

SafeSign IC Minidriver Version 4.2

Release Document for Windows

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Table of Contents

Warning Notice	2
Table of Contents	3
Document Information.....	5
1 About this Document	6
2 Release Information	7
2.1 Deliverables.....	7
2.2 Release Date	7
2.3 Release Details	7
2.4 Windows 64-bit	9
2.5 Release Documents.....	9
3 Features	10
3.1 Multiple Token Support	10
3.2 Multiple Smart Card Reader Support	10
3.3 Multiple Application Support	11
3.4 Multiple Languages Support	11
3.5 Activate QSCD Card Support	12
3.6 RSA 4096-bit Key Support	13
3.6.1 Extended APDU	13
3.7 ECC Key Support	14
3.8 Microsoft WHQL certified (read-only) Minidriver	15
4 New Features and Fixes	17
4.1 New	17
4.2 Fixed	17
5 Known Issues	18
5.1 General.....	18
5.2 SafeSign IC	19
6 Supported Operating Systems	21
7 Supported Tokens.....	22
7.1 Supported ATRs.....	24

8	Supported Smart Card Readers	26
8.1	Extended APDU	27
9	Supported Applications	28
9.1	Token Administration Utility.....	29
9.2	Mozilla Firefox	29
9.3	Mozilla Thunderbird.....	29
9.4	Microsoft Edge.....	29
9.5	Google Chrome	30
9.6	Microsoft Outlook	30
9.7	Adobe Reader DC.....	30
9.8	Microsoft Word.....	30
9.9	LibreOffice	30
9.10	Windows Smart Card Logon	31
9.11	Terminal Server Logon	31
10	Supported Languages.....	32
10.1	Installation language files and codes.....	33

Document Information

Document revision history:

Version	Date	Author	Changes
1.0	10/25/2024	C.M. van Houten	First version for SafeSign IC Minidriver Version 4.2 for Windows: release 4.2.0.0-AET.000

Related documents

Document ID	Title	Author	Details

1 About this Document

The aim of this document is to document the status of the release of SafeSign Identity Client Minidriver version 4.2 for Windows (henceforth referred to as “SafeSign IC Minidriver version 4.2”).

This document is part of the release documentation of SafeSign IC and is intended to be a reference to both end users and administrators.

2 Release Information

2.1 Deliverables

SafeSign IC Minidriver version 4.2 is provided as a .msi installation file.

The InstallShield Wizard will guide you through the installation of SafeSign IC Minidriver version 4.2.

Alternatively, the .msi installation package can be used for centralised distribution and installation within an enterprise context.

SafeSign IC Minidriver version 4.2 includes the Token Administration Utility user interface for local smart card operations, such as Change PIN.

2.2 Release Date

The date of the release is 25 October 2024.

2.3 Release Details

SafeSign IC Minidriver version 4.2 reflects the SafeSign IC product version numbering scheme, i.e. version number, build number and distribution number, which is reflected in the Version Information dialog of the Token Administration Utility.

- ◆ Note that the file versions of the components delivered with the release of SafeSign IC Minidriver version 4.2 do not necessarily have the name '4.2.0.xxxx'.

Release version: Minidriver Release 4.2.0.0-AET.000

Description	File Name	File Version
Certificate Expiration Check Utility	aetcrss1.exe	3.7.16.1
Common Dialogs	aetdlss1.dll	3.7.21.1
Java Card Handling Library	aetjcss1.dll	3.9.10.1
PKCS #11 Cryptoki Library	aetpkss1.dll	3.9.22.1
PKCS #11 Library Wrapper with automatic login	aetpkssw.dll	3.7.14.1
Task Manager	aettask.dll	3.9.20.1
Secure Messaging Library	aetsm1.dll	3.9.16.1
Kit Library	aetkit1.dll	4.1.11.1
Read/write card-module	aetrwcm1x.dll (64-bit) aetrwcm1.dll (32-bit)	4.7.3.1
Read-only card-module	aetrocm1x.dll (64-bit) aetrocm1.dll (32-bit)	4.7.0.1
Token Administration Utility	tokenadmin.exe	3.8.45.1

- ◆◆ Note that in the distribution number (AET.000), the prefix AET is unique and reserved for AET Europe general releases only.
- ◆◆ Note that when saving the version information to a file, there may be components listed that are not available in the SafeSign IC version installed. For example, in SafeSign IC Minidriver version 4.2, the Credential Provider 'aetcps1.dll' is listed, but as 'not installed'.

2.4 Windows 64-bit

SafeSign IC Minidriver version 4.2 comes in a 64-bit version only (which does not install on 32-bit Windows Operating Systems) that will work with both 32-bit and 64-bit applications.

- ◆ Note that there are two system directories on Windows 64-bit Operating Systems: System32, which is reserved for 64-bit applications and SysWOW64, which is reserved for 32-bit applications.

SafeSign IC Minidriver version 4.2 system files will install in both directories (to ensure that both 32-bit and 64-bit applications can work with SafeSign IC), with the following exceptions, which are installed in the System32 directory only:

- ◆ The Certificate Expiration Check Utility (aetcrss1.exe);
- ◆ The Task Manager (aettask.dll).

The Token Administration Utility's Version Information dialog will indicate which installed files have a 32-bit and/or a 64-bit file version.

2.5 Release Documents

SafeSign IC Minidriver version 4.2 provides at least the following release documentation:

Document Name	Version
SafeSign IC Minidriver Version 4.2 Release Document for Windows	1.0

3 Features

The following features are supported by SafeSign IC Minidriver version 4.2:

- 1 Multiple Token Support
- 2 Multiple Smart Card Reader Support
- 3 Multiple Application Support
- 4 Multiple Language Support
- 5 Activate QSCD Card Support
- 6 RSA 4096-bit Key Support
- 7 ECC Key Support
- 8 Microsoft WHQL certified (read-only) Minidriver

These features are described in the following paragraphs.

3.1 Multiple Token Support

SafeSign IC Minidriver version 4.2 supports a large number of smart cards and tokens, as listed in section 7.

3.2 Multiple Smart Card Reader Support

SafeSign IC Minidriver version 4.2 supports the use of PC/SC v2.0 Class 1 smart card readers.

SafeSign IC Minidriver version 4.2 includes support for some additional smart card readers for extended APDU. See section 3.6.1 with regard to smart card readers and extended APDUs.

SafeSign IC Minidriver version 4.2 has been tested to support a number of smart card readers, as listed in section 8.

3.3 Multiple Application Support

SafeSign IC Minidriver version 4.2 supports applications on Windows that work through PKCS #11 or Microsoft CryptoAPI (NG).

SafeSign IC Minidriver version 4.2 supports a number of applications, that provide the following functionality:

- ◆ Web authentication
- ◆ Email signing and encryption
- ◆ Document signing
- ◆ Smart card logon
- ◆ Terminal Server logon

SafeSign IC Minidriver version 4.2 has been tested to support a number of applications, as listed in section 9.

3.4 Multiple Languages Support

SafeSign IC Minidriver version 4.2 supports a number of different languages.

When installing the SafeSign IC Minidriver .msi package, the default language of the installation program will be English. In order to install the .msi in a particular language, you will need to install the .msi with specific parameters, to apply a transform.

Section 10.1 lists the Windows language code identifiers and transform files to do so.

3.5 Activate QSCD Card Support

In accordance with the (European) eIDAS Regulation and related standards for cryptographic modules, the legitimate user/signatory of a Qualified Signature Creation Device (QSCD) is responsible for activating the card (keys), i.e. to change the state of the card (keys) from non-operational to operational.

The SafeSign IC Token Administration Utility offers users of a QSCD the possibility to activate their card. When a QSCD is inserted in the smart card reader, the SafeSign IC middleware will enable the user to activate the card, based on the presence of the Common Criteria (CC) certified SafeSign IC applet and the card-specific ATR. If these conditions are met, the Token menu of the SafeSign IC Token Administration Utility will display the option 'Activate Card'.

- ◆ Note that the activation process for a particular card may be very specific. It may require the user to:
 - authenticate to the card by entering the PIN (UZI-pas 3, UZI-pas 4 and SafeSign QSCD);
 - change the Transport PIN set for the card (Defensiepas 3);

SafeSign IC Minidriver version 4.2 supports the following QSCD cards:

- ◆ Defensiepas 3
- ◆ UZI-pas 3
- ◆ SafeSign Default/Generic QSCD (JCOP 3)
- ◆ UZI-pas 4
- ◆ QSCD on JCOP 4

3.6 RSA 4096-bit Key Support

SafeSign IC Minidriver version 4.2 includes support for RSA 4096-bits keys.

- ◆ Note that support for RSA 3072-bits keys is also included.

This functionality requires one of the following cards/tokens:

- ◆ A JCOP 4 QSCD card with the Common Criteria (CC) certified SafeSign IC applet (i.e. applet version 3.0.1.12 or 3.0.1.13) and a smart card reader that supports extended APDUs.
 - ◆ A G+D Sm@rtCafe Expert 7.0 FIPS card with SafeSign IC (StdR) applet (i.e. applet version 3.1.0.36 or 3.1.0.37).
 - ◆ A G+D Sm@rtcafe Expert 7.0 CUT S (M) USB token with SafeSign IC (StdR) applet (i.e. applet version 3.1.0.35, 3.1.0.36 or 3.1.0.37).
- ◆ Note that applet version 3.1.0.37 supports secure messaging for Brazil.

3.6.1 Extended APDU

An extended APDU is an APDU (command) with data and/or response of more than 256 bytes, as defined by ISO/IEC 7816-4.

Because sending extended APDUs can cause issues with readers/drivers that do not support it (such as the reader or drivers crashing), a whitelist is added in the registry with the names of the readers tested and are supported, that indicates per reader what the maximum APDU size possible is. When your reader is not in the list, the use of extended APDUs is not possible.

- ◆ Note that the G+D Sm@rtCafe Expert 7.0 FIPS card does not need a smart card reader with extended APDU support for RSA 3072-bits and 4096-bit keys, as the applet supports command chaining. The same applies to the G+D Sm@rtcafe Expert 7.0 CUT S (M) USB token.

The whitelists can be found here:

HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\A.E.T. Europe B.V.\SafeSign\2.0\Readers

These readers are verified by AET Europe to work on all Operating Systems supported and must not be modified.

See also section 8.1.

3.7 ECC Key Support

SafeSign IC Minidriver version 4.2 includes support for ECC keys.

For this functionality to be available, the following is required:

- ◆ A JCOP 4 QSCD card with the Common Criteria (CC) certified SafeSign IC applet (i.e. applet version 3.0.1.13).
 - ◆ A G+D Sm@rtCafe Expert 7.0 FIPS card with SafeSign IC (StdR) applet (i.e. applet version 3.1.0.36 or 3.1.0.37).
 - ◆ A G+D Sm@rtcafe Expert 7.0 CUT S USB token with SafeSign IC (StdR) applet (i.e. applet version 3.1.0.36 or 3.1.0.37).
- ◆ Note that applet version 3.1.0.37 supports secure messaging for Brazil.

The following NIST named curves are supported:

- ◆ P-256
- ◆ P-384
- ◆ P-521

The following algorithms are supported for these curves:

- ◆ ECDSA
- ◆ ECDH

3.8 Microsoft WHQL certified (read-only) Minidriver

In/from Windows 11 22H2, Microsoft has made changes with regard to security, among which a more strict security with regard to authentication providers that are loaded into Local Security Authority Subsystem Service (LSASS) during logon to Windows.

This additional protection results in users of SafeSign IC not to be able to use their smart card for logon to local or remote connections on Windows (in which the Minidriver is involved), because the SafeSign IC (read/write) Minidriver is not Microsoft certified/signed.

With the release of SafeSign IC Minidriver version 4.x we included the SafeSign read-only Minidriver that passed the Windows Hardware Lab Kit (HLK) testing and is digitally signed by WHQL.

This makes the SafeSign IC read-only Minidriver fully trusted in Windows, allowing smartcard logon.

Which Minidriver you need to install, depends on what purpose it needs to serve:

- ◆ The read-only Minidriver is ideal for essential tasks, such as authentication, smart card logon and secure remote access. It does not support key generation and certificate installation.
- ◆ The read/write Minidriver is best suited for comprehensive security operations such as key generation and certificate management.

By default, SafeSign IC Minidriver version 4.2 will install the read-only Minidriver, but the installation file allows you to install either the read-only (aetrocm) or read/write (aetrwcm) Minidriver or both.

- ◆ Note that you will have to uninstall both the SafeSign IC Card Minidriver and the SafeSign IC software (as described in the Installation Guide) to change the installation of either the read-only or read/write Minidriver.

When you install both the read-only and read/write Minidriver, only the read-only Minidriver .dll files will be installed in the system directories (System32/SysWOW64). In addition, in the Microsoft\Cryptography\Calais\SmartCards registry key, all ATRs will by default be associated with the read-only Minidriver.

The read/write Minidriver .dll files will be placed in ProgramData\A.E.T. Europe B.V.\SafeSign IC\Minidriver\readwrite directory. If you want to use your card with the read/write Minidriver (e.g. for enrollment), you need to edit the registry entry for this particular card in the Microsoft\Cryptography\Calais\SmartCards registry key to contain the full path to the read/write Minidriver file. How to do this is described in the Administrators' Guide.

- ◆ Please note that although you can select both versions to be installed on your system, we strongly recommend you not to do so. We recommend that the read/write Minidriver is installed on enrollment stations, whereas the read-only Minidriver is installed on users' workstations (as it allows for smart card logon) and on Terminal Servers (to allow for remote logon).

4 New Features and Fixes

SafeSign IC Minidriver version 4.2 has a number of new features and fixes/changes.

Section 4.1 will describe the new features and functionality.

Section 4.2 will describe the improved and fixed features and functionality.

4.1 New

- ◆ Added support for the Gemalto IDBridge CT40 smart card reader (for use with extended APDUs).
- ◆ Added support for the Thales IDBridge K30 USB secure token (for use with extended APDUs).
- ◆ Added support for the ACS ACR40T (Standard) SIM-sized smart card reader (for use with extended APDUs).

4.2 Fixed

- ◆ There was an issue in SafeSign IC Minidriver Version 4.1, that when deleting an ECC key through Delete Digital ID in the Token Administration App, the ECC key is not deleted, although a message says it is deleted successfully. This has been fixed.
- ◆ The option Activate card has been added to the token context menu (in addition to the **Token** menu), so right-clicking on the token name will include the option to activate the card.
- ◆ Serbian translations (both Latin and Cyrillic) have been added for the activate card option and its associated success / failure messages.

5 Known Issues

5.1 General

- ◆ Firefox cannot handle a certificate that does not have a label. As a workaround, you can set a label on the keys and certificate in the Token Administration Utility's Show Token Objects dialog.
- ◆ As of Mozilla Firefox version 90, Firefox will automatically find and offer to use client authentication certificates provided by the operating system on Windows. See: <https://blog.mozilla.org/security/2021/07/28/making-client-certificates-available-by-default-in-firefox-90/>. As a consequence, it is no longer necessary to install the SafeSign IC PKCS #11 Library as a security module in Firefox.
- ◆ Signing and encrypting and/or decrypting an e-mail message with an ECC key/certificate using the SafeSign IC PKCS #11 library installed as a security module in Thunderbird results in an error message (unable to encrypt message). This issue was reproduced with an ECC key generated in software as well and other evidence seems to point to this being a limitation within Thunderbird. It is expected that Thunderbird will start working once it has been implemented properly.
- ◆ Receiving an RSA-signed and encrypted message in Thunderbird with a G+D Sm@rtCafe Expert 7.0 card or token with SafeSign IC RIC applet (e.g. applet version 3.1.0.14 or 3.1.0.37) with secure messaging enabled, fails. Thunderbird reports that it cannot decrypt the message. Note that previous versions of Thunderbird (including that for testing the release of SafeSign IC Minidriver 4.0, i.e. 102.9.0) may work.
- ◆ Web authentication with an ECC key/certificate using the SafeSign IC PKCS #11 library installed as a security module in Firefox fails, with the web site not loading after entering the PIN and selecting a certificate. This happens in the latest version of Firefox 131.x (while version 123.x and 127.x are still working). This issue has been observed on other Operating Systems as well. Note that there is no issue when using the OS client integration (with the SafeSign IC Minidriver).

5.2 SafeSign IC

- ◆ When generating/importing a Digital ID file or certificate and the message that the token is full (out of memory: 0x80090023) is displayed, it may be that the whole or parts of the Digital ID file (and certificate chain) or the certificate have been placed on the smart card nevertheless. This will be clearly visible in the Token Administration Utility (Show Token Objects).
- ◆ When initialising or wiping a token with Root CA certificates, you can only select a particular directory. It is not possible to select a particular file.
- ◆ When importing a CA certificate file (either during initialisation or by the function Import Certificate), *.crt files are not selected by the default file extensions (*.cer, *.der), although the import does work.
- ◆ When creating a data object containing no data (done by using an empty CKA_VALUE), an error occurs (CKR_DEVICE_ERROR). According to the PKCS #11 standard, it is allowed to leave the CKA_VALUE empty. Although the SafeSign PKCS #11 implementation correctly handles the empty CKA_VALUE, the command to create the file fails. As a workaround, a null-byte should be used instead of an empty byte.
- ◆ The Token Utility will only display and register Digital IDs that have a private key. When requesting a new Digital ID, the Token Utility may not display the new Digital ID with the green card icon. This is caused by the fact that the Minidriver does not update the token cache. This is a display issue only (the keys and certificates are stored on the token) and it does not affect the functionality of the SafeSign IC Minidriver/the Digital ID in any way.
- ◆ Starting from Windows 8, the way smart cards are handled, has changed. Most notably, if a transaction is started and no activity happens for 5 seconds, the transaction (and card) are automatically reset. This has consequences for enrolling a certificate with Microsoft FIM/MIM using the Microsoft Base Smart Card CSP (see the SafeSign IC Administrator's Guide) and for T=0 cards (see known issue below).
- ◆ In languages other than English, some items in the Version Information dialog are not translated (e.g. Build number, Distribution number and the names of the Secure Messaging libraries).

- ◆ When enabling the registry setting `GenerateEventLogs` (in `HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\A.E.T. Europe B.V.\SafeSign\2.0`), events will be logged (such as incorrect PIN attempts), but also an error (EventID 258) will occur. This has been the case in previous SafeSign IC Minidriver versions as well.
- ◆ The copyright text in the About dialog (both in English and in foreign languages) may not be displayed in full.
- ◆ The NXP JCOP 4.5 is only supported in the SafeSign IC read/write Minidriver.
- ◆ During installation, the Custom Setup window will only include localisation of the read-only and read/write Minidriver components in Dutch, German, Portuguese, Brazilian Portuguese, Serbian Latin and Serbian Cyrillic.
- ◆ Note that on Windows 11 22H2/23H2, smart card logon fails on a G+D Sm@rtCafe Expert 7.0 CUT S token with SafeSign IC RIC applet (e.g. applet version 3.1.0.14, 3.1.0.16 or 3.1.0.37) with secure messaging enabled.
- ◆ The Readers and Readers.rocm whitelists in the registry are not an exact match. The Readers.rocm whitelist does not include the Neowave WinkeoSIM Reader, for example, but this reader is supported with extended APDU nevertheless.
- ◆ When setting up a connection to a remote Terminal Server and authenticating locally on the client, the error “No credentials are available in the security package” is shown with a smart card associated with read/write Minidriver (whether though installation or manually in Program Data).
- ◆ There is an issue when analysing certificate quality (Token > Analyse certificate quality) with ECDH/ECDSA P-521 keys. The certificate is reported to be unusable, because “the private key does not match with the public key in the certificate” and “the public key does not match with the public key in the certificate.” A dump of the token contents shows no errors and the key / certificate can be used in applications. This issue was also present in the previous release of SafeSign IC Minidriver 4.1 for Windows and may be fixed in a future release.

6 Supported Operating Systems

SafeSign IC Minidriver version 4.2 has been tested to support the following x64 Windows Operating System(s):

Operating System	Version 4.2.0.0
Windows 10 (Pro, Enterprise)	√
Windows 11 (Pro)	√
Windows Server 2019	√
Windows Server 2022	√

Like every SafeSign IC release, SafeSign IC Minidriver version 4.2 was tested on the abovementioned Windows Operating Systems with the (latest) Service Pack and Updates available at that time. Though SafeSign IC Minidriver version 4.2 may work on older/other versions of these Operating Systems, only support requests for issues reproduced on the supported Windows Operating Systems listed above (up-to-date with the latest Windows Updates) will be taken into consideration.

7 Supported Tokens

SafeSign IC Minidriver version 4.2 supports a number of smart cards and tokens, as listed below.

These tokens have been tested to work as part of the release testing for SafeSign IC Minidriver version 4.2.

The SafeSign IC PKI applet enables end users to utilise Java Card 2.2.2 and higher compliant cards with the SafeSign IC middleware. A Java card or token must contain an installed SafeSign IC applet before it can be used with SafeSign IC.

As the correct functioning of SafeSign IC is depending on a properly produced smart card or USB Token, AET Europe requires that smart cards and/or USB tokens are produced for use with SafeSign IC in accordance with our QA policies (which require i.a. the correct applet to be pre-installed in a secure environment and a custom keyset). This is a condition to be eligible for support by AET Europe in case of problems, in addition to the purchase/existence of a valid SafeSign IC Support Agreement.

Card Type
Defensiepas 2
Defensiepas 3 (QSCD)
G&D Sm@rtCafé Expert 3.2
G&D Sm@rtCafé Expert 4.0
G&D Sm@rtCafé Expert 5.0
G&D Sm@rtCafé Expert 6.0
G&D Sm@rtCafé Expert 7.0
Gemalto IDCore 30
Infineon Oracle JCOS Ed.1

JCOP21 v2.3
NXP J2A080 / J2A081 (JCOP 2.4.1 R3)
NXP J2D081 (JCOP 2.4.2 R2)
NXP J3A080 (JCOP 2.4.1 R3)
NXP JCOP 2.4.2 R3
NXP JCOP 3 SecID P60
NXP JCOP 4 P71
NXP JCOP 4.5
Oberthur IDOne Cosmo v7.0
RDW ABR kaart
Rijkspas
Rijkspas 2
StarSign Crypto USB Token S
UZI-pas 2
UZI-pas 3 (QSCD)
UZI-pas 4 (QSCD)

7.1 Supported ATRs

Below you will find a complete list of the ATRs supported by SafeSign IC Minidriver version 4.2.

Card Name	ATR
Changingtec JCOP	3b,f8,18,00,ff,81,31,fe,45,00,73,c8,40,00,00,90,00,7f
Defensiepas 2	3b,f9,18,00,00,81,31,fe,45,39,35,32,38,35,30,31,33,32,d9
Defensiepas 3	3b,dc,18,ff,81,91,fe,1f,c3,06,0a,2b,06,01,04,01,e9,10,05,01,03,d2
G&D Sm@rtCafe Expert 3.2 (T=CL) DSV	3b,7a,18,00,00,73,66,74,65,20,63,64,31,34,34
G&D Sm@rtCafe Expert 3.2 72k	3b,f7,18,00,00,80,31,fe,45,73,66,74,65,2d,6e,66,c4
G&D Sm@rtCafe Expert 3.2 80k	3b,fd,18,00,00,80,31,fe,45,73,66,74,65,2d,63,64,30,38,30,2d,6e,66,dc
G&D Sm@rtCafe Expert 3.2 FI	3b,fd,18,00,00,80,31,fe,45,73,66,74,65,20,63,64,31,34,34,2d,6e,66,d8
G&D Sm@rtCafe Expert 3.2 FI (T=CL)	3b,8d,80,01,73,66,74,65,20,63,64,31,34,34,2d,6e,66,3b
G&D Sm@rtCafe Expert 4.0	3b,78,13,00,00,00,73,c8,40,13,00,90,00
G&D Sm@rtCafe Expert 4.0 FI	3b,f8,18,00,00,80,31,fe,45,00,73,c8,40,13,00,90,00,92
G&D Sm@rtCafe Expert 4.0 FI (T=CL)	3b,88,80,01,00,73,c8,40,13,00,90,00,71
G&D Sm@rtCafe Expert 5.0 (T=CL)	3b,89,80,01,53,46,2d,34,43,43,2d,30,31,28
G&D Sm@rtCafe Expert 6.0 (USB Token)	3b,fd,18,00,00,81,31,fe,45,53,43,45,36,30,2d,43,43,30,38,31,2d,46,c2
G&D Sm@rtCafe Expert 6.0 FIPS	3b,fd,18,00,00,80,31,fe,45,53,43,45,36,30,2d,43,44,30,38,31,2d,46,c4
G&D Sm@rtCafe Expert 6.0 FIPS (T=CL)	3b,8d,80,01,53,43,45,36,30,2d,43,44,30,38,31,2d,46,27
G&D Sm@rtCafe Expert 6.0 FIPS 144k (T=CL)	3b,8d,80,01,53,43,45,36,30,2d,43,44,31,34,35,2d,46,2e
G&D Sm@rtCafe Expert 6.0 Non FIPS	3b,fe,18,00,00,80,31,fe,45,53,43,45,36,30,2d,43,44,30,38,31,2d,6e,46,a9
G&D Sm@rtCafe Expert 6.0 Non FIPS (T=CL)	3b,8e,80,01,53,43,45,36,30,2d,43,44,30,38,31,2d,6e,46,4a
G&D Sm@rtCafe Expert 6.0 Non FIPS 144k	3b,fe,18,00,00,80,31,fe,45,53,43,45,36,30,2d,43,44,31,34,35,2d,6e,46,a0
G&D Sm@rtCafe Expert 6.0 Non FIPS 144k (T=CL)	3b,8e,80,01,53,43,45,36,30,2d,43,44,31,34,35,2d,6e,46,43
G&D Sm@rtCafe Expert 7.0 CC	3b,f9,96,00,00,80,31,fe,45,53,43,45,37,20,00,00,20,20,27
G&D Sm@rtCafe Expert 7.0 CC (T=CL)	3b,89,80,01,53,43,45,37,20,00,00,20,20,4a
G&D Sm@rtCafe Expert 7.0 FIPS	3b,f9,96,00,00,80,31,fe,45,53,43,45,37,20,03,00,20,46,42
G&D Sm@rtCafe Expert 7.0 FIPS (T=CL)	3b,89,80,01,53,43,45,37,20,03,00,20,46,2f

G&D Sm@rtCafe Expert 7.0 NXP	3b,f9,96,00,00,80,31,fe,45,53,43,45,37,4e,58,50,20,20,41
G&D Sm@rtCafe Expert 7.0 NXP (T=CL)	3b,89,80,01,53,43,45,37,4e,58,50,20,20,2c
G&D Sm@rtCafe Expert 7.0 PIV	3b,f9,96,00,00,80,31,fe,45,53,43,45,37,20,0f,00,20,46,4e
Gemalto IDCORE 30	3b,7f,96,00,00,80,31,80,65,b0,84,41,3d,f6,12,00,4c,82,90,00
HID Crescendo C700	3b,df,18,ff,81,31,fe,45,80,59,01,80,48,49,44,43,37,30,30,73,00,01,1b,33
Infineon Oracle JCOS Ed.1	3b,fd,96,00,00,80,31,fe,45,53,4c,4a,35,32,47,78,78,79,79,79,7a,52,25
JCOP21 v2.3.1 (Winter AG)	3b,fa,18,00,ff,81,31,fe,45,4a,43,4f,50,32,31,56,32,33,31,65
NXP J2A080 (Winter AG GTN)	3b,fd,18,00,00,81,31,fe,45,06,0b,60,84,10,01,87,6b,01,03,05,04,02,fb
NXP J2A080-J3A080 (TA1=96)	3b,f8,96,00,ff,81,31,fe,45,4a,43,4f,50,76,32,34,31,cd
NXP J2A080-J3A080 (Winter AG)	3b,f8,18,00,ff,81,31,fe,45,4a,43,4f,50,76,32,34,31,43
NXP J2D081	3b,f5,13,00,00,81,31,fe,45,73,74,64,31,30,8f
NXP J3A080	3b,f8,13,00,00,81,31,fe,45,4a,43,4f,50,76,32,34,31,b7
NXP J3D081 (T=CL)	3b,89,80,01,4a,43,4f,50,32,34,32,52,32,4a
NXP JCOP 2.4.2 R3 (Austriacard)	3b,f9,18,00,00,81,31,fe,45,4a,43,4f,50,32,34,32,52,33,a9
NXP JCOP 2.4.2 R3 (exceet Card AG)	3b,f9,18,00,ff,81,31,fe,45,4a,43,4f,50,32,34,32,52,33,56
NXP JCOP 3 SecID P60	3b,dc,18,ff,81,91,fe,1f,c3,80,73,c8,21,13,66,05,03,63,51,00,02,50
NXP JCOP 4 P71	3b,dc,18,ff,81,91,fe,1f,c3,06,0a,2b,06,01,04,01,e9,10,04,01,04,d4
NXP JCOP 4.5	3b,dc,18,ff,81,B1,fe,45,1f,c3,06,0a,2b,06,01,04,01,e9,10,04,01,05,b0
Oberthur IDone Cosmo v7.0.1	3b,db,96,00,80,b1,fe,45,1f,83,00,31,c0,64,1a,18,01,00,07,90,00,5a
Oberthur IDone Cosmo v7.0.2	3b,db,96,00,80,b1,fe,45,1f,83,00,31,c0,64,1f,18,01,00,01,90,00,59
QSCD on JCOP 4 P71	3b,db,18,ff,81,91,fe,1f,c3,06,09,2b,06,01,04,01,e9,10,05,04,d0
RDW ABR kaart	3b,fa,18,00,00,81,31,fe,45,06,08,2a,84,10,01,87,6e,08,08,b1
Rijkspas	3b,fa,18,00,00,81,31,fe,45,06,08,2a,84,10,01,87,6e,08,05,bc
Rijkspas 2	3b,fa,18,00,00,81,31,fe,45,06,08,2a,84,10,01,87,6e,08,07,be
SafeSign Default QSCD	3b,db,18,ff,81,91,fe,1f,c3,06,09,2b,06,01,04,01,e9,10,05,03,d7
StarSign Crypto USB-Token S	3b,f9,96,00,00,81,31,fe,45,53,43,45,37,20,0e,00,20,20,28
UZI-pas 2	3b,fd,18,00,ff,81,31,fe,45,43,49,42,47,55,5a,49,4a,32,41,30,38,31,58
UZI-pas 3	3b,dc,18,ff,81,91,fe,1f,c3,06,0a,2b,06,01,04,01,e9,10,05,02,03,d1
UZI-pas 4	3b,dc,18,ff,81,91,fe,1f,c3,06,0a,2b,06,01,04,01,e9,10,05,02,04,d6

8 Supported Smart Card Readers

SafeSign IC Minidriver version 4.2 provides support for PC/SC v2.0 Class 1 readers.

In principle, SafeSign IC supports PC/SC v1.0 compliant smart card readers that supply a current of at least 60mA.

AET Europe recommends that customers make a careful selection of the smart card reader to use, as there are many smart card readers on the market, with such restrictions as 'buggy' PC/SC drivers (especially older smart card reader models), not enough power supply for cryptographic cards (which require a minimum of 60mA) and/or faulty T=0 or T=1 protocol implementation. These reader problems are beyond the control of smart cards and SafeSign IC.

The following table lists the specific readers that have been tested with SafeSign IC Minidriver version 4.2:

Smart Card Reader Manufacturer and Model	Class
HID® OMNIKEY® 3121 USB Smart Card Reader Revision D/2019	1

- ◆ Note that smart card readers that have been tested or have been working at a given time with a previous SafeSign IC Minidriver versions, may not (still) work or be supported in any or all versions of SafeSign IC Minidriver version 4.2.

8.1 Extended APDU

In order to be able to generate RSA 4096-bits (and 3072-bits) keys on a JCOP 4 QSCD card, the smart card reader should support extended APDUs.

The ISO 7816-4:2013 specification defines an extended APDU as any APDU whose payload data, response data or expected data length exceeds the 256 byte limit.

The following readers have been tested with RSA 4096-bits keys and extended APDUs:

- ◆ HID OMNIKEY 3121 USB (Part No. R31210320-01, revision B/2016 and revision D/2019)
- ◆ Neowave LinkeoA-Y
- ◆ Neowave Winkeo-A SIM
- ◆ ACS ACR38 (P/N ACR38U-N1)
- ◆ ACS ACR40T (Standard) SIM-sized smart card reader
- ◆ Gemalto/Thales IDBridge CT30
- ◆ Gemalto IDBridge CT40 smart card reader
- ◆ Gemalto GemPC Twin
- ◆ Thales IDBridge K30 USB secure token

These card readers have been tested using the OS CCID driver, i.e. the native CCID driver on Windows.

Depending on the Operating System, the reader name may be different. This explains the different names in the whitelists in the registry:

```
HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\A.E.T. Europe B.V.\SafeSign\2.0\Readers
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\A.E.T. Europe B.V.\SafeSign\2.0\Readers.rocm
```

The reason for two whitelists in the registry for readers supporting extended APDUs lies in the fact that SafeSign IC Minidriver version 4.2 includes both the read-only and the read/write Minidriver (see section 3.8). When the read-only Minidriver is installed or both the read-only and read/write Minidriver are installed, both whitelists will be available.

9 Supported Applications

SafeSign IC Minidriver version 4.2 has been tested in accordance with AET Europe's Quality Assurance procedures and the SafeSign IC Minidriver test plan. This includes testing of a number of defined and representative applications to verify a correct functioning of the SafeSign IC components and Libraries.

The following applications have been tested with SafeSign IC Minidriver version 4.2.0.0:

Application	Version	Purpose
Token Administration Utility	3.8.45.1	PKCS #11 token management functions
Mozilla Firefox	131.0.3	Authentication to a secure web site
Microsoft Edge	130.02849.46	Authentication to a secure web site
Google Chrome	130.0.6723.59	Authentication to a secure web site
Microsoft Outlook	2021	Signing and decrypting e-mail messages
Mozilla Thunderbird	128.3.2esr	Signing and decrypting e-mail messages
Adobe Reader	24.003.20180	Digitally signing a document
Microsoft Word	2021	Digitally signing a document
LibreOffice	24.2.6	Digitally signing a document
Windows Smart Card Logon	-	Logon to a local Windows client system
Terminal Server Logon	-	Log on to a Windows Terminal Server

- ◆ Note that PKCS #11 applications need the PKCS #11 Library to be loaded/installed as a security module. The SafeSign IC PKCS #11 Library (called 'aetpkss1.dll') can be found in the system directory.
- ◆ Note that (Microsoft) applications do not normally require any configuration, i.e. you do not need to select or install the SafeSign IC card Minidriver.
- ◆ Note that for smart card logon and terminal server logon, you need to have the read-only Minidriver installed.

9.1 Token Administration Utility

With the SafeSign IC Token Administration Utility, you can perform (local) smart card related operations, such as changing the PIN for your smart card or token.

The features available in the Token Administration Utility, can be modified in the Windows registry. The features to be enabled (1) or disabled (0) are located in 'Actions'.

Refer to the Administrator's Guide for more details.

9.2 Mozilla Firefox

With SafeSign IC Minidriver installed, you can perform secure web authentication with a SafeSign IC Token.

- ◆ Note that as of Firefox 90, you no longer need to install the SafeSign PKCS #11 Library as a security module in Firefox.

9.3 Mozilla Thunderbird

With the SafeSign PKCS #11 Library installed as a security module in Thunderbird, you can send and receive signed and/or encrypted message with a SafeSign IC token.

To verify whether the SafeSign PKCS #11 Library is installed as a security module in Thunderbird, go to Preferences → Advanced → Certificates (tab) → Security Devices (button).

9.4 Microsoft Edge

With SafeSign IC Minidriver installed, you can perform secure web authentication in Microsoft Edge.

9.5 Google Chrome

With SafeSign IC Minidriver installed, you can perform secure web authentication in Google Chrome.

9.6 Microsoft Outlook

With SafeSign IC Minidriver installed, you can send and receive signed and/or encrypted messages with a SafeSign IC token.

9.7 Adobe Reader DC

With SafeSign IC Minidriver installed, you can sign documents with a SafeSign IC token.

9.8 Microsoft Word

With SafeSign IC Minidriver installed, you can sign documents with a SafeSign IC token.

9.9 LibreOffice

With SafeSign IC Minidriver installed, you can sign documents with a SafeSign IC token.

9.10 Windows Smart Card Logon

With SafeSign IC read-only Minidriver installed, you can use your SafeSign IC token to log on to a local Windows client machine. This client should be part of a Windows Server domain.

9.11 Terminal Server Logon

With SafeSign IC read-only Minidriver installed, you can use your SafeSign IC token to log on to a remote Windows Terminal Server.

10 Supported Languages

The following languages are supported in SafeSign IC Minidriver version 4.2 (Token Administration Utility):

- ◆ Basque (Basque);
- ◆ Catalan (Catalan);
- ◆ Chinese (Simplified, China);
- ◆ Chinese (Traditional, Hong Kong SAR; Traditional, Taiwan);
- ◆ Croatian (Croatia);
- ◆ Czech (Czechia);
- ◆ Dutch (Netherlands);
- ◆ English (United States);
- ◆ Finnish (Finland);
- ◆ French (France);
- ◆ German (Germany);
- ◆ Hungarian (Hungary);
- ◆ Italian (Italy);
- ◆ Italian (Switzerland);
- ◆ Japanese (Japan);
- ◆ Korean (Korea);
- ◆ Lithuanian (Lithuania);
- ◆ Portuguese (Portugal);
- ◆ Portuguese (Brazil);
- ◆ Russian (Russia);
- ◆ Serbian (Cyrillic, Serbia)
- ◆ Serbian (Latin, Serbia);
- ◆ Spanish (Spain);

- ◆ Thai (Thailand);
- ◆ Turkish (Turkey);
- ◆ Ukrainian (Ukraine).

10.1 Installation language files and codes

When installing the SafeSign IC Minidriver .msi file, you may apply a transform for the installation language (as described in section 3.4).

For example, to install SafeSign IC Minidriver version 4.2 in Portuguese (Brazil):

```
msiexec /I "SafeSign IC MiniDriver 4.2.0.0-AET.000 64-bits.msi" TRANSFORMS=pt-PT.mst
```

- ◆ Note that WiX does not support all languages, hence the SafeSign IC Installer is not available in the following languages: Italian (Swiss), Lithuanian and Ukrainian.

The table below lists the Windows language code identifiers and corresponding transform files:

Language	File
Catalan	ca-ES.mst
Chinese (Simplified characters)	zh-CN.mst
Chinese (Traditional characters)	zh-TW.mst
Croatian	hr-HR.mst
Czech	cs-CZ.mst
Dutch	nl-NL.mst
Finnish	fi-FI.mst
French (France)	fr-FR.mst
German	de-DE.mst
Hungarian	hu-HU.mst
Italian	it-IT.mst

Japanese	ja-JA.mst
Korean	ko-KO.mst
Portuguese (Portugal)	pt-PT.mst
Portuguese (Brazil)	pt-PT.mst
Russian	ru-RU.mst
Serbian (Latin)	sr-latn-cs.mst
Serbian (Cyrillic)	sr-cyrl-cs.mst
Spanish	es-ES.mst
Thai	th-TH.mst
Turkish	tr-TR.mst

- ◆ Note that during installation, the Component Setup windows will only include localisation of the Minidriver components in Dutch, German, Portuguese, Brazilian Portuguese, Serbian Latin and Serbian Cyrillic.