Connected Sentinel Player Signing Process Guide

Product Version 1.0

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Contents

Introduction

This guide explains the process of signing the SO (shared object) files that are used in parallel to the SP-SDK (SecurePlayer SDK). This procedure is mandatory for using the SP-SDK.

note
OpenSSL should be install on the computer before starting sections 3 and 4.

SDL (Secure dynamic loading) is based on build-time signing of binary modules followed by load-time verification of these modules. By ensuring that only properly-signed modules are loaded and used by the application, the mechanism blocks classes of code-injection attacks that use the dynamic loading interfaces.

As an obvious extension, the secure dynamic loading mechanism also covers signing and verification of developer-controlled configuration files, to prevent those from enabling attacks (by malicious changing of security-relevant configuration parameters).

The secure dynamic loading mechanism integrates with a separate secure runtime code-monitoring mechanism, intended to detect post-loading attempts to modify the code in memory.

Target Audience

This document is intended for developers writing a player application based on the SecurePlayer SDK and need to add an SO file/s to their application.

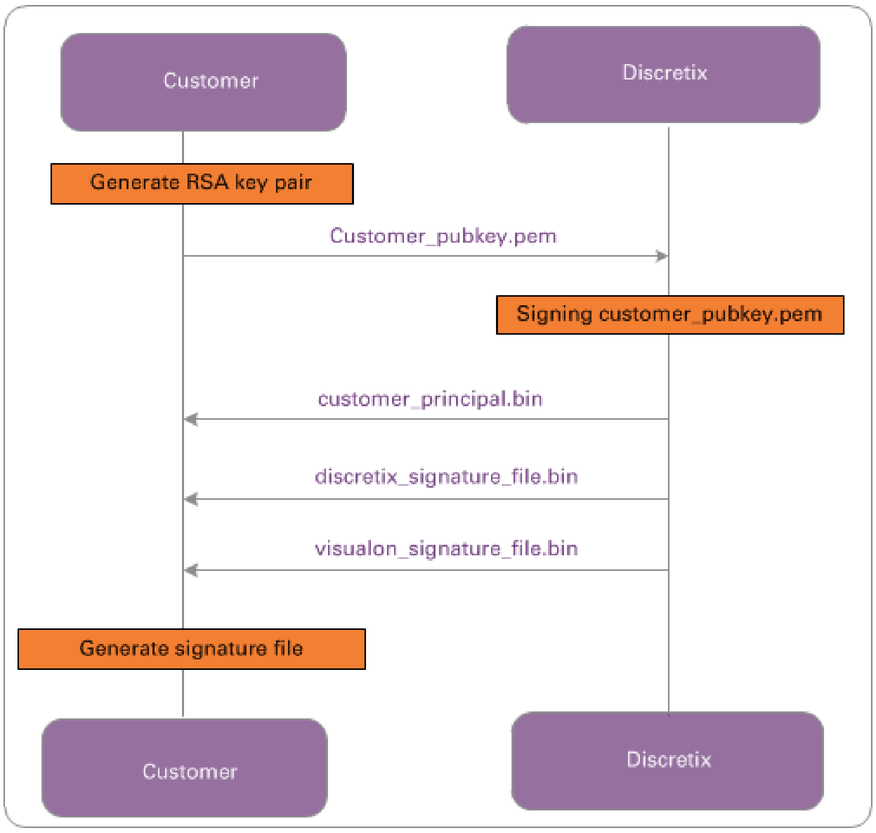
Glossary

This manual contains a lot of acronyms or terms that are specific to the field of the Viaccess-Orca Conditional Access System. If they are not defined within the text, refer to the *Glossary* on page 8 at the end of the manual for a complete definition.

Signing Process

Overview

The diagram below explains the Secure Player signing process:



Generate RSA key pair

The RSA key pair should be generated once as follow:

note

<Name> should be replaced by something that will represent your organization and MUST be consistent throughout the entire process.

```
openssl req -newkey rsa:2048 -keyout <Name>_prikey.pem -passout pass:<choose password> -subj "/CN=<Name>" -out <Name>.pem
openssl req -in <Name>.pem -verify -noout -pubkey -out <Name>_pubkey.pem
```

The command operations yield <Name>.pem, <Name>_pubkey.pem, <Name>_privkey.pem

Only <Name>_pubkey.pem will be send to Discretix (this is the only key that should be sent to Discretix as part of the SDL process).

```
-o <Name>_principal.bin
```

Generate Signature binary

All SO files that the application needs to load must be added to the signature binary.

The signature binary is generated by `DxDlcSignatureFileGeneratorTool.exe` and should be generated as follows:

```
DxDlcSignatureFileGeneratorTool.exe -key <xxx_prikey.pem> -keysig <xxx_princi-
pal.bin> -v <SecurePlayer Package Name> -f <First SO path> -f <Second SO path> -
f <Third SO path> ……… -sigf discretix_signature_file.bin -sigf visualon_signa-
ture_file.bin -o libDxSig.so
```

note

The files <xxx_principal.bin>, `discretix_signature_file.bin` and `visualon_signature_file.bin` will besupplied by Discretix after the customer will send to Discretix the <Name>_pubkey.pem file.

For instance:

```
DxDlcSignatureFileGeneratorTool.exe -key C:\Dir\<Name>_prikey.pem -keysig
C:\Dir\<Name>_principal.bin -v GENERAL_ANDR_VOP_PROB_RC_02_00_00_0000 -f
C:\Dir\lib1.so -f C:\Dir\lib2.so -f C:\NOW_SDL\lib3.so -f -sigf
C:\Dir\discretix_signature_file.bin -sigf C:\Dir\visualon_signature_file.bin  -
o C:\Out_Dir\libDxSig.so
```

The libDxSig.so should be added to the project that use the SP-SDK.

Glossary

Definitions of technical terminology and acronyms are listed in the table below:

Term	Definition
SDP	Session Description Protocol
SO	Shared Object
SP-SDK	Discretix Secure Player SDK