	大小
Catalina	8/8/2019 8:27 PM	檔案資料夾	
catalina.policy	6/29/2018 10:44 ...	POLICY 檔案	14 KB
catalina.properties	6/29/2018 10:44 ...	PROPERTIES 檔案	8 KB
context.xml	6/29/2018 10:44 ...	XML 檔案	2 KB
logging.properties	6/29/2018 10:44 ...	PROPERTIES 檔案	4 KB
server.xml	7/19/2019 4:48 P...	XML 檔案	19 KB
tomcat-users.xml	6/29/2018 10:44 ...	XML 檔案	3 KB
tomcat-users.xsd	6/29/2018 10:44 ...	XSD 檔案	3 KB
web.xml	6/29/2018 10:44 ...	XML 檔案	171 KB

```
<!-- A "Service" is a collection of one or more "Connectors" that share
a single "Container" Note: A "Service" is not itself a "Container",
so you may not define subcomponents such as "Valves" at this level.
Documentation at /docs/config/service.html
-->
<Service name="Catalina">
  <!--The connectors can use a shared executor, you can define one or more named thread pools-->
  <!--
  <Executor name="tomcatThreadPool" namePrefix="catalina-exec-"
    maxThreads="150" minSpareThreads="4"/>
  -->

  <Connector port="443" SSLEnabled="true"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" disableUploadTimeout="true"
    acceptCount="100" debug="0" scheme="https" secure="true"
    clientAuth="false" sslProtocol="TLS" keystoreFile="bochk_gdb/keys/tomcat.keystore" keystorePass="password" />

  <!-- A "Connector" represents an endpoint by which requests are received
and responses are returned. Documentation at :
Java HTTP Connector: /docs/config/http.html (blocking & non-blocking)
Java AJP Connector: /docs/config/ajp.html
APR (HTTP/AJP) Connector: /docs/apr.html
Define a non-SSL/TLS HTTP/1.1 Connector on port 8080
-->
  <Connector port="8080" protocol="HTTP/1.1"
    connectionTimeout="20000"
    redirectPort="8443" />

  <!-- A "Connector" using the shared thread pool-->
  <!--
  <Connector executor="tomcatThreadPool"
    port="8080" protocol="HTTP/1.1"
    connectionTimeout="20000"
    redirectPort="8443" />
  -->
```

In <Service name="Catalina"> Add these settings below:

```
<Connector port="443" SSLEnabled="true"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" disableUploadTimeout="true"
    acceptCount="100" debug="0" scheme="https" secure="true"
    clientAuth="false" sslProtocol="TLS"
    keystoreFile="bochk_gdb/keys/tomcat.keystore" keystorePass="password" />
```

- Please note that for the KeystorePass "password", this "password" (3) is only an example. Customer should use the exact same password in above (1) & (2).
- This notepad may help for copy and paste, remember to edit the password:



keytool genkey.txt

- Under the same "<install location>\conf\server.xml" file, **DELETE** the following setting parameter:

```
<Listener className="org.apache.catalina.core.AprLifecycleListener" SSLEngine="on" />
```

```
server.xml
1 <?xml version='1.0' encoding='utf-8'?>
2 <!--
3 Licensed to the Apache Software Foundation (ASF) under one or more
4 contributor license agreements. See the NOTICE file distributed with
5 this work for additional information regarding copyright ownership.
6 The ASF licenses this file to You under the Apache License, Version 2.0
7 (the "License"); you may not use this file except in compliance with
8 the License. You may obtain a copy of the License at
9
10 http://www.apache.org/licenses/LICENSE-2.0
11
12 Unless required by applicable law or agreed to in writing, software
13 distributed under the License is distributed on an "AS IS" BASIS,
14 WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
15 See the License for the specific language governing permissions and
16 limitations under the License.
17 -->
18 <!-- Note: A "Server" is not itself a "Container", so you may not
19 define subcomponents such as "Valves" at this level.
20 Documentation at /docs/config/server.html
21 -->
22 <Server port="8005" shutdown="SHUTDOWN">
23 <Listener className="org.apache.catalina.startup.VersionLoggerListener" />
24 <!-- Security listener. Documentation at /docs/config/listeners.html
25 <Listener className="org.apache.catalina.security.SecurityListener" />
26 -->
27 <!-- APR library loader. Documentation at /docs/apr.html -->
28 <Listener className="org.apache.catalina.core.AprLifecycleListener" SSLEngine="on" />
29 <!-- Prevent memory leaks due to use of particular java/javax APIs-->
30 <Listener className="org.apache.catalina.core.JreMemoryLeakPreventionListener" />
31 <Listener className="org.apache.catalina.mbeans.GlobalResourcesLifecycleListener" />
32 <Listener className="org.apache.catalina.core.ThreadLocalLeakPreventionListener" />
33
```


iGTB CONNECT Terminal Configuration

4. IP Address and other configuration

(1) Edit Apache Tomcat file "<Install location>\bochk_gdb\config\GdbConfig.properties"

`gdb.cert.file=igtb gdb_pub_prod.cer`

`gdb.ext.ServerUrl=https://gdb.bochk.com/servlet/GdbErpServlet`

`gdb.access.allowedIP=127.0.0.1, xxx.xxx.xxx.xxx`

`gdb.ext.VssUploadHostUrl=https://vss.bochk.com/VSS/FileUpload`

- [xxx.xxx.xxx.xxx = Add Server IP which is connected to iGTB Connect terminal, allow multiple IPs by using ", "]

(2) Amend "<Install location>\bin\catalina.bat file

- In catalina.bat, ADD CLASSPATH to CATALINA_HOME after "rem Add tomcat-juli.jar to classpath" configuration code as follow :

`rem Add CATALINA_HOME to CLASSPATH`

`set "CLASSPATH=%CLASSPATH%;%CATALINA_HOME%"`

```
196
197 rem Add tomcat-juli.jar to classpath
198 rem tomcat-juli.jar can be over-ridden per instance
199 if not exist "%CATALINA_BASE%\bin\tomcat-juli.jar" goto juliClasspathHome
200 set "CLASSPATH=%CLASSPATH%;%CATALINA_BASE%\bin\tomcat-juli.jar"
201 goto juliClasspathDone
202 :juliClasspathHome
203 set "CLASSPATH=%CLASSPATH%;%CATALINA_HOME%\bin\tomcat-juli.jar"
204 :juliClasspathDone
205
206 rem Add CATALINA_HOME to CLASSPATH
207 set "CLASSPATH=%CLASSPATH%;%CATALINA_HOME%"
208
209 if not "%JSSE_OPTS%" == "" goto gotJsseOpts
210 set JSSE_OPTS="-Djdk.tls.ephemeralDHKeySize=2048"
211 :gotJsseOpts
212 set "JAVA_OPTS=%JAVA_OPTS% %JSSE_OPTS%"
213
```



CLASSPATH.txt

- This notepad may help for copy and paste :
- In the same catalina.bat, ADD memory control setting in the beginning of configuration code as follow:

```
set "JAVA_OPTS=%JAVA_OPTS% -Xms256m -Xmx512m -XX:PermSize=128M -
XX:MaxPermSize=256M"
```

```
103 rem TITLE (Optional) Specify the title of Tomcat window. The default
104 rem TITLE is Tomcat if it's not specified.
105 rem Example (all one line)
106 rem set TITLE=Tomcat.Cluster#1.Server#1 [%DATE% %TIME%]
107 rem -----
108
109 set "JAVA_OPTS=%JAVA_OPTS% -Xms256m -Xmx512m -XX:PermSize=128M -XX:MaxPermSize=256M"
110
111 setlocal
112
113 rem Suppress Terminate batch job on CTRL+C
114 if not "%1" == "run" goto mainEntry
115 if "%TEMP%" == "" goto mainEntry
116 if exist "%TEMP%\%~nx0.run" goto mainEntry
117 echo Y>"%TEMP%\%~nx0.run"
118 if not exist "%TEMP%\%~nx0.run" goto mainEntry
```



set memory.txt

- This notepad may help for copy and paste :

(3) Amend "<Install location>\bin\catalina.sh file

- Add CLASSPATH to CATALINA_HOME after "# Add tomcat-juli.jar to classpath" configuration code as follow :

```
# Add CATALINA_HOME to classpath
```

```
CLASSPATH=$CLASSPATH:$CATALINA_HOME
```

```
218
219 # Add tomcat-juli.jar to classpath
220 # tomcat-juli.jar can be over-ridden per instance
221 if [ -r "$CATALINA_BASE/bin/tomcat-juli.jar" ] ; then
222     CLASSPATH=$CLASSPATH:$CATALINA_BASE/bin/tomcat-juli.jar
223 else
224     CLASSPATH=$CLASSPATH:$CATALINA_HOME/bin/tomcat-juli.jar
225 fi
226
227 # Add CATALINA_HOME to classpath
228 CLASSPATH=$CLASSPATH:$CATALINA_HOME
229
230 # Bugzilla 37848: When no TTY is available, don't output to console
231 have_tty=0
232 if [ "`tty`" != "not a tty" ]; then
233     have_tty=1
234 fi
235
```



catalina.sh.txt

- This notepad may help for copy and paste :
- In the same catalina.sh, ADD memory control setting to the beginning of configuration,code as follow

```
JAVA_OPTS="$JAVA_OPTS -Xms256m -Xmx512m -XX:PermSize=128M -
XX:MaxPermSize=256M"
```

```
102 # USE_NOHUP      (Optional) If set to the string true the start command will
103 #                use nohup so that the Tomcat process will ignore any hangup
104 #                signals. Default is "false" unless running on HP-UX in which
105 #                case the default is "true"
106 # -----
107
108 JAVA_OPTS="$JAVA_OPTS -Xms256m -Xmx512m -XX:PermSize=128M -XX:MaxPermSize=256M"
109
110 # OS specific support.  $var _must_ be set to either true or false.
111 cygwin=false
112 darwin=false
113 os400=false
114 hpux=false
115 case "`uname`" in
116 CYGWIN*) cygwin=true;;
117 Darwin*) darwin=true;;
118 OS400*) os400=true;;
119 HP-UX*) hpux=true;;
120 esac
```



set memory 2.txt

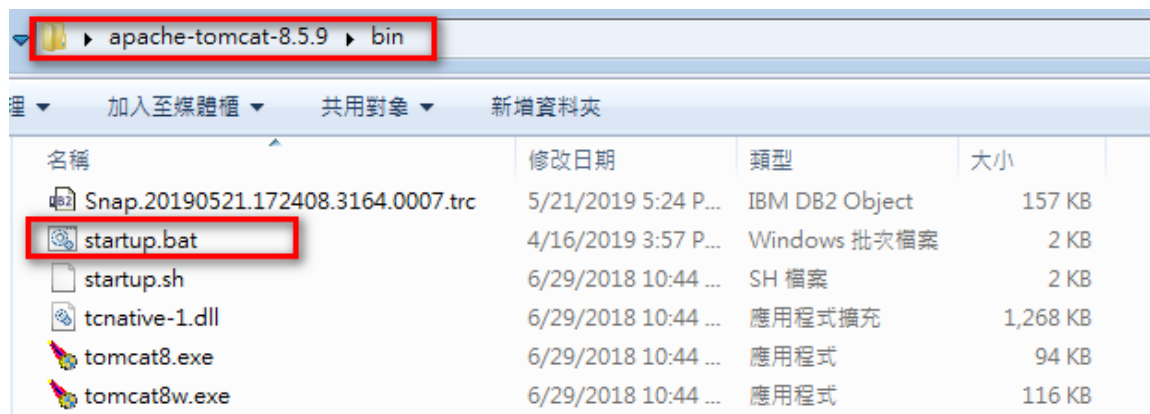
- This notepad may help for copy and paste :
- For multiple e-Certificate (USB Key) setting, please refer to Appendix.

iGTB CONNECT Terminal Configuration

5. Getting Start

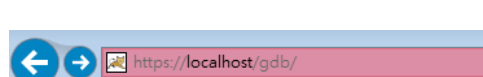
- (1) Please insert iKey first before start Tomcat

Start Tomcat by running <install directory>\bin\startup.bat



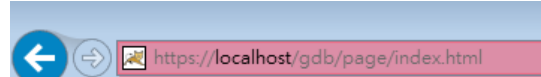
- (2) Once the startup completed, you may start a connection test:

To use testing page, open browser, go to <https://localhost/gdb>, choose Submission test, and choose Test with UTF-8 Message.



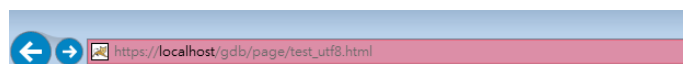
BOCHK Client Gateway

[Simple operation guideline](#)
[Submission test](#)



Message Submission Test

1. [Test with UTF-8 Messag](#)



Submission Test

Send XML Back

```
<?xml version="1.0" encoding="utf-8" ?>
<BOCHKE2B>
  <Head>
    <PackageId>20181215164912591</PackageId>
    <CBSAcctNo>00000000000000</CBSAcctNo>
    <UserId>AAAAAA</UserId>
    <Password>654321</Password>
    <NewPwd></NewPwd>
    <ConfirmNewPwd></ConfirmNewPwd>
    <ECertName>USER4</ECertName>
    <ECertPwd>Password#1</ECertPwd>
  </Head>
  <Tx>
    <ConnectionCheckREQ>
  </Tx>
</BOCHKE2B>
```

(3) Please modify the following information on the web page:

Tag	Instructions	Format
<PackageId>	Packet sequence ID	YYYYMMDDhhmmssXXX Package ID is 17 character which not repeated. Package ID generated by current time, add unique three digits at the end Example: At 2018/12/10 20:46:39, generated Package ID is 20181210204639159 "159" is sequence number.
<CBSAcctNo>	Bank account number	
<UserId>	Customer user ID	
<Password >	Private password	
<ECertName>	e-cert file name	
<ECertPwd>	e-cert password	

After inputting data and clicking "Send XML", if the following XML is returned, it indicates that:

- iKey is installed correctly and password is correct;
- Connection with Bank network is successful;
- XML Schema and Bank Gateway certificate files are correct.

```
<?xml version="1.0" encoding="UTF-8"?>
- <BOCHKB2E>
  - <Head>
    <PackageId>20181215164912591</PackageId>
    <CBSAcctNo>0000000000000000</CBSAcctNo>
    <UserId>AAAAAA</UserId>
    <TxStatus>S</TxStatus>
  </Head>
  <Tx/>
</BOCHKB2E>
```

(4) The installation is completed and you may send XML request through SSL to iGTB CONNECT terminal to below address:

<https://xxx.xxx.xxx.xxx/gdb/GdbE2bGateway.do>

Security Tips

For safely use our bank services, below are the reminding notes for keeping your e-Certificate safe:

Advices on using iGTB CONNECT Terminal

- The iGTB Connect user credential should not be stored in your server or iGTB Connect Terminal. For sensitive information, you should always apply encryption with adequate access control.
- The iGTB CONNECT terminal should be protected with your Company's firewall.
- The connection between your back office system and the iGTB CONNECT terminal should be using Transfer Layer Security protocol version 1.2 (TLS1.2) or above.
- The iGTB CONNECT terminal should be placed in a server room with restricted access to authorized person.

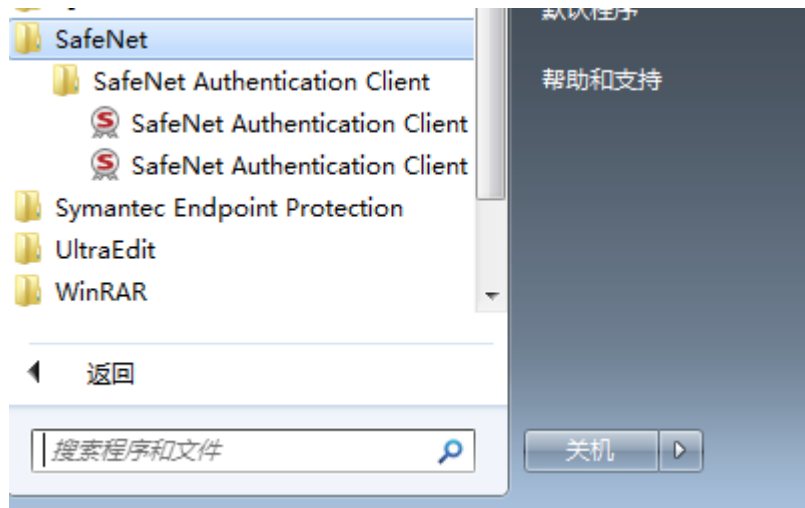
Advices on using e-Certificate (USB Key)

- DO NOT disclose the passphrase to anyone (including BOCHK staff).
- Change the passphrase of e-Certificate at least once every 90 days.
- Keep the e-Certificate in a safe place by a designated person / party to prevent unauthorized use of the device(s).
- Keep the e-Certificate and the passphrase by different persons / parties.
- Ensure the e-Certificate is completely unplugged / loaded off from your file transmission system after connection and keep in a safe place. DO NOT leave the e-Certificate unattended.
- Keep the system connect with terminal (e.g. iGTB CONNECT terminal) in a secure and safe place as well as to prevent unauthorized use.
- If e-Certificate lost or suspects for any unauthorized use, please contact BOCHK immediately

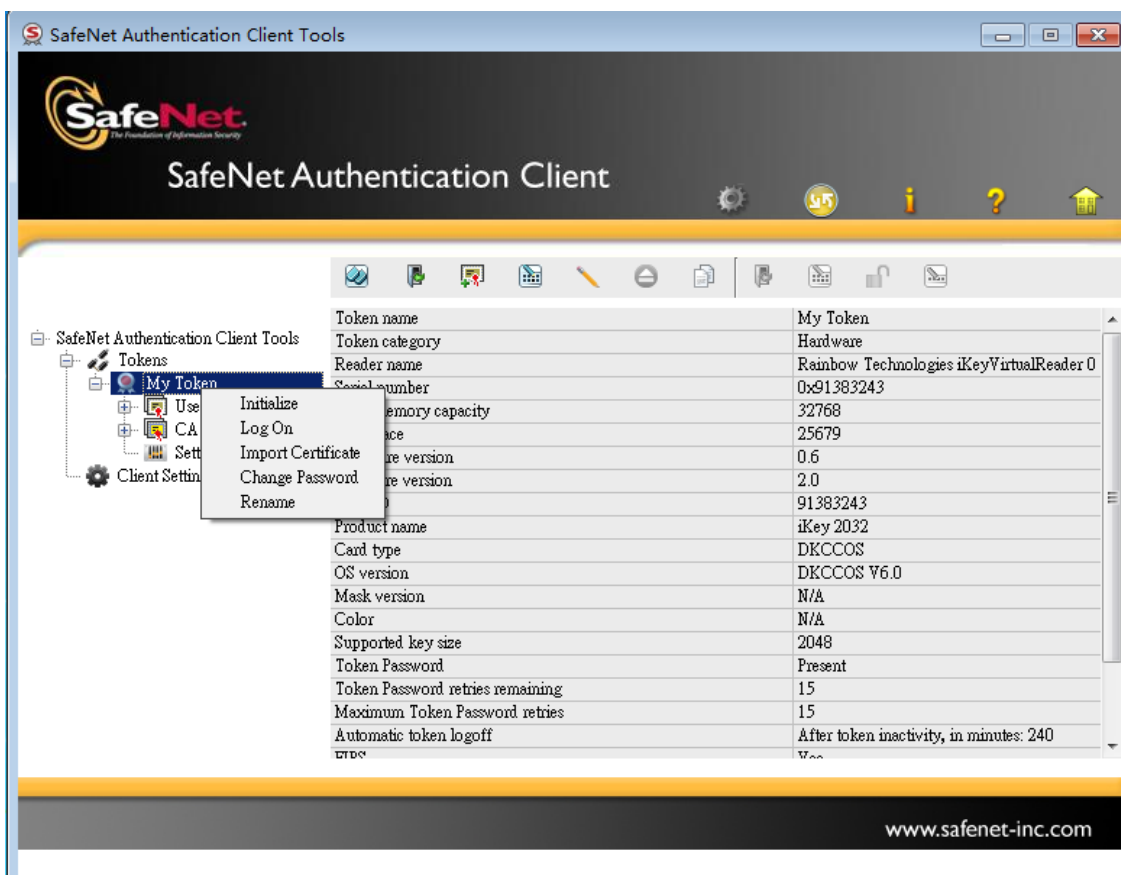
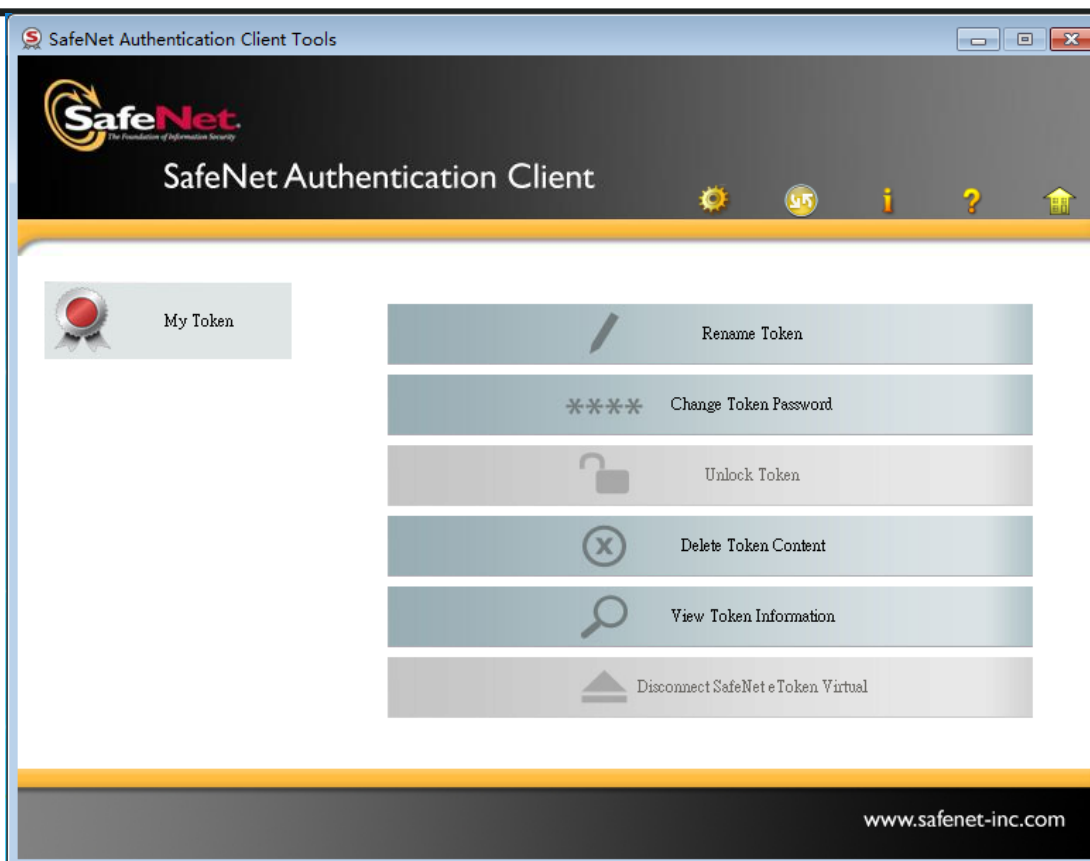
Checking Safenet Client

A. Check installation for Safenet Authentication Client 8.0

- i. Go to “Start”
- ii. Click “All programs” > Click “SafeNet”
- iii. Click “SafeNet Authentication Client > Click “SafeNet Authentication Client Tools” to check the information for the installation.



- iv. After connecting iKey /eToken, click  (Not Logged in)

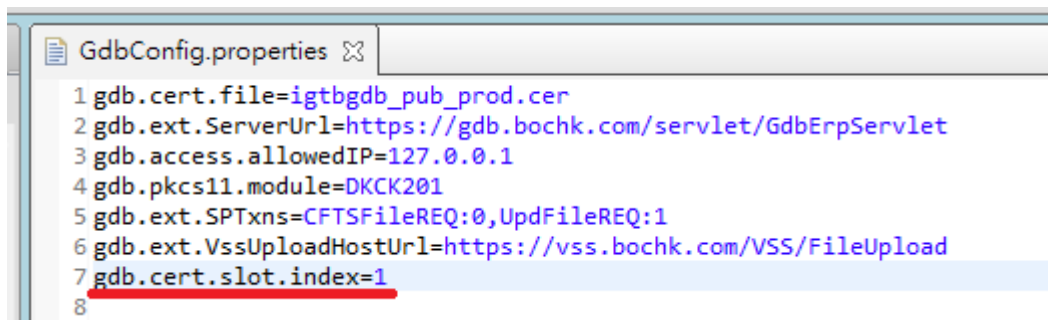


Right click to choose Log On, and then enter iKey /eToken password to check the information of iKey /eToken.

B. For multiple e-Certificate (USB Key)

- Open "<install directory>\bochk_gdb\config\GdbConfig.properties"
Add the gdb.cert.slot.index configuration as iKey /eToken slot order when inserted, **starting with 0, 1, 2,and so on.**

For example: if two iKey /eToken are inserted, '0' means the first iKey /eToken, '1' means the second iKey /eToken; To read the second iKey /eToken, please add **gdb.cert.slot.index=1** in GdbConfig.properties



```
1gdb.cert.file=igbtgdb_pub_prod.cer
2gdb.ext.ServerUrl=https://gdb.bochk.com/servlet/GdbErpServlet
3gdb.access.allowedIP=127.0.0.1
4gdb.pkcs11.module=DKCK201
5gdb.ext.SPTxns=CFTSFileREQ:0,UpdFileREQ:1
6gdb.ext.VssUploadHostUrl=https://vss.bochk.com/VSS/FileUpload
7gdb.cert.slot.index=1
8
```

Notice:

1. If you do not need to read the e-certificate (USB Key) from specific port, please do not add the gdb.cert.slot.index configuration. System will read the e-certificate(USB Key) in default.
 2. In case you have to read the e-certificate(USB Key) from specific port, please re-insert the e-certificate(USB Key) and check the slot index of corresponding e-certificate(USB Key). Set the value of gdb.cert.slot.index in GdbConfig.properties and follow with a Restart of Tomcat server.
 3. If the e-certificate(USB Key) has been removed while the Tomcat server had been started, please make sure you have to restart the Tomcat server.
- How to check iKey /eToken Slot Index
Insert the e-certificate(USB Key) > Restart Tomcat server > Click the Token Index Information in the testing page. You may check the SLOT INDEX corresponding to the inserted e-certificate(USB Key) for the "gdb.ext.slot.index" setup.

[Simple operation guideline](#)
[Submission test](#)
[Token Index Information](#)

[https://localhost/gdb/](#)

BOCHK Client Gateway

[https://localhost/gdb/GdbEzbTestToken](#)

[GDB Portal](#)
[GDB Portal](#)

Token Index Information

SLOT INDEX	CERT NAMES	SLOT INFO	MODULE	TOKEN ID	TOKEN INFO
0	88CERT,ECERT3,GENERAL PURPOSE ROOT CA CERT 2 (TRIAL),GENERAL PURPOSE SIGNING CA CERT 2 (TRIAL),DIANGZ,	Slot Description: Rainbow Technologies iKeyVirtualReader 0 Manufacturer ID: SafeNet, Inc. Hardware Version: 1.00 Firmware Version: 0.00 Token present: true Removable Device: true Hardware Slot: true	Module Name: DKCK201	0	Label: My token Manufacturer ID: ?Rainbow Tech. Model: Model 330 Serial Number: 91383240 Random Number Generator: true Write protected: false Login required: true User PIN initialized: true Restore Key not needed: false Clock on Token: false Protected Authentication Path: false Dual Crypto Operations: true Token initialized: true Secondary Authentication: false User PIN-Count low: false User PIN final Try: false User PIN locked: false User PIN to be changed: false Security Officer PIN-Count low: false Security Officer PIN final Try: false Security Officer PIN locked: false Security Officer PIN to be changed: false Maximum Session Count: Session Count: 1 Maximum Read/Write Session Count: Read/Write Session Count: 0 Maximum PIN Length: 20 Minimum PIN Length: 6 Total Public Memory: 32768 Free Public Memory: 18242 Total Private Memory: 32768 Free Private Memory: 18242 Hardware Version: 0.06 Firmware Version: 0.06 Time: null
1	DIANGZ,GENERAL PURPOSE ROOT CA CERT 2 (TRIAL),GENERAL PURPOSE SIGNING CA CERT 2 (TRIAL),88CERT,	Slot Description: Rainbow Technologies iKeyVirtualReader 1 Manufacturer ID: SafeNet, Inc. Hardware Version: 1.00 Firmware Version: 0.00 Token present: true Removable Device: true Hardware Slot: true	Module Name: DKCK201	1	Label: My Token Manufacturer ID: ?Rainbow Tech. Model: Model 330 Serial Number: 91383275 Random Number Generator: true Write protected: false Login required: true User PIN initialized: true Restore Key not needed: false Clock on Token: false Protected Authentication Path: false Dual Crypto Operations: true Token initialized: true Secondary Authentication: false User PIN-Count low: false User PIN final Try: false User PIN locked: false User PIN to be changed: false Security Officer PIN-Count low: false Security Officer PIN final Try: false Security Officer PIN locked: false Security Officer PIN to be changed: false Maximum Session Count: Session Count: 1 Maximum Read/Write Session Count: Read/Write Session Count: 0 Maximum PIN Length: 20 Minimum PIN Length: 6 Total Public Memory: 32768 Free Public Memory: 21680 Total Private Memory: 32768 Free Private Memory: 21680 Hardware Version: 0.06 Firmware Version: 0.06 Time: null

Appendix 2

iGTB CONNCET Interface File Layout

(Currently Available in Traditional Chinese)


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



Structure & Maintenance

XML Structure & System Maintenance

A. XML Request Block

Category	Transaction Name	Description	Content	Last Update
Message Header	BOCHKE2B Request Block	Basic XML Message Structure	 BOCHKE2B Tag .docx	2019/10/24



B. System Maintenance Tx

Category	Transaction Name	Description	Content	Last Update
Maintenance	CONNECTION CHECK	Connection test	 Connection Check (ConnectionCheck	2019/10/24
Maintenance	PASSWORD CHANGE	Change User Password	 Password Change (PasswordChangeI	2019/10/24
Enquiry	ACTIVITY LOG	Activity Log	 Activity Log (ActivityLogREQ)†	2019/10/24
Maintenance (File Download)	MAINTENANCE FILE DOWNLOAD	Download system maintenance files /user guide	 Maintenance Download File (Dr	2019/10/24

Account Enquiry

Account Balance & Statement









C. Account Enquiry Tx







Category	Transaction Name	Description	Content	Last Update
Enquiry	ACCOUNT BALANCE (REGION)	Account Balance (local and regional accounts)	 ACCOUNT BALANCE - REGIO	2020/07/03
Enquiry	ACCOUNT STATEMENT(REGION)	Account Statement (local and regional accounts)	 ACCOUNT ACTIVITY - REGIOI	2020/07/03

Payment & Collection

Payment & Collection Transaction

D. Transaction

Category	Transaction Name	Description	Content	Last Update
Financial	Transfer (Region)	Perform transfer transaction for both local and regional debit accounts	 Transfer - Regional.docx	2020/07/03
Financial	Telegraphic Transfer (Region)	Perform telegraphic transfer transaction for both local and regional accounts	 telegraphic transfer - regional.	2020/07/03
Financial	RTGS (Region)	Perform RTGS transaction for both local and regional accounts	 RTGS-Regional.docx	2020/07/03
Financial	FPS (HK)	Perform Faster Payment System (FPS) transaction for Hong Kong accounts	 FPS (InsFPSREQ).docx	2020/07/03
Financial	BOC Remittance Plus (HK)	Perform BOC Remittance Plus transaction for Hong Kong accounts	 BOC Remittance Plus (HK)(InsBOCR)	2019/10/24
Financial	Demand Draft (HK)	Send a demand draft Request for Hong Kong accounts	 Demand Draft-REGION(InsDemand)	2019/10/24
Financial	Message to Bank	Remittance supplementary request	 Message To Bank (RemitMessageREQ)	2019/10/24
Financial	Remittance cancellation	Cancel remittance instruction	 Remittance Cancel_Chin.docx	2020/07/03











Financial	Direct debit authorization (DDA) set up (HK)	Set up direct debit authorization for customers	 PCS SDDA.docx	2020/08/08
Financial	Direct debit instruction (DDI) (HK)	Initiate direct debit instructions	 PCS DDI.docx	2020/08/08
Financial	eCheque / eCashier order issuance	Issue eCheque/eCashier order	 Issue e-cheque_Chin.do	2020/07/03
Financial	Deposit eCheque/ eCashier order	Deposit single eCheque/eCashier order	 Deposit e-cheque (single)_Chin.docx	2020/07/03
Financial	CCASS Payment	Initiate CCASS payment instruction	 CCASS_Chin.docx	2020/07/03
Financial (File Upload)	Upload Transaction	Upload ACH payment, payroll, ACH collection, bulk payment (iGTB upload file format), upload attachment & cheque outsourcing	 Upload File(UpdFileREQ)_	2020/07/03


Transaction Enquiry

Keep track of iGTB Instructions









E. Transaction Enquiry

Category	Transaction Name	Description	Content	Last Update
Enquiry	Work Queue	Overview the life cycle and status of an instruction including "Draft", "Pending Authorisation", "Received by Bank", "Processing and Completion", etc.	 Work Queue(WorkQueu	2020/07/03
Enquiry	iGTB Trasnfer Enquiry	Enquire iGTB transfer transactions (listing)	 iGTB Transfer Enquiry_Chin.docx	2020/07/03
Enquiry	Transaction Detail Enquiry	Perform transaction detail enquiry on transfer, RTGS, telegraphic transfer, FPS, etc.	 nsTransEnquiryREQ_Chin.docx	2020/07/03
Enquiry	Remittance Enquiry	Perform remittance enquiry. Support: FPS, RTGS, BOC Remittance Plus and telegraphic transfer etc.	 RemitEnqREQ	2020/07/03
Enquiry	GPI Status Enquiry GPI	Enquire the GPI status of remittance transactions	 GPI Steps_Chin.docx	2020/07/03
Enquiry	ACH Payment Enquiry	Perform ACH payment enquiry	 ACH Payment Enquiry (ACHPayE	2019/10/24
Enquiry	Payroll Enquiry	Perform payroll enquiry	 PayrollEnqREQ	2020/07/03
Enquiry	eCheuqe / eCasher Order Deposit Enquiry	Perform eCheuqe / eCasher Order deposit enquiry	 E-cheque e-Cashier's Order I	2020/07/03

Enquiry	e-Cheque/e-Cashier's Order Status Enquiry	Enquire the status of e-Cheque/e-Cashier's Order (listing)	 E-cheque e-Cashier's Order !	2020/07/03
Enquiry	e-Cheque/e-Cashier's Order Issue Status Enquiry	Enquire the results of e-Cheque/e-Cashier's Order status	 Issue e-cheque enquiry_Chin.docx	2020/07/03
Enquiry	Stop e-Cheque/e-Cashier's Order Enquiry	Check the stop transaction status of e-Cheque/e-Cashier's Order	 Stop e-cheque enquiry_Chin.docx	2020/07/03
Enquiry	Download Deposited e-Cheque/e-Cashier's Order (Single)	Download deposited e-Cheque/e-Cashier's Order (Single)	 Download Deposit e-cheque	2020/07/03
Enquiry	Cheque Outsourcing-Cashier's Order Status Enquiry	Enquire cashier's order status under cheque outsourcing service	 COS - Cashier's Order Status Enqu	2020/07/03
Enquiry	Direct Debit Instruction Enquiry	Enquire direct debit instruction status	 PCS SddaDdiEnquiry.d	2020/08/19
Enquiry	File Upload Result Enquiry	Perform file upload result enquiry	 UpdFileEnqREQ	2020/07/03
Enquiry	SUB Account Transaction Enquiry	Enquire SUB account transaction result	 SubAccount (SUBTxREQ).docx	2019/10/24
Enquiry	Online Request	Perform online request enquiry	 Online Request (OnlineRequestRE	2020/07/03
Enquiry	Download attachment	Download attachment	 Download Attachment File_CI	2020/07/03

Enquiry	Download transaction files	Download transaction files. For detailed transaction file type, refer to specification.	 Download files_Chin.docx	2020/07/03
---------	----------------------------	---	---	------------

Subappendix

	Description	Content	Last Update
1	Action Type List	 TransactionType.xlsx	2020/07/03
2	Account Type List	 ActionType List	2019/10/24
3	Bank Branch Code	 Bank branch list.xls	2020/07/03
4	Currency List	 Currency List.xlsx	2020/07/03
5	Demand Draft Bank List	 Demand Draft Bank List.xlsx	2020/07/03
6	Malaysia Payment Purpose Code List (Originator)	 MY purpose of payment (Originator)	2020/07/03
7	Payment Purpose Code List	 Paypurpose List.xlsx	2020/07/03
8	Region List	 Region.xlsx	2020/07/03
9	Transaction Status List	 Transaction Status List	2019/10/24
10	Transaction Type List	 TransactionType.xlsx	2020/07/03

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