



**iPG-CLIENT
for PPS Shop&Buy**

PPS Shop&Buy

iPG Client (Gateway-merchant / Sub-merchant)

Installation Guide

Revision date : Feb 2016
Version : 1.10

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1 Revision History

Version	Date	Modifications	Section Changed	Author
1.00	July 2005	First version (draft)		PCCW
1.01	July 2005	2 nd version (draft)	Diagram updated	PCCW
1.02	Aug 2005	EPS Comments added		PCCW/ TL
1.03	Nov 2005	Minor document update		PCCW/ TL
1.04	Jun 2006	Update online payment form screen	5.4.2	PCCW/ TL
1.05	Sep 2006	Update company name to PCCW Solutions Limited	5.1	PCCW/ TL
1.06	May 2008	Add para 5.4.2.1 on two-factor authentication with screen flow	5.4.2	PCCW/TL
1.07	Apr 2011	1. Update new PPS Logo and Covering Page design 2. Update software version 3. Update Windows server requirement. 4. Update “To run the installation program” 5. Update Merchant Config screen cap 6. Add 2048 bits RSA key length support 7. Update new PPS logo, and delete “Please note” in Payment Form screen cap 8. Update new PPS logo in 2 Factor Authentication Form screen cap 9. Change selected merchants and “Two-Factor Authentication Required” Page 10. Define “TxCode”, Revise “Time Out value” 11. Modify Multi-servers environment setting 12. Add Section 10 - “Upgrade from previous version” 13. Add Item 5 to the Installation Tips 14. Change company names	1 2, 3.2 3.1.1 5.1 5.2, 6.4 5.4.1 5.4.3 5.4.2.1 5.4.2.1, 6.4, 7, 10, Appendix A Copyright notes	PCCW/TL
1.08	Nov 2012	1. Update software version	2, 5.1	PCCW/SL
1.09	Mar 2015	1. Update software version 2. Update system requirement	2, 5.1 3.1, 3.3	PCCW/TL

1.10 | Feb 2016 1.Update JDK version

3.3

PCCW/TL

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2 Introduction

Welcome to iPG-Client (Gateway-merchant), described thereafter iPG-Client, software installation – Version 1.06.3. This guide tells you how to install iPG-Client on your Solaris, AIX, Intel Linux, or Windows platform.

iPG-Client is a merchant side component which enables various merchants to make use of the Internet Payment Gateway (iPG) as their online debit payment gateway. The iPG-Client will be integrated into merchant's web services and it will facilitate a secure channel between the merchant and the iPG-Host. The iPG-Client's implementation provides trouble-free integration, multi-platform support and transaction security protection. It provides two implementations, Java and Component Object Model (COM) for use with J2EE and ASP/.NET in different merchants' web environment. Both of them provide the same interface and same functionality.

2.1 About this guide

Before you start this iPG-Client, make sure you read this guide on installation instructions and other important information. It contains the following information: -

- * Instructions for installing the iPG-Client software
- * System administration information, such as how to change the keys and passphrase
- * Troubleshooting information

For information regarding to programming interface between merchant's web services and the iPG-Client component, please refer to the Developer guide.

2.2 About the iPG-Client software package

Once successfully installed, the iPG-Client software package includes:

- TrustedSeal crypto library,
- COM and Java implementation of iPG-Client,
- Key files and various configuration files
- Key synchronization program,
- Merchant configuration program,
- Bundled Java 1.4 run-time environment,
- Bundled Microsoft Visual C++ 2008 SP1 Redistributable
- Demo web site,
- Sample ASP and Java servlet code for accessing the iPG-Client

And the following documents in online form:

- iPG-Client "Developer Guide" (DeveloperGuide(Gateway_Sub merchant).pdf), explains how to use and customize the iPG-Client software
- This document (InstallationGuide (Gateway_Sub merchant).pdf) explains how to install the iPG-Client software

3 System Requirements

3.1 Basic requirements

3.1.1 Platform

The installation program will support

- Windows Server
 - 32-bit: 2000, 2003, 2008
 - 64-bit: 2003, 2008, 2012
- SUN SPARC Solaris 2.6+
- Common Linux distribution.
 - Red Hat Linux 6.x, 7.x, 8.x
 - TurboLinux 6
 - Caldera OpenLinux 2.4
 - SuSe Linux 8.x
 - Red Hat Linux Fedora Core 2
 - Red Hat Enterprise Linux 3.0/4.0¹
 - CentOS 5.2
- IBM AIX 4.3.2+

3.1.2 Hardware

- 50 Megabytes hard disk or more
- 32 Megabytes RAM or more

3.2 Additional requirements for COM API / ASP implementation

For GenDO.asp, you need to install IIS version 5.0 or above

3.3 Additional requirements for Java API / Servlet implementation

If you want to use the Java API or ipgclient.GenDO servlet, you should have:

- JRE/JDK 1.7.x
- Common Java Servlet Container e.g. Tomcat version 5 or above
- For Unix platform, X11 is required for the key synchronisation and must be enabled

(Remarks: Due to the market situation changes, and /or the need to be in line with the industry practice, this iPG Client may need to be updated accordingly to cater for the changes. In cases where merchant servers are affected, they would be notified as early as possible for the necessary upgrades.)

¹ See Appendix A - Tips 4

4 Preparing for installation

Before starting the installation, decide where to install the software.

Locate a directory and verify that you have sufficient disk space (see "System Requirements" for disk space requirements). The default location for installation of the iPG-Client software is the following directory: -

* For Solaris: /opt/iPG-Client

* For Linux: /opt/iPG-Client

* For AIX: /opt/iPG-Client

* For Windows: <Windows Home DIR>\Program Files\iPG-Client

If there is insufficient space in this partition, choose another directory within a different partition. Use the `df` command (Solaris/Linux/AIX) to determine the available space within a file system partition containing a particular directory. Type `df` (or `df -k` to get the number in kilobytes) followed by the name of the directory in which you want to install the software. For example, on Solaris type the following command:

```
# df /usr

Filesystem      kbytes    used    avail  capacity  Mounted on
/dev/sd0g      207295    98377    88189    53%       /usr
```

There are 207,295 kilobytes (about 207 megabytes) in this partition and about 88 megabytes available, which has enough disk space to install the software. See your system documentation for more information on the `df` command.

5 Installing the software

iPG-Client software is distributed on DVD-ROM. This section contains instructions for installing the software after you have mounted a DVD-ROM containing the related files.

5.1 Start installation

To run the installation program

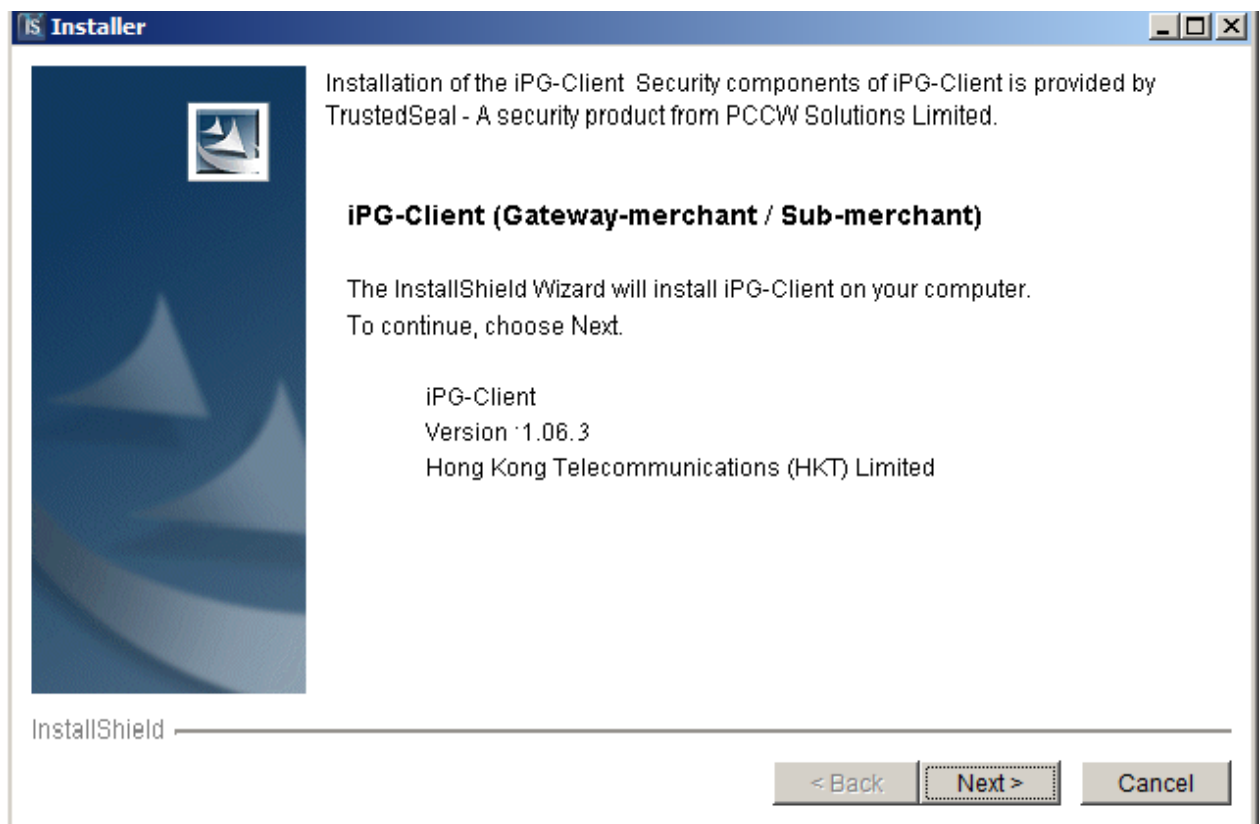
1. Start the installation program
 - `setup-x86.exe` (Windows 32-bit environment)
 - `setup-x64.exe` (Windows 64-bit environment)
 - `setupSolaris.bin` (Sun SPARC Solaris environment)
 - `setupLinux.bin` (Linux environment)
 - `setupAIX.bin` (AIX environment)
2. Follow the instructions that appear on your screen

If you have made a mistake, you can do either one of the followings: -

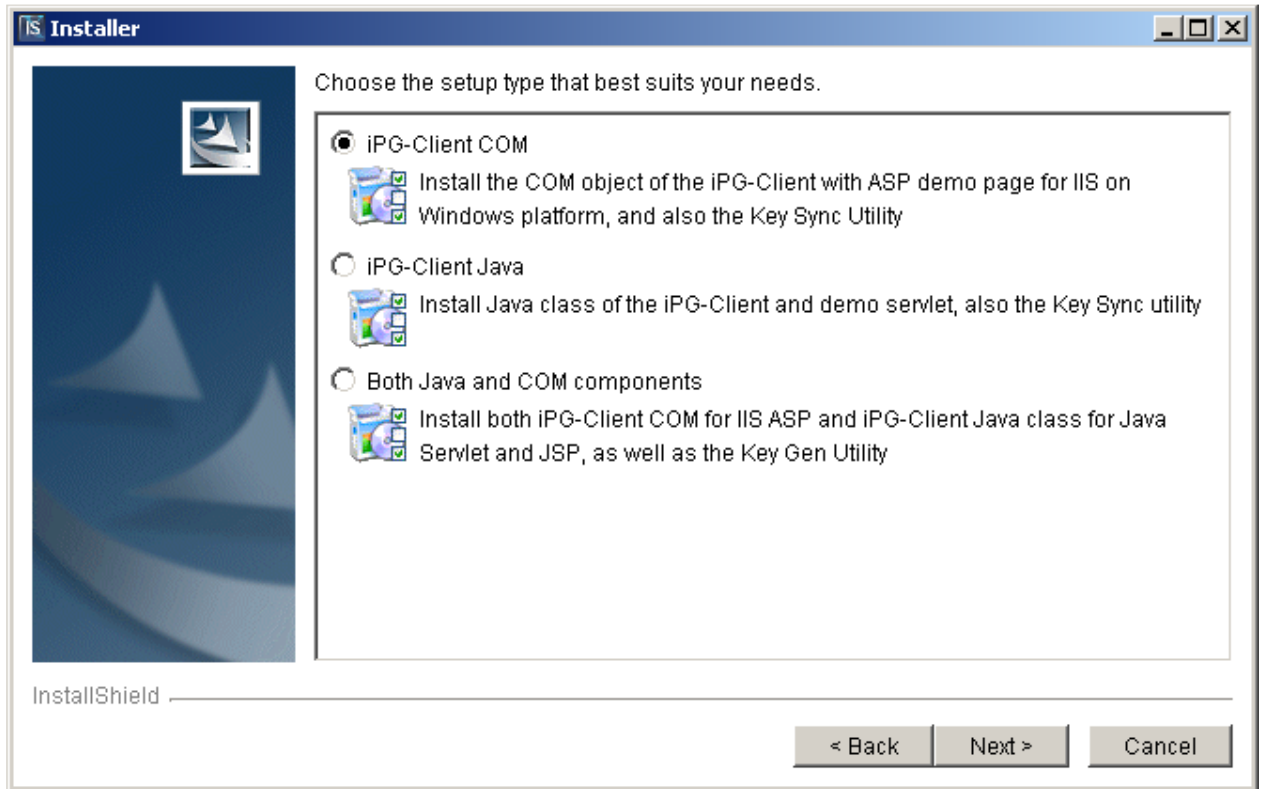
- * Cancel/Exit at different points in the procedure.
- * Press the interrupt key sequence (Control+C on most UNIX systems) to cancel the installation.

When the installation is completed, a message appears indicating that you have installed the software successfully. IPG-Client is now installed.

After launching the program, you will see an installation wizard:



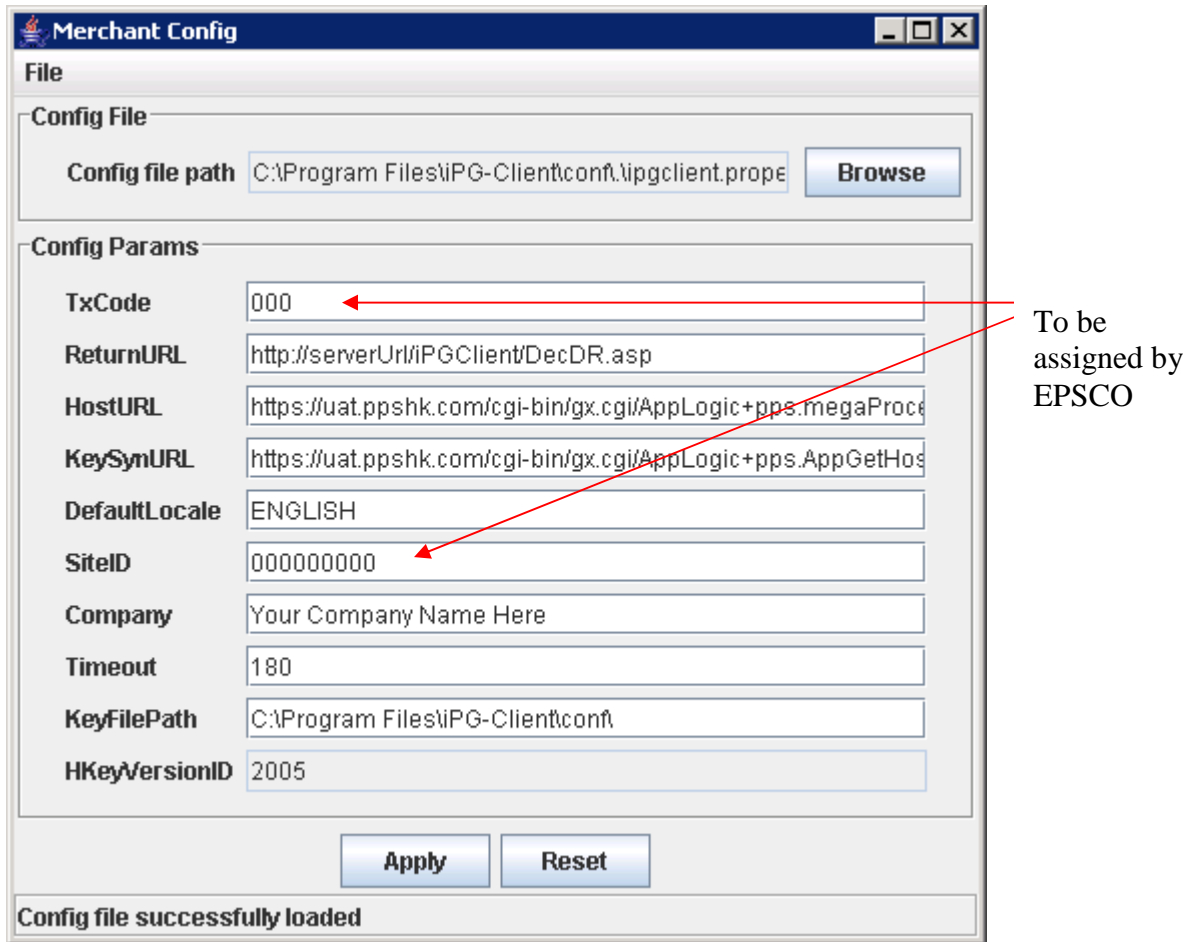
Just follow the wizard, read and accept the license terms, select the installation location and then the wizard will ask you to select the available installation options:



Choose “iPG-Client COM” if you want to use the COM API or GenDO.asp of the iPG-Client.
Choose “iPG-Client Java” if you want to use the Java API or ipgclientservlet.GenDO servlet of the iPG-Client.
Choose “Both Java and COM components” if you want to use both Java and COM API.

5.2 Configuring

After the files are copied to your computer, the Merchant configuration program will be started.



For the detailed description of each field, please refer to the Configuration and Maintenance Section of this Installation Guide.

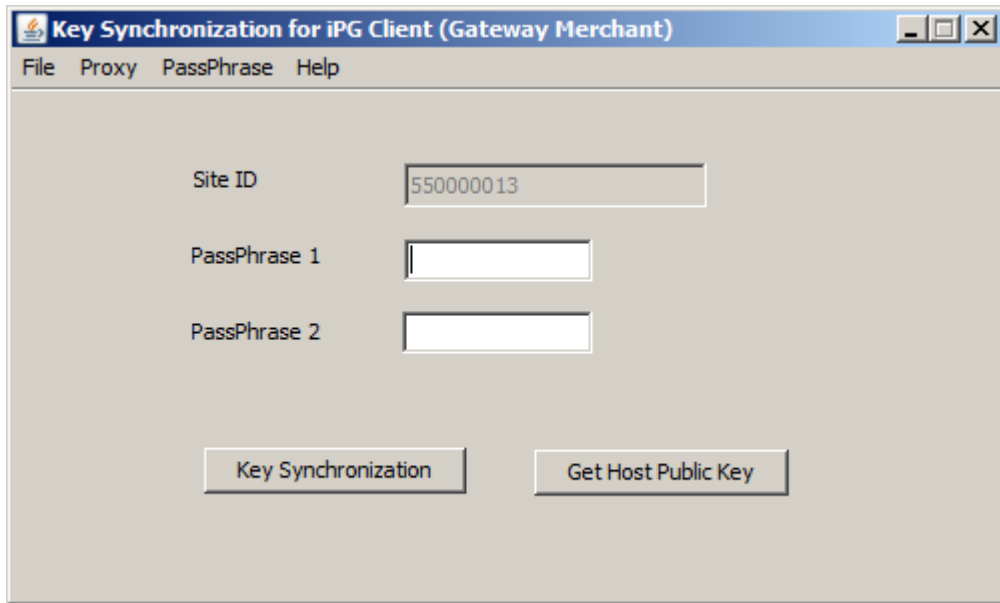
Several fields are required before you can continue the installation process. They are:

- SiteID
- KeySynURL
- KeyFilePath
- Company

The KeyFilePath will be automatically set as the “conf” directory under your iPG-Client installation directory. It is suggested to use this default path.

5.3 Key Synchronization

After you have made sure that the above fields are set correctly, click “Apply” and make sure that the status bar display “config saved”. You can then exit the Merchant Config application. The Key Synchronization will then be started.



At this stage of the installation process, you have to perform passphrase changes and key synchronization. Please follow the steps described in the Key Synchronization and change passphrase of the Configuration and Maintenance section.

After performing the passphrase changes and key synchronization, the whole installation is completed.

5.4 What have done on your machine

5.4.1 Files copied

When the installation is completed, some files will be copied to your machine with the following directory contents:

Subdirectories	Description
bin	Only present if the option of COM component is chosen during installation, it contains the DLL of the COM objects (iPGClientCOM.dll)
conf	Contain: <ul style="list-style-type: none"> • Merchant configuration program (ConfigApp.exe in Windows or ConfigApp.bin in Solaris, Linux and AIX platform) • Merchant config file (ipgclient.properties) • Key files <ul style="list-style-type: none"> ◦ Key file contain the iPG-Client's own 2048 bits RSA keys (MyRSAKey) ◦ Key file contain the iPG-Host's 2048 bits RSA public key (OppRSAKey) • Log file of the Key synchronization utility (keysync.log) • Trusted CA certs store
doc/pdf	Contain the PDF files of the iPG-Client's document (DeveloperGuide.pdf & InstallationGuide.pdf)
doc/javadoc	Contain the Javadoc of the iPG-Client if Java API of the iPG-Client is installed.
keySync	Contain the executable of the Key Synchronization Utility (KeySync.exe)
lib	Contain the Java library in JAR package (iPGClient.jar)
web/servletWebstore	Contain the Web site with the class files of Java Servlet and sources

web/ASPWebstore | Contain the Web site of the ASP files

5.4.2 Version Installed

To find out the version of iPG-Client installed,

for iPG-Client Java

- change to the **lib** directory
- enter
java -jar iPGClient.jar
iPG-Client (Gateway Merchant) x.xx (Build x)

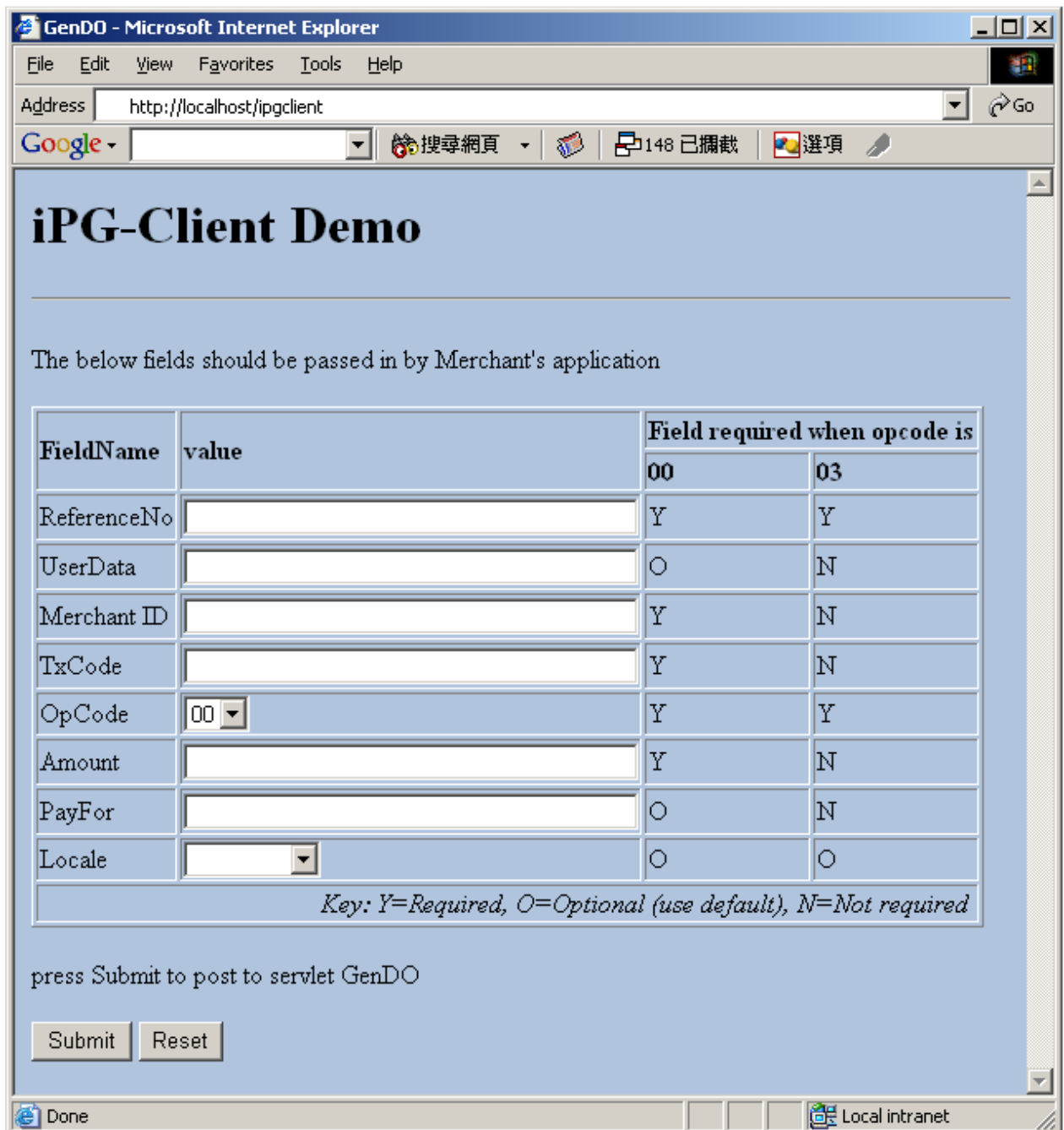
for iPG-Client COM

- change to the **bin** directory and right click on the COM dll to select Properties
- (2008) select Details tab and check on Product version
(2003) select Version tab and click on Product version

5.4.3 Demo web site installed

If the iPG-Client COM option is selected, an IIS Virtual directory named iPGClient will also be created such that the GenDO.asp can be accessed from

<http://yourServerName/iPGClient/GenDO.asp> . A testing page named index.html is put at <http://yourServerName/iPGClient/index.html> so that you can use it to test the GenDO.asp. For details on the fields, please refer to the Developer Guide section 3.1 “Send Payment Request” under System Overview.



Due to the different implementation of servlet container, if the iPG-Client Java option is selected, you have to manually set up the servlet context with the application path set to

<installation root path>/web/servletWebstore/servletWebstore/

The GenDO servlet can be accessed at

<root URL of your web site>/<servlet context name>/servlet/ipgclientservlet.GenDO

A testing page named index.html is put at <root URL of your web site>/<servlet context name>/index.html so that you can use it to test the GenDO servlet.

Once the request is submitted, an encrypted DO will be generated and sent to iPG Host. An URL redirect happens and a PPS web page is loaded to prompt user to enter the PPS Account Number / Name and Internet Password.

Online Payment Service - Microsoft Internet Explorer

PPS 繳費靈

PAY IT YOUR WAY!
Pay it your way!
Pay it your way!

You **must read** the Terms and Conditions, Legal Disclaimer & Copyright Notice and Personal Information Collection Statement listed below before clicking "Submit" for payment.
[[Terms and Conditions](#) | [Privacy Policy](#) | [Disclaimer](#)]

Merchant Name: PPS Merchant
Reference Number: REF1306205462515
Amount (HK\$): 234.00
8-digit PPS Account Number or PPS Account Name* :
PPS Internet Password:

*If you are not a PPS user yet, please set up your PPS Account at any nearby PPS Registration Terminal. For details, please click [here](#).

5.4.3.1 Two-factor authentication

To provide a more secure and reliable environment for online transactions, PPS has launched “two-factor authentication” on 26 July 2007 making use of two different types of information to verify your customer’s identity and to provide additional level of protection to online transactions:

First protection:

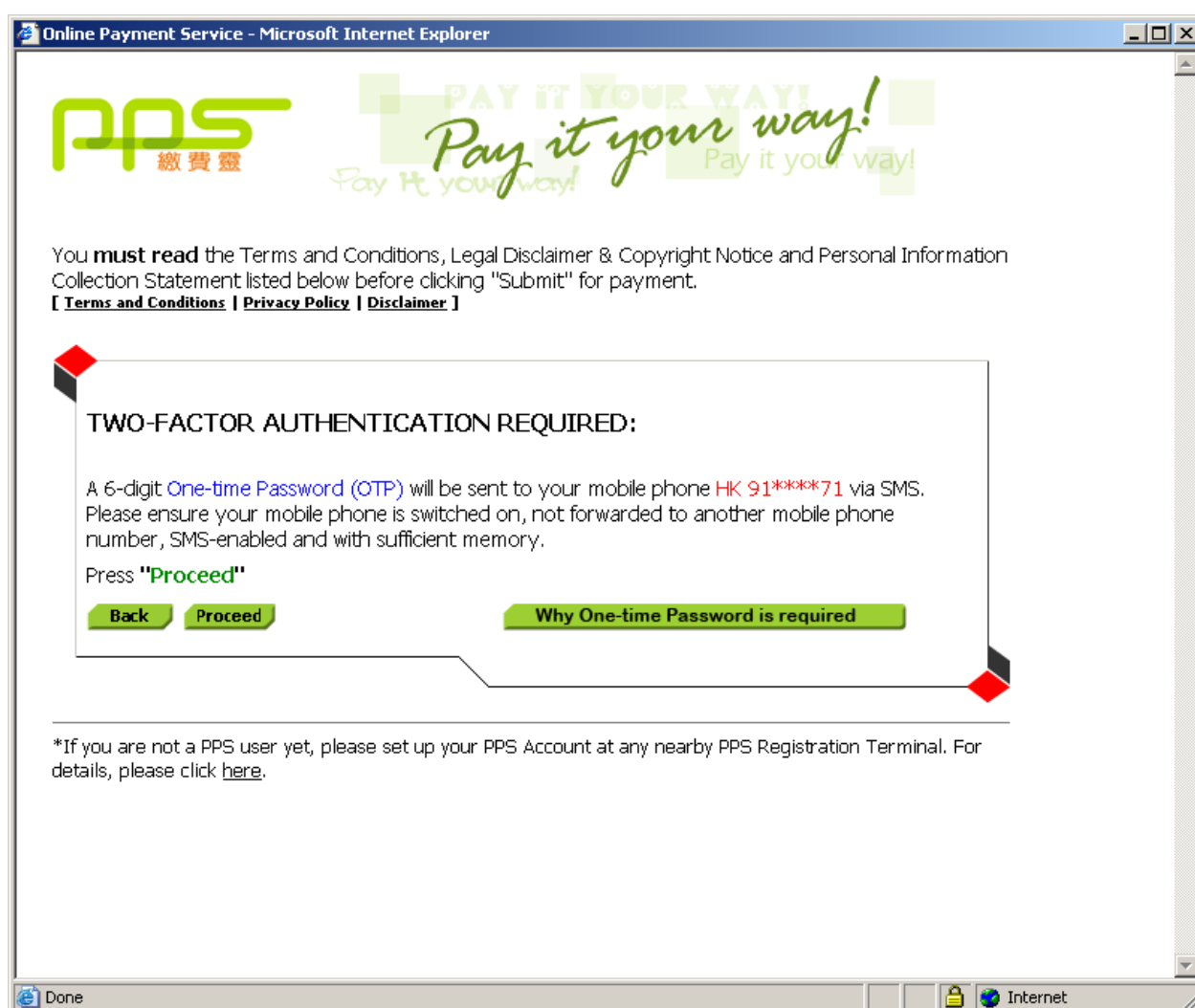
PPS Account Number / Account Name and PPS Internet Password

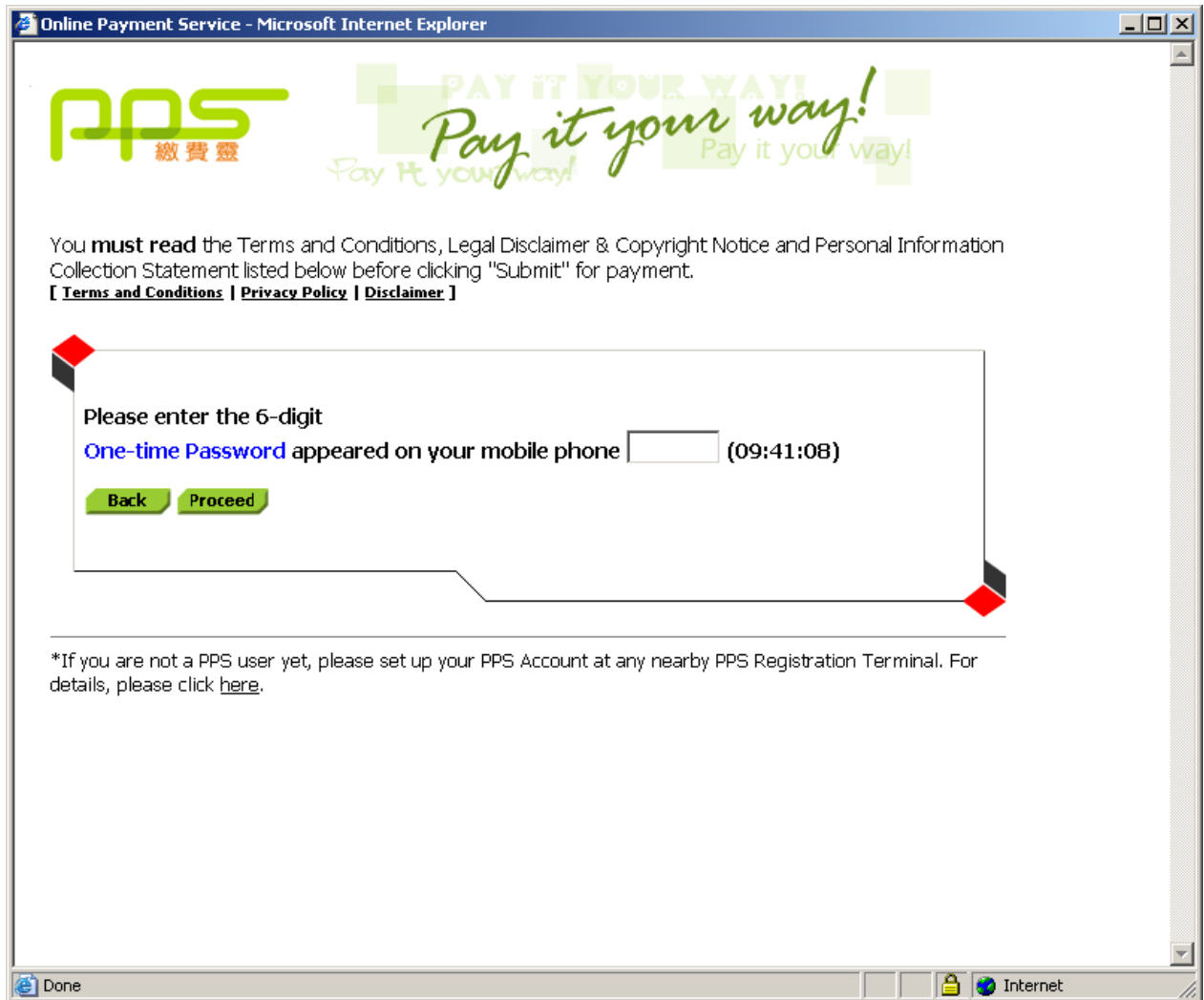
Additional protection:

A One-time password (OTP) via SMS is sent to your customer's mobile phone to proceed further with the transaction#. Your customer is requested to enter the OTP on the screen shown to confirm the payment.

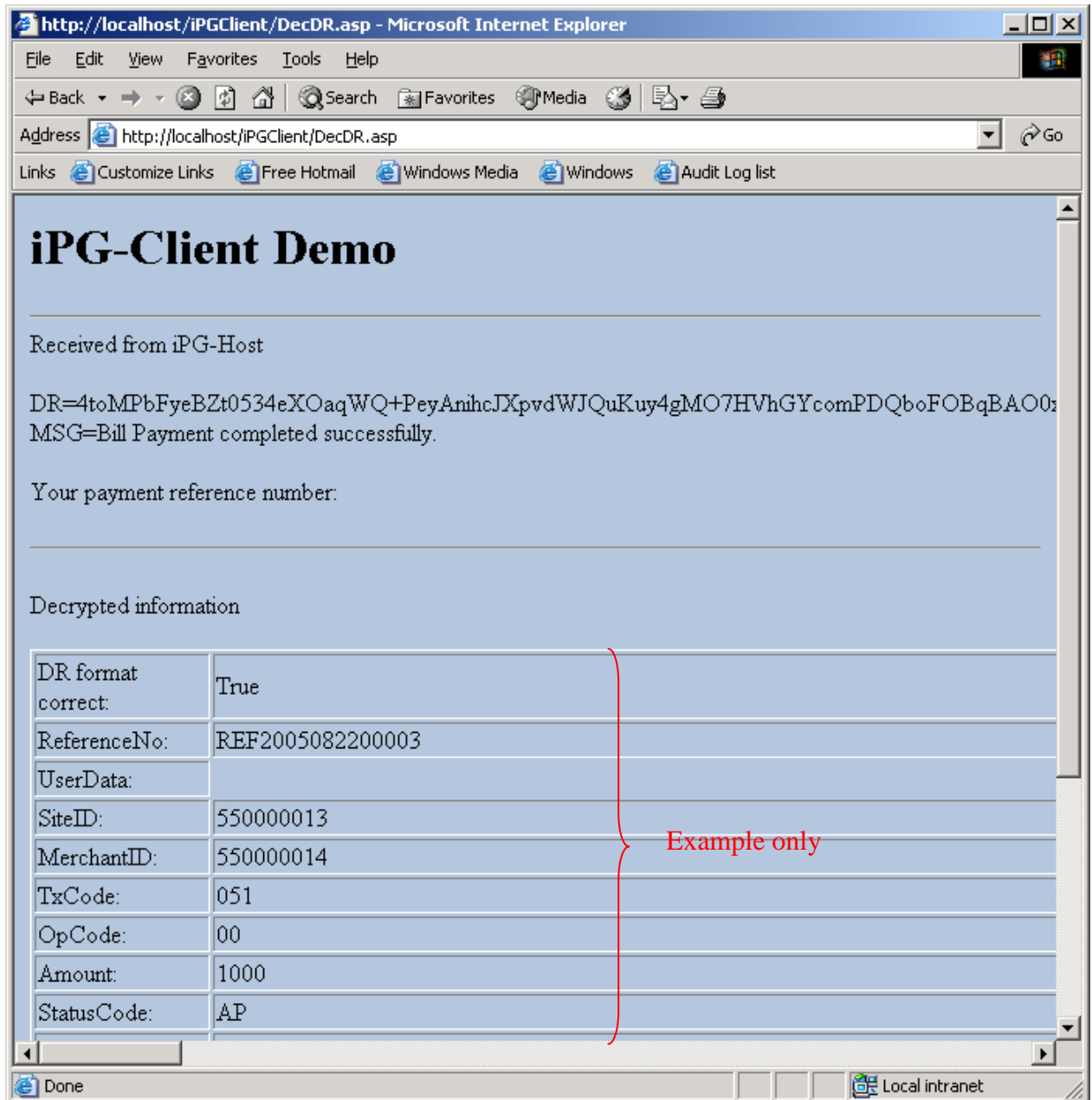
OTP is exempted for transactions from Merchants of certain categories, such as Educational Institution, Government or Statutory Organizations and Public Utility. Merchants will be notified by EPS Company (Hong Kong) Limited if two-factor authentication is required for their payments.

The following screen flow will be shown when the transaction requires two-factor authentication :-





Upon sending request to EPSCO and receiving a reply, an encrypted DR will be generated from iPG host and then sent back to the predefined URL as defined in the DO. In this case, this is the decDR ASP or servlet implementation.



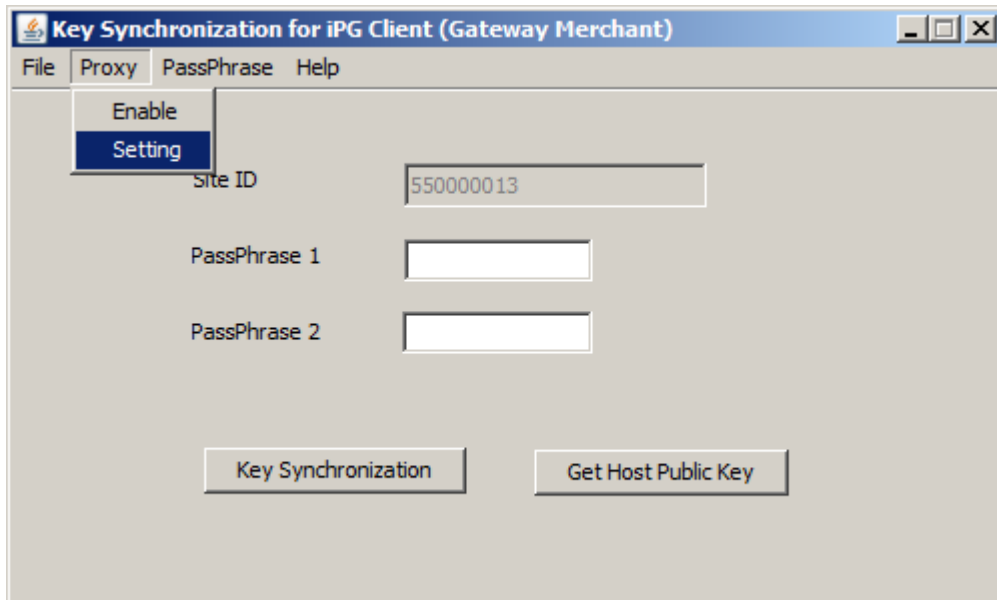
The DR is then decrypted by the COM or Servlet wrapped crypto library. For details on the decrypted fields, please refer to the Developer Guide Section 3.3 Process Reply.

6 Configuration and maintenance

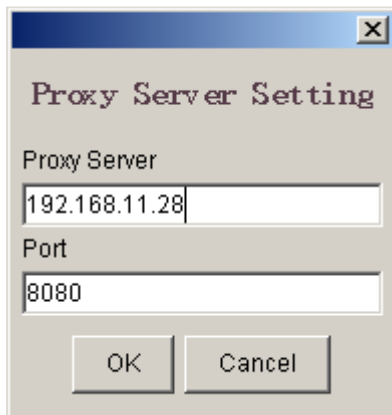
6.1 Key Synchronization and change passphrase

6.1.1 Proxy setting

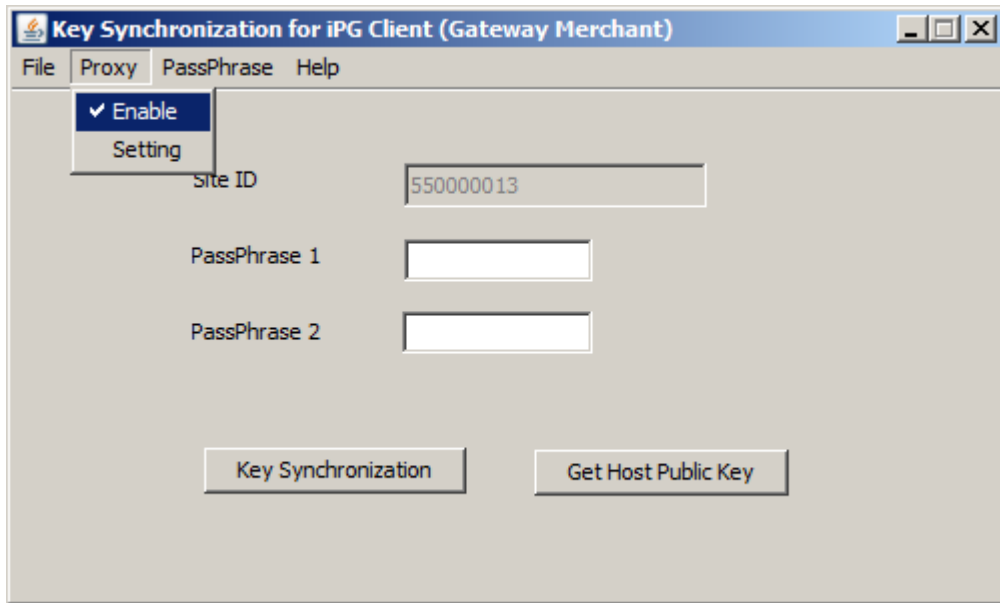
If your network only allows you to connect to outside network through proxy server, please go to the “Proxy” tab on the menu bar:



Enter the proxy server IP address and proxy server port number

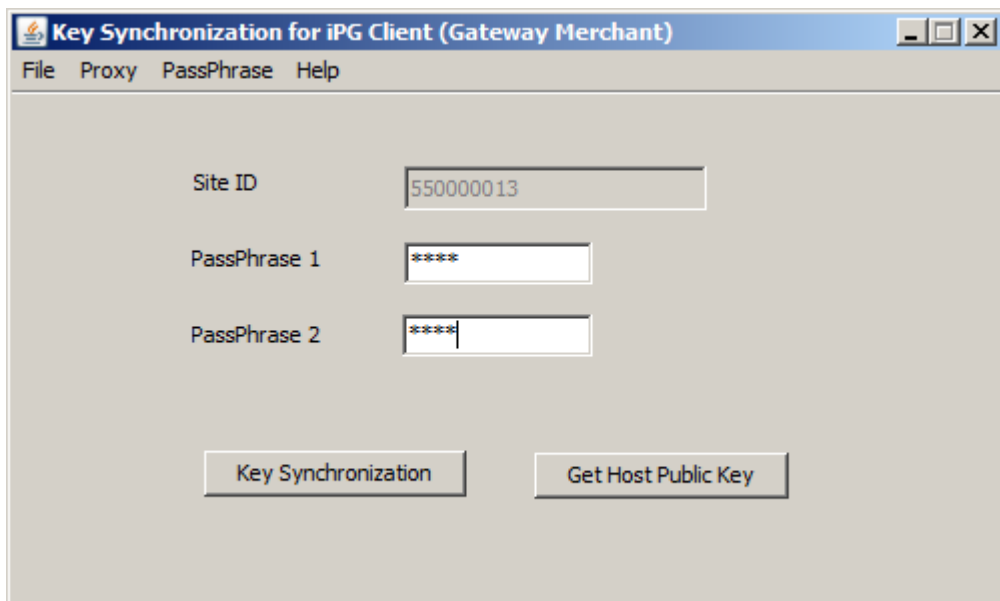


Finally, enable the proxy setting if confirmed.

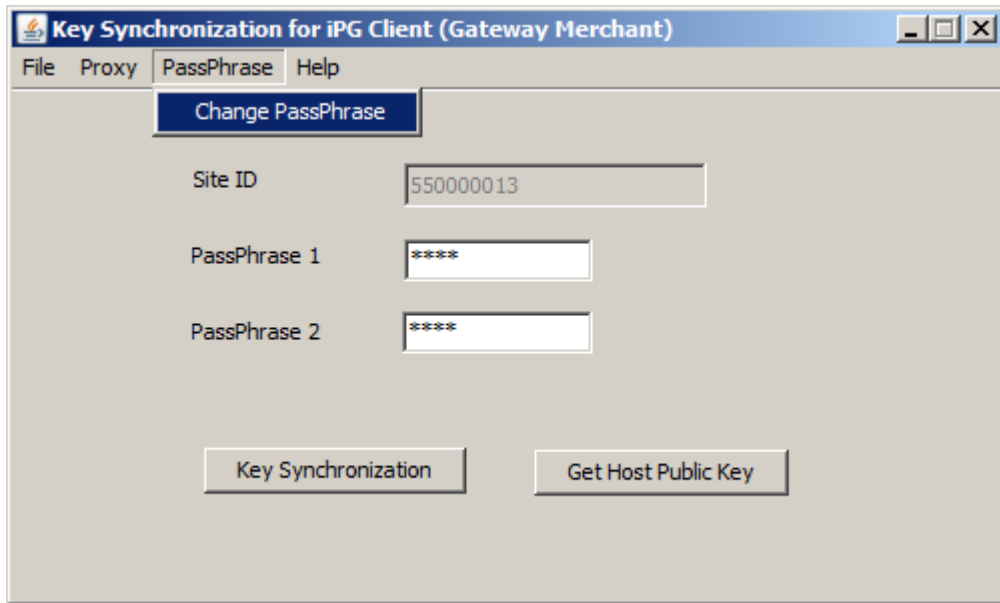


6.1.2 Essential procedure for the 1st time setup

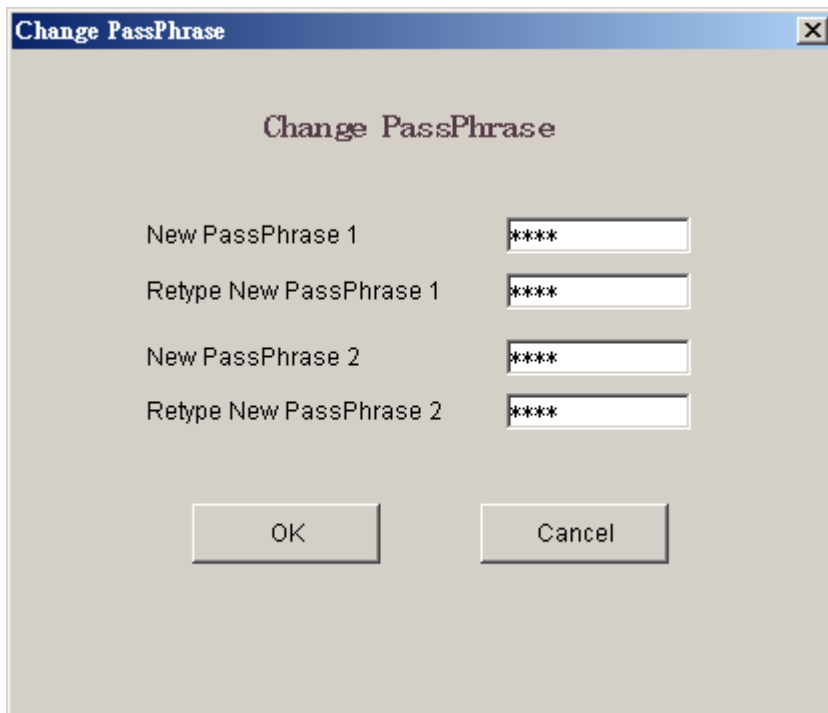
Step 1: [ENTER ORIGINAL PASSPHRASE]



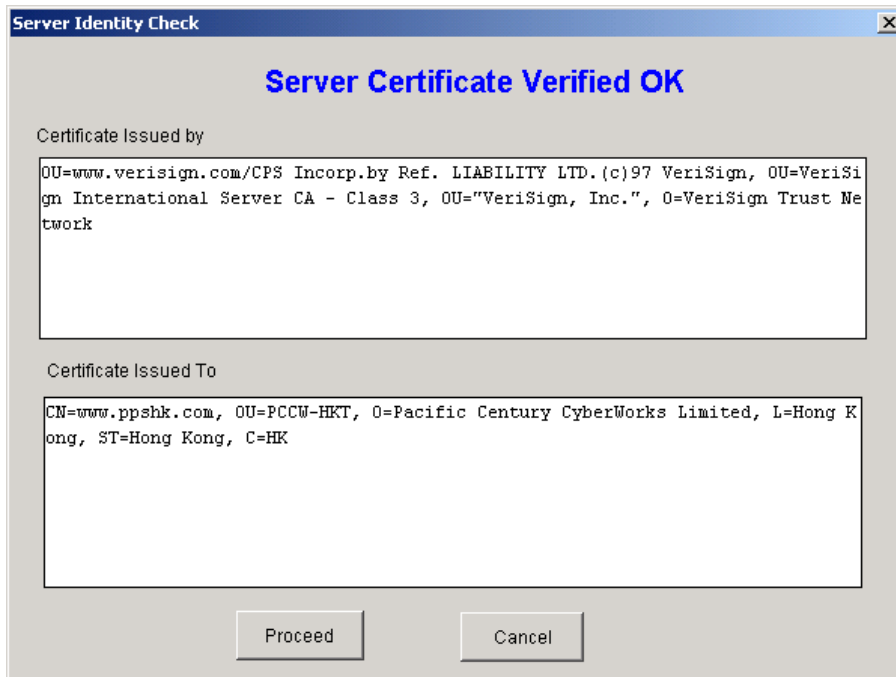
Step 2 [CHANGE PASSPHRASE FOR 1ST TIME SETUP]: Select the passphrase tab from the pull down menu.



Step 3: [ENTER NEW PASSPHRASE]



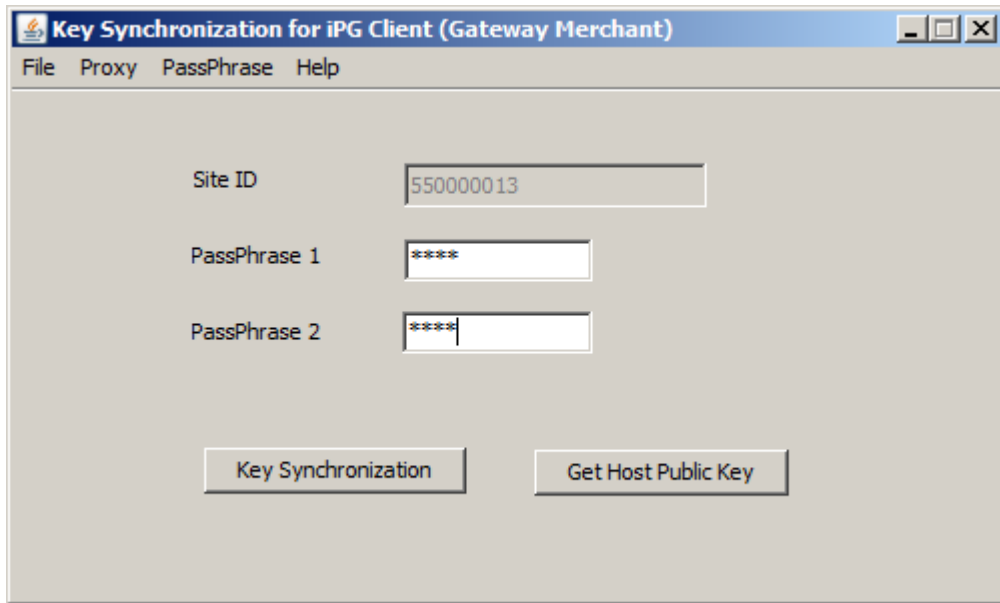
Step 4 [SUBMITS REQUEST TO HOST]: Pressing "OK" button will directly trigger the change passphrase process. The program will make an SSL connection to host and pop up a server identification dialog.



Step 5 [CHECK HOST IDENTITY]: User select to proceed, if there is anything wrong (e.g. passphrase wrong, HTTPS session failed, passphrase already changed, merchant account revoked, server request change passphrase ...) a dialog will be popped up and error is shown in the status bar of the main program frame.

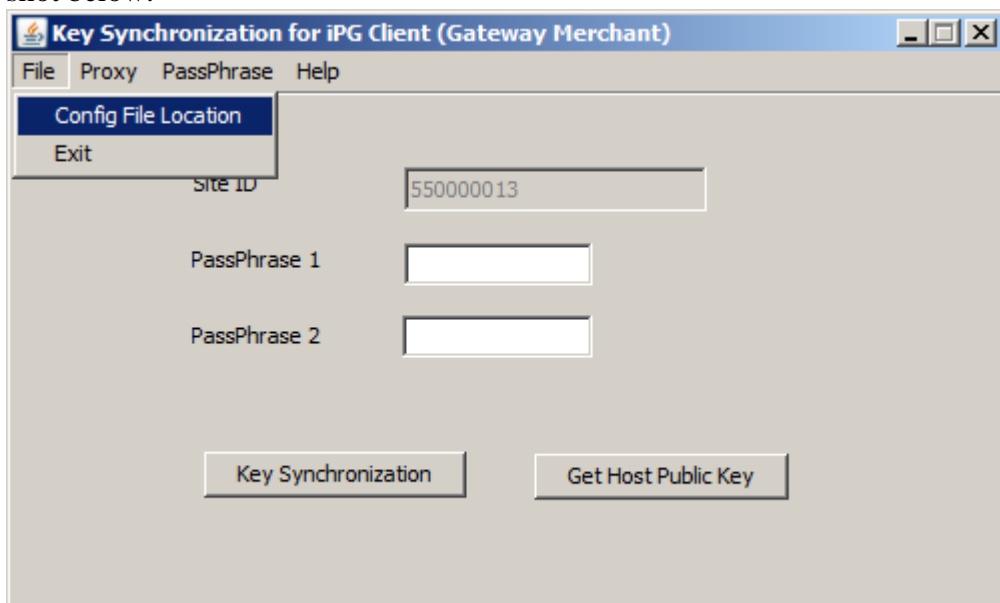


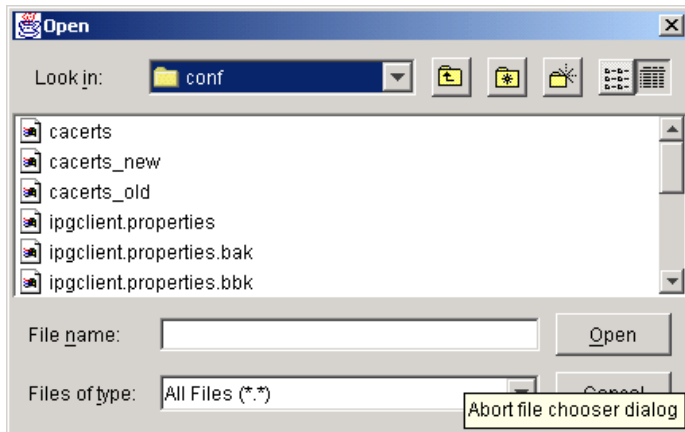
Step 7 [PERFORM KEY SYNC] : if everything is all right, the program will return to the normal main program screen. Re-enter the new passphrase and then click the “key synchronization” button.



6.1.3 Change the configuration file location

If you have a configuration file that is kept in different path, please set it by following the screen shot below:-





6.2 Regular synchronize of keys

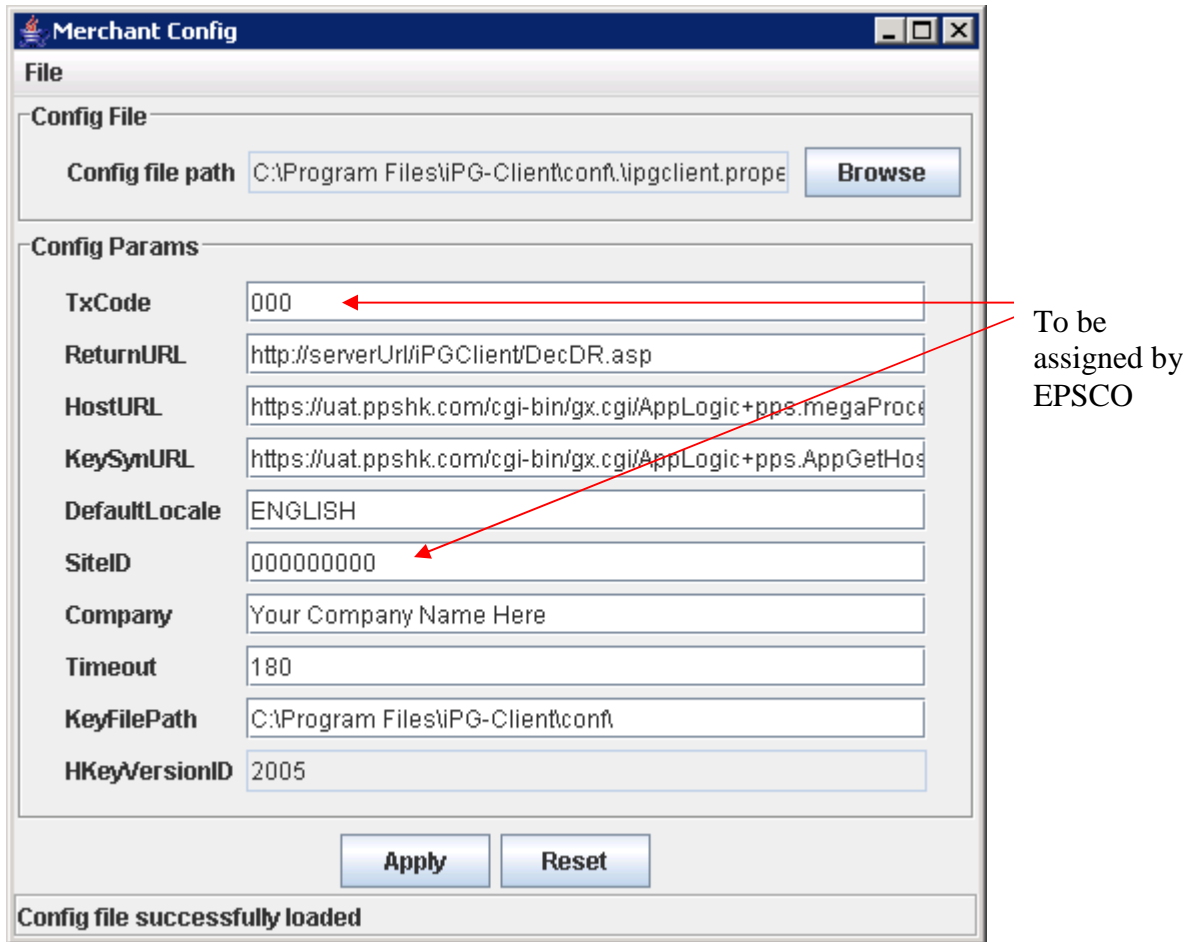
Gateway-merchants are required to perform key generation and synchronization with iPG-Host. IPG-Host's keys will be updated regularly and a new version of key pairs will be added to iPG-Host's key store.

6.3 Regular change of passphrases

Gateway-merchants are required to change their passphrases regularly in order to maintain the confidentiality of the passphrases.

6.4 Change merchant configuration

If any configuration change is required, you are suggested to use the Merchant Config application to update the configuration parameters. In Windows environment, a short-cut will be created in the Program menu for easy access. In Linux, Solaris and AIX environment, the application is installed at the "conf" directory.



The available configuration parameters are listed in the following table:

Configuration Parameter	Usage
TxCode	3-digit Transaction code assigned by EPSCO to identify the business type. Figure shown here and in this document is for reference only.
ReturnURL	iPG-Host will pass the return DR to Gateway-merchant by using http redirect to the ReturnURL. This is a Gateway-merchant side URL which is implemented by Gateway-merchant for DR decoding. Gateway-merchant server is responsible to redirect the decrypted values to the sub-merchant web services for displaying.
HostURL	iPG-Host URL which performs the payment process. The sub-merchant web store or the GenDO servlet/ASP will pass the DO and other required information to this HostURL by http redirect to initiate the payment process.
KeySynURL	iPG-Host URL which performs the key synchronization process. The Key synchronization program will connect to this URL to perform key synchronization, change passphrase, and get host public functions.
DefaultLocale	If no Locale value is passed to the GenDO servlet or ASP, this default value will be read by the GenDO servlet or ASP and then passed to

	the iPG-Host. A payment page with language in this default language will then be shown to the customer. This value should be either English (ENGLISH), Traditional Chinese (CHINESE) or Simplified Chinese (SIMCHIN).
SiteID	Gateway-merchant's ID assigned by EPSCO
Company	40-alpha numeric Company Description. If PayFor parameter is not passed to the GenDO servlet or ASP, this value will be read by the GenDO servlet or ASP and then passed to the iPG-Host. This value will then be displayed to the customer in the payment page.
Timeout	No response timeout allowance (in seconds), counting from the iPG-Host received the request to the payment complete. It must be in a minimum of 60 (sec). For transactions that two-factor authentication is required, it is suggested to set the timeout value to 240 (sec) so that there is sufficient time to complete the payment process.
KeyFilePath	The path which stores the key files used in both GenDO servlet/asp and KeySync
HKeyVersionID	Field updated by KeySync utility. It refers to the version of the iPG-Host public key.

By default, the application will load the config file in the “conf” directory with the name “ipgclient.properties”. You can select another config file under the File menu or just click Browse to select another one. If you want to use other config file, make sure that the GenDO servlet, GenDO.asp page or your custom implementations are also changed to use the new config file. GenDO servlet can be changed to use other config file by editing the web.xml at the servletWebstore directory. GenDO.asp and custom implementation can be changed by calling the iPGClient object's setConfigFile function.

Once you have finished the configuration parameters changes, you can save the configuration by clicking “Apply”. The application will check all the fields before they are saved. If there is any error in any field, an error dialog will be displayed and the error fields will be displayed in the status bar.

7 Multi-servers environment

In the Multi-servers environment (i.e. using more than one server as iPG-Client), the following points should be noticed:-

1. Key Sync should only be done in ONE machine. Hence during the installation of iPG-Client on the second machine, the Key Sync application should be exited without actually performing the Key Sync function.
2. Merchant Config could be ignored as the config file will be copied from the first machine. Hence during the installation of iPG-Client on the second machine, the Merchant Config application could be exited without actually performing the configuration.
3. Manual copy of key files (MyRSAKey and OppRSAKey) and config file (ipgclient.properties) under the conf directory from the first machine and replace that in the second machine.

4. Modify properties values (eg. Key File Path) as necessary if settings in the second machine are different.

8 Troubleshooting

8.1 Exception handling in key synchronization and change passphrase

Item	Exception	Resolution
1	Invalid passphrase	<ul style="list-style-type: none"> • The passphrase length is not correct. • Passphrase can be alphanumeric.
2	Host public key is already the latest	<ul style="list-style-type: none"> • This means that you have the latest key already, so, getting the latest public key from host is not affected.
3	Https exception	<ul style="list-style-type: none"> • The connection to iPG-Host has disconnected with unknown reason. Retry the action or check if the iPG-Host is SSL enabled.
4	Config file not found	<ul style="list-style-type: none"> • The merchant id is blank in the main screen. • Check on the config file location and set it up as in the “Change the configuration file location” section
5	Key file pathname not found	<ul style="list-style-type: none"> • Check if the key file location is in correct place.
6	Operation timedout	<ul style="list-style-type: none"> • Check to see if the keysync URL in the config file is correctly set. • Check the proxy server setting if required • Check the host status by calling the EPSCO Operation Team (for Production) or EPSCO Project Team (for Testing)²
7	Passphrase is wrong	<ul style="list-style-type: none"> • IPG-Host returned that you have keyed in the wrong passphrase. Retry for max of 3 times. Case-insensitive. • Check if your merchant ID is correctly set in the config file.
8	Change passphrase is required	<ul style="list-style-type: none"> • Merchant is not activated and all function is not allowed for the 1st time. IPG-Client is required to change the passphrase and then generate the local RSA key pair to re-enable the merchant.
9	Merchant is revoked	<ul style="list-style-type: none"> • If wrong passphrase has been entered for 3 times, the merchant is revoked and please check with EPSCO Operation Team (for Production) or EPSCO Project Team (for Testing)² for help.
10	Server certificate is not trusted	<ul style="list-style-type: none"> • Check if the trusted CA certificate is in good position. • Check if the Url is set correctly.

² Please refer to the FAQ on iPG services for contact details.

- | | | |
|-----------|--|---|
| 11 | Received host public key is same as previous but key id is different | <ul style="list-style-type: none"> ● Check if iPG-Host has installed the correct server certificate. ● The server is not a trusted server. EPSCO Operation Team (for Production) or EPSCO Project Team (for Testing)³. ● IPG-Host has changed the key id but the host public key has not been changed. Check with EPSCO Operation Team (for Production) or EPSCO Project Team (for Testing)³ for assistance. |
| 12 | Received host public key or key id is not in expected format | <ul style="list-style-type: none"> ● IPG-Host problem. |

³ Please refer to the FAQ on iPG services for contact details.

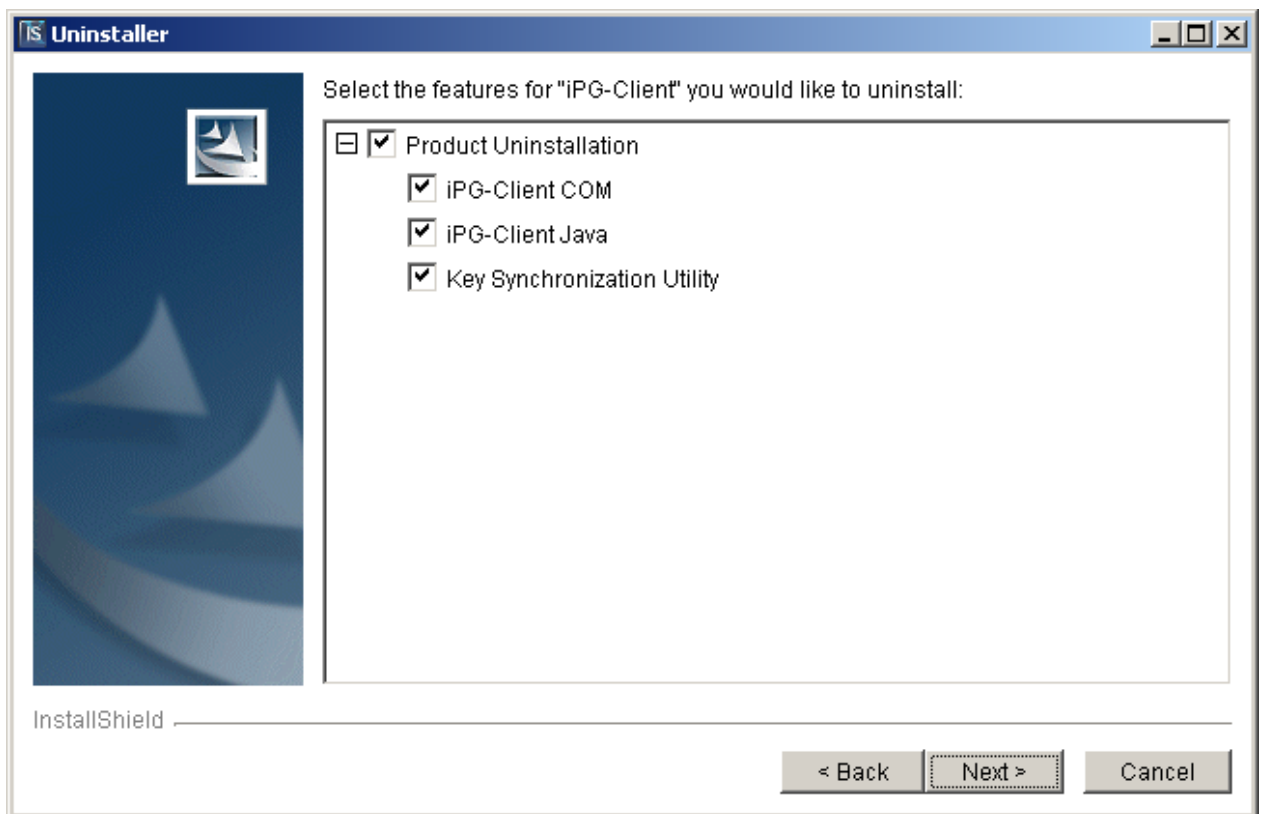
9 Removing IPG-Client software

If you are using Windows environment:

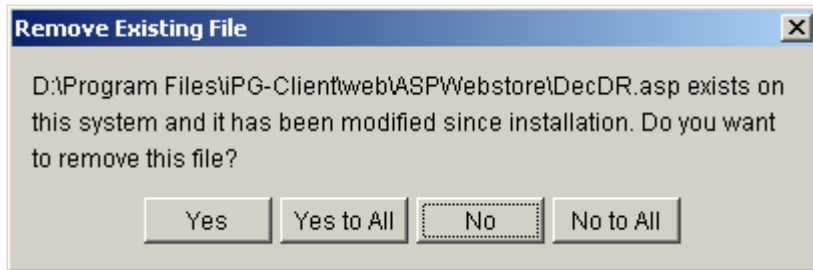
- Go to control panel
- Select add/remove programs
- Choose iPG-Client software and click to uninstall

If you are using Solaris/Linux/AIX environment:

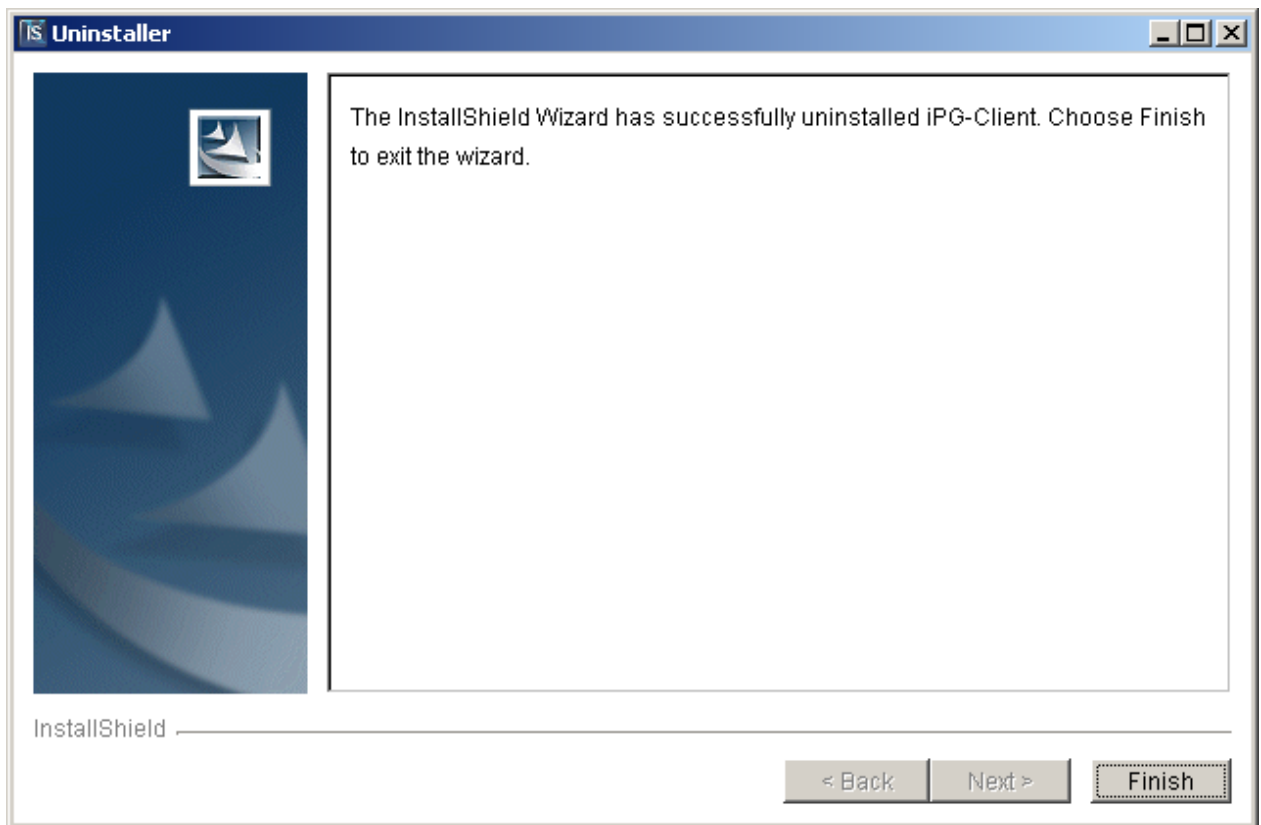
- Go to <IPG-CLIENT BASE DIR>/_uninst
- Run uninstall.bin



Select the component and follow the instructions on screen to remove.



Select “Yes to ALL” to remove everything related to iPG-CLIENT.



Once this screen is popped up, un-installation process is completed.

** However, the <iPG CLIENT BASE DIR> is not removed automatically. To completely remove the software, please remove the <IPG CLIENT BASE DIR> also **

10 Upgrade from previous version

When upgrade the iPG-Client from the previous version, the following points should be noticed:-

1. Manual backup of key files (MyRSAKey and OppRSAKey) and config file (ipgclient.properties) under the conf directory.
2. Uninstall the previous version of iPG-Client.
3. Install new version of iPG-Client and replace the conf directory with backup. Hence during the installation of iPG-Client, the Key Sync & Merchant Config application could be exited without actually performing any actions.

run. Searching for one on your computer was not successful. Please use the command line switch `-is:javahome` to specify a valid JRE. For more help use the option `-is:help`.

Solution:

Run the following command to extract the Setup JAR files.

```
./setupLinux.bin -is:extract
```

Then changes to the temp directory returned from the above command and enter:

```
java -jar setup.jar
```

It will then launch the installer program.

5. The current installation package for Solaris is SUN SPARC based. In order to migrate to an x86 Intel based Solaris platform, the packaged iPGClient Java setup program can be extracted and installed independent of the processor of the platform.

Solution:

Run the following command on SUN SPARC to extract the iPGClient setup JAR files.

```
./setupSolaris.bin -is:extract
```

Then changes to the temp directory returned from the above command and copy the setup.jar to the x86 based platform and enter:

```
java -jar setup.jar
```

It will then launch the installer program. Please note that the x86 based platform must already have the Java runtime environment installed.

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IPG-Client (Gateway-merchant/Sub-merchant) 1.10 Installation Guide

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