



PL/PDF Toolkit
Manual Installation Guide
v2.0.0



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1. System requirements

Oracle 11g RDBMS Release 1 or higher with **Oracle Jserver(JVM)**
Oracle 11g Express Edition is **not** supported.

2. Get the PL/PDF Toolkit program

Please download the program from www.plpdf.com/downloads. Unzip the plpdf-toolkit.zip into a directory (<unzip_directory>), example c:\downloads.

3. Create the PLPDF_TK user (if separated install from PLPDF)

Start SQL*Plus and connect with an administrator user (example system) to the database. Create the PLPDF_TK user. This example only shows how to create a minimal user (script: 1_create_user.sql). Check out Oracle 11g SQL Reference on how to set up a user:

http://docs.oracle.com/cd/B28359_01/server.111/b28286/statements_8003.htm

```
CREATE USER plpdf_tk IDENTIFIED BY plpdf_tk;  
GRANT CONNECT TO plpdf_tk;  
GRANT RESOURCE TO plpdf_tk;
```

Another way you can execute 1_create_user.sql file as administrator user.

4. Prepare Database for Unicode

Use LoadJava utility to load "International Components for Unicode" API libraries.

```
loadjava -user <username>/<password>@<database> -f -v -r -  
jarsasdbobjects icu4j-<version>.jar
```

We used icu4j-3_8_1.jar (Installkit contains this file).
You can download jar from <http://site.icu-project.org/download>.

You have an easier way. Simply use the loadjar_icu4j.cmd file.

5. Prepare Database for AES128 Encryption

Use LoadJava utility to load "Bouncy Castle" Crypto API libraries.

```
loadjava -user <username>/<password>@<database> -f -v -r bcprov-<jdk-  
version>-<num>.jar  
loadjava -user <username>/<password>@<database> -f -v -r bcpmail-<jdk-  
version>-<num>.jar
```

We used bcprov-jdk14-132.jar and bcpmail-jdk14-132.jar (Installkit contains these files).

You can download jars from
http://www.bouncycastle.org/latest_releases.html.

You have an easier way. Simply use the loadjar_bcpmail.cmd and loadjar_bcprov.cmd files.



6. Prepare Database for PublicKey Encryption

The Bouncy Castle app is dependent on 3 security interfaces from JDK 1.5 rt.jar that are missing from the Oracle 11.2 JVM and attempting to load will receive an error such as: ORA-29552: verification warning: java.lang.NoClassDefFoundError: java/security/interfaces/ECPrivateKey

To fix this error:

Change working directory to the location of the supplied JDK 1.5.

```
$ORACLE_HOME/jdk/jre/lib
```

Extract the 3 missing classes from rt.jar (or security.jar).

```
jar xvf rt.jar java/security/interfaces/ECKey.class
jar xvf rt.jar java/security/interfaces/ECPrivateKey.class
jar xvf rt.jar java/security/interfaces/ECPublicKey.class
```

Use ls utility to confirm the classes were extracted.

```
ls -l java/security/interfaces
-rw-r--r-- 1 oracle oinstall 177 May 4 2011 ECKey.class
-rw-r--r-- 1 oracle oinstall 306 May 4 2011 ECPrivateKey.class
-rw-r--r-- 1 oracle oinstall 309 May 4 2011 ECPublicKey.class
```

Use LoadJava utility to load the classes into the sys schema.

```
loadjava -u sys/sys -s java/security/interfaces/ECKey.class
loadjava -u sys/sys -s java/security/interfaces/ECPrivateKey.class
loadjava -u sys/sys -s java/security/interfaces/ECPublicKey.class
```

Start SQL*Plus and connect with an administrator user (example system) to the database. Grant the execute privileges to public and resolve the loaded classes.

```
grant execute on "java/security/interfaces/ECKey" to public;
grant execute on "java/security/interfaces/ECPublicKey" to public;
grant execute on "java/security/interfaces/ECPrivateKey" to public;

alter java class "java/security/interfaces/ECKey" resolve;
alter java class "java/security/interfaces/ECPrivateKey" resolve;
alter java class "java/security/interfaces/ECPublicKey" resolve;
```

Change directory to location of the bouncy castle jar file and load it into the database using LoadJava utility. We used bcprov-jdk14-132.jar (Installkit contains this file). You can download jar from http://www.bouncycastle.org/latest_releases.html.

```
loadjava -user <username>/<password>@<database> -r -v -f -s -g
public -genmissing -jarsasdbobjects bcprov-<jdk-version>-<num>.jar
```

7. Java grants

Start SQL*Plus and connect with an administrator user (example system) to the database.

```
dbms_java.grant_permission( '<USERNAME>',
'SYS:java.security.SecurityPermission', 'putProviderProperty.BC', ''
);
```



```
dbms_java.grant_permission( '<USERNAME>',  
'SYS:java.security.SecurityPermission', 'insertProvider.BC', '' );  
  
dbms_java.grant_permission( '<USERNAME>',  
'SYS:java.security.SecurityPermission', 'insertProviderProperty.BC',  
'' );  
  
dbms_java.grant_permission( '<USERNAME>',  
'SYS:java.lang.RuntimePermission', 'getClassLoader', '' );  
  
dbms_java.grant_permission( '<USERNAME>',  
'SYS:java.io.FilePermission', 'com\plpdf\res\-', 'read' );  
end;
```

Another way you can execute `java_grant.sql` file as administrator user.

8. Load plpdf_toolkit.jar file

Use LoadJava utility to load `plpdf_toolkit_v200.jar` file.

```
loadjava -user <username>/<password>@<database> -f -v -r  
plpdf_toolkit_v200.jar
```

You have an easier way. Simply use the `loadjar.cmd` file.

9. Install MergeX storage table

CONNECT `plpdf_tk/plpdf_tk@<database>` and execute this command (command from SQL*Plus).

```
@<unzip directory>\plpdf_tk_merge_inputs.sql;
```

10. Install PLPDF_TOOLKIT packages

CONNECT `plpdf_tk/plpdf_tk@<database>` and execute this command: **set scan off;** ("Set scan off" turns off substitution variables.)

Load the parameter package (command from SQL*Plus):

```
@<unzip directory>\plpdf_toolkit_par.sql;
```

Load the toolkit package (command from SQL*Plus):

```
@<unzip directory>\plpdf_toolkit.sql;
```

11. Install PLPDF_XFDF packages (optional)

CONNECT `plpdf_tk/plpdf_tk@<database>` and execute this command: **set scan off;** ("Set scan off" turns off substitution variables.)

Load the XML package (command from SQL*Plus):

```
@<unzip directory>\plx_sc.sql;
```

Load the XFDF package (command from SQL*Plus):

```
@<unzip directory>\plpdf_xfdf.sql;
```

PDF 1.4 CMap and Unicode Mapping Files

The files in this folder contain the predefined CMap files for PDF 1.4. These files are of two types:

- *Standard CMap files* — for core CJK fonts supported by PDF 1.4, they map character codes to CID numbers. These CMaps are listed in Chapter 5 of the PDF Reference.
- *Unicode Mapping files* — map character codes to Unicode values. They use the CMap file format, but technically they are not true CMap files unless they map character codes to CID numbers. These files are provided in the download files for Acrobat Reader.

A complete list of PDF 1.4 CMap files and the associated Unicode mapping files are shown in the table on the following page. Table contents include:

- For each language, an identity CMap file is provided. That identity CMap file is named with the name of the Character Collection it supports, for example, The identity CMap for Simplified Chinese is *Adobe-GB1-4*.
- The first Unicode mapping file for each language (shown in the last column in each section) is of the form *Adobe-GB1-UCS2*, which maps from the CID numbers for the Adobe-GB1 Character Collection (for example) to Unicode values.
- Entries following the Unicode mapping file for the character collection – are ones that map from CID number, for a particular CMap encoding to a Unicode value. Technically, these files are not true PDF CMap files, though they use the same format. An example would be: *GBK-EUC-UCS2*, where *GBK-EUC* refers to a specific CMap encoding, and this file maps from the character codes for that encoding, to Unicode values.

More information on CMap files and the Adobe Character Collections can be found at:

<http://partners.adobe.com/asn/developer/technotes/main.html>

Chinese Simplified

PDF 1.4 Font CMapc

Char Code to Unicode Mapping files

Adobe-GB1-4
GBK-EUC-H
GBK-EUC-V
GBpc-EUC-H
GBpc-EUC-V

GBT-EUC-H
GBT-EUC-V
GB-EUC-H
GB-EUC-V

UniGB-UCS2-H
UniGB-UCS2-V
GBKp-EUC-H
GBKp-EUC-V
GB2K-H
GB2K-V

Adobe-GB1-UCS2
GBK-EUC-UCS2
GBpc-EUC-UCS2
GBpc-EUC-UCS2C

Chinese Traditional

PDF 1.4 Font CMap Files

Char Code to Unicode Mapping files

Adobe-CNS1-4
B5pc-H
B5pc-V
CNS-EUC-H
CNS-EUC-V
UniCNS-UCS2-H
UniCNS-UCS2-V

ETen-B5-H
ETen-B5-V
ETenms-B5-H*
ETenms-B5-V*
(* Same as ETen-B5, but Latin
characters are proportional)

Adobe-CNS1-UCS2
ETen-B5-UCS2
B5pc-UCS2
B5pc-UCS2C

Japan

PDF 1.4 Font CMap Files

Char Code to Unicode Mapping files

Adobe-Japan1-4
83pv-RKSJ-H
90ms-RKSJ-H
90ms-RKSJ-V
90msp-RKSJ-H
90msp-RKSJ-V
90pv-RKSJ-H

Add-RKSJ-H
Add-RKSJ-V
EUC-H
EUC-V
Ext-RKSJ-H
Ext-RKSJ-V

UniJIS-UCS2-H
UniJIS-UCS2-V
UniJIS-UCS2-HW-H
UniJIS-UCS2-HW-V
H
V

Adobe-Japan1-UCS2
90ms-RKSJ-UCS2
90pv-RKSJ-UCS2
90pv-RKSJ-UCS2C

Korean

PDF 1.4 Font CMap Files

Char Code to Unicode Mapping files

Adobe-Korea1-2
KSCms-UHC-H
KSCms-UHC-HW-H
KSCms-UHC-HW-V

KSCms-UHC-V
KSCpc-EUC-H
KSC-EUC-H
KSC-EUC-V

UniKS-UCS2-H
UniKS-UCS2-V

Adobe-Korea1-UCS2
KSCms-UHC-UCS2
KSCpc-EUC-UCS2
KSCpc-EUC-UCS2C