Java Applet Installation Guide (V3.3)

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1. Overview

This document describes how to install an applet to JVM (Java virtual Machine). There are two methods provided to install applet.

2. Method 1: GP tool

The following describes how to install an applet by GP tool.

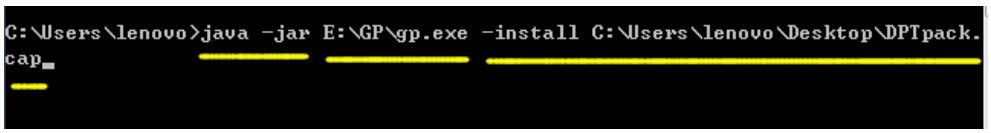
2.1. GlobalPlatformPro

Please refer to the website: https://github.com/martinpaljak/GlobalPlatformPro, and Download latest pre-built .JAR or .EXE from release area.

2.2. Install Applet

Install applet.cap (with AID information from the CAP) and go with GP command:

java -jar gp.jar -install applet.cap



3. Method 2: APDU Flow

The following describes how to install an applet by APDU flow.

3.1. Related Parameters

Before installing the applet, please note of the following points:

(1) Before installing the applet, you need to obtain the AID information set when the CAP package is compiled. The AID information used in the sample process is as follows:

Package AID: 0x113355770000

Applet AID: 0x113355770001

Instance AID: 0x113355770001

(2)Secure Channel

Supported Secure Channel Protocol is 'SCP 02', option i = 15: Initiation mode explicit, C-MAC on modified APDU, ICV set to zero, ICV encryption for CMAC session, 3 Secure Channel Keys

(3)Default Session Keys

KEYs	Default Value
S-MAC	404142434445464748494A4B4C4D4E4F
S-ENC	404142434445464748494A4B4C4D4E4F
DEK	404142434445464748494A4B4C4D4E4F

3.2. Installing the Applet

To install the applet:

1. Open the Card reader.

2. Send SELECT to select ISD APDU (00A4040000).

3. Initiate the Secure Channel (INITIALIZE UPDATE and EXTERNAL AUTHENTICATE).

4. Send INSTALL [for Load] (80/84 E6 02 00…).

5. Send LOAD (80/84 E8 00 00…).

6. Send INSTALL [for Install] (80/84 E6 0C 00…).

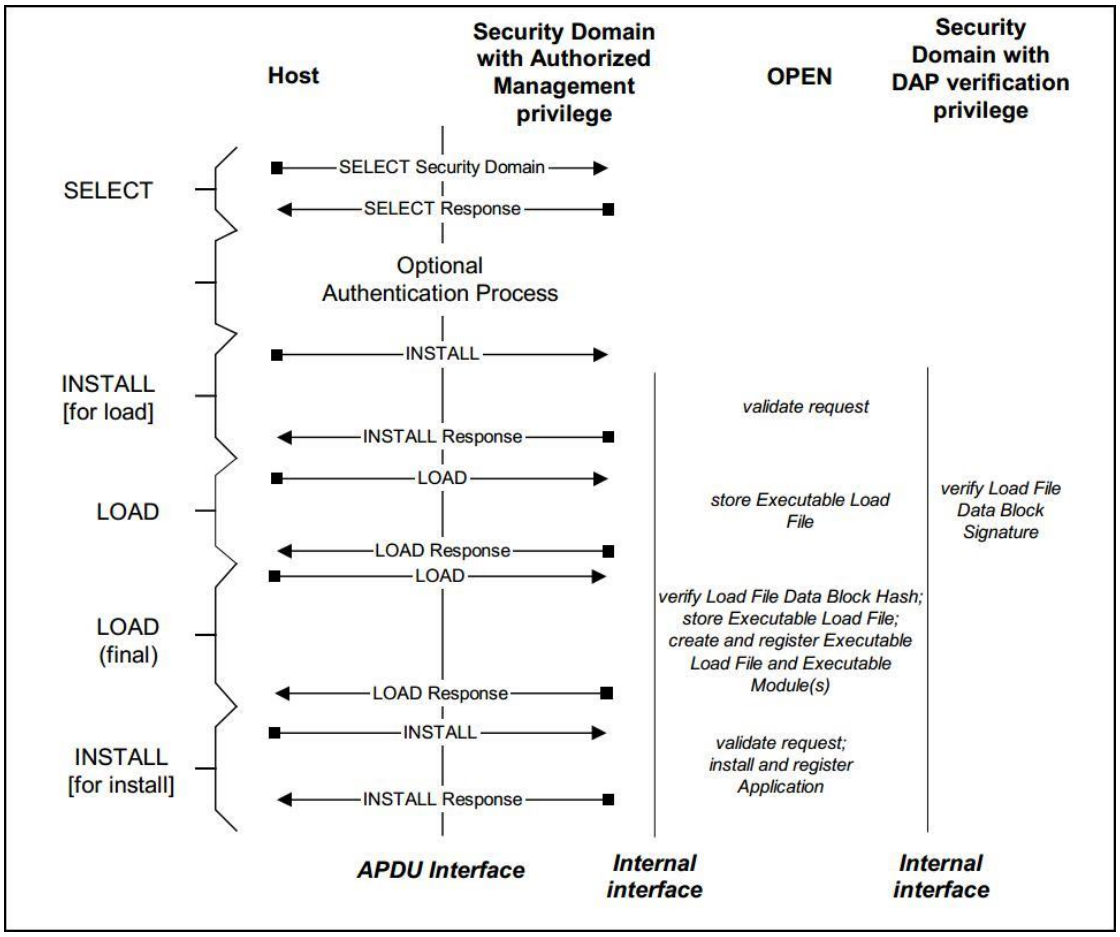


Figure 1: Applet Installation Flow

3.3. APDU Flow for Sample Applet Installation

（1）Select ISD

-> 00A4040000

<- 6F1B8408A000000003000000A50F730906072A864886FC6B019F6501FF（9000）

（2）Send INITIALIZE UPDATE

(with 8 bytes random number as Host Challenge)

-> 8050000008 D6B4BDC3B619EB02

<- 00006180123456780001FF0200040843E81CC9FFF3DB2F2420584EEA（9000）

（3）Send EXTERNAL AUTHENTICATE

(Host cipher: 6886B6F095B1DD10 C-MAC: 0BA974CA77E2DEF8)

-> 8482000010 6886B6F095B1DD10 0BA974CA77E2DEF8

<-（9000）

（4）INSTALL[for load]

-> 80E6020013 0611335577000008A0000000030000000000000

<- 00（9000）

（5）LOAD

-> 80E80000C0

C482017D010015DECAFFED020204000106113355770000047261 6E6402002100150021000
A00150042000E0098000A001B0000009E02E60000000000000201000400150202010 7A000
0000620101020107A0000000620102030 00A0106113355770001001706000E00000080030
2000207010000002B07009800031 0188C00071807058D000B870018058D000E87017A0530
8F00063D8C000F181D0441181D258B00087A0221188B000560037A198B000C2D1A032560
08116E008D000A1A0425

<- 00（9000）

-> 80E80001C0

7500140002FF84000D0001001A18198C00027008116D008D000A7A0522198B000C2D1A07
2532181F8C00093BAD00031A081F8D000D3B19081F8B00037A0420181D900B8700AD01AD
00031D8B0004AD007708000A0000000000000000000000500420010020002010200020006 0
0006203800A0803810E0103800303010002000680030003800302060000840680070106 80
080D03800A010680100206810E0006000001090 01B00070E075F170202070010050607080
40A07070C1508070A0A07

<- 00（9000）

-> 80E8800201 12

<- 00（9000）

（6）INSTALL[for install]

-> 80E60C001B 0611335577000006113355770001061133557700010100002C90000

<- 00（9000）

3.4. Removing Executable Load Files

(1) Detail for APDU: (DELETE)

Format: 80 E4 00 00 Lc Data

Example: 80/84 E4 00 00/80 Lc 4F AIDlen AID

(2) For the applet installed in step 3.0, the removing APDU is following:

-> 80E4008008 4F06113355770000

<- 00（9000）