MyID Enterprise

Version 12.12

Smart Card Integration Guide

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Conventions used in this document

- Lists:
  - Numbered lists are used to show the steps involved in completing a task when the order is important.
  - Bulleted lists are used when the order is unimportant or to show alternatives.
- **Bold** is used for menu items and for labels.

  For example:
  - Record a valid email address in **'From' email address**.
  - Select **Save** from the **File** menu.
- *Italic* is used for emphasis:

  For example:
  - Copy the file *before* starting the installation.
  - Do *not* remove the files before you have backed them up.
- ***Bold and italic*** hyperlinks are used to identify the titles of other documents.

  For example: "See the ***Release Notes*** for further information."

  Unless otherwise explicitly stated, all referenced documentation is available on the product installation media.
- A `fixed width` font is used where the identification of spaces is important, including filenames, example SQL queries and any entries made directly into configuration files or the database.
- **Notes** are used to provide further information, including any prerequisites or configuration additional to the standard specifications.

  For example:

  Note: This issue only occurs if updating from a previous version.
- Warnings are used to indicate where failure to follow a particular instruction may result in either loss of data or the need to manually configure elements of the system.

  For example:

  Warning: You must take a backup of your database before making any changes to it.

Contents

1 Introduction

This document describes the configuration necessary for administrators to enable MyID® to work with smart cards. MyID supports smart cards in a variety of form factors – for example, smart cards with a contact chip that are used with card readers, and USB devices with smart card capabilities. The term "smart card" is used generically throughout this document to describe these devices.

The following are currently supported by MyID:

- Athena. See section *3*, *Athena smart cards* for details.
- Egofy. See section *4*, *Egofy smart cards* for details.

  Note: Egofy smart cards were previously known as TicTok smart cards.
- Giesecke+Devrient. See section *5*, *Giesecke+Devrient smart cards* for details.
- IDEMIA. See section *6*, *IDEMIA smart cards* for details.
- TCOS. See section *7*, *TCOS smart cards* for details.
- Thales. See section *8*, *Thales authentication devices* for details.

  Note: Thales authentication devices have previously been listed under a range of different brands; for example, Gemalto or SafeNet.
- Thales Trusted Cyber Technologies. See section *9*, *Thales Trusted Cyber Technologies smart cards* for details.
- Yubico. See section *10*, *Yubico smart cards* for details.

MyID can be integrated with a broad range of smart cards – if you are interested in working with smart cards that are not listed in this document, contact customer support quoting SUP-76 for more information.

For information on issuing Microsoft Virtual Smart Cards (VSCs) see the ***Microsoft VSC Integration Guide***.

2 Smart card features

This chapter contains information about the features supported on the smart card that MyID allows you to issue and manage.

2.1 Supported features

This section lists the features that may be supported within MyID for various smart card types. Each section lists which features are supported for each smart card type; for example, if the smart card is listed as supporting PIN management, you can assume that the smart card supports all of the PIN management features unless specified otherwise.

- **MyID**

  Determines whether the smart card can be used within MyID with the following features:

  - Can be used to generate an RSA keypair that can be used for operations in MyID.
  - Can be used to sign data (including logon to MyID) with an RSA keypair on the smart card.
  - Can be used to encrypt data with an RSA keypair on the smart card.
  - MyID can set the label of the smart card.
  - MyID can erase the content of the smart card (excluding the printed card surface).

- **PIN**

  PIN management – determines whether MyID can manage the PIN for the smart card. This incorporates the following features:

  - MyID can lock the user PIN after issuing the smart card.
  - MyID can identify when the user PIN is locked.
  - MyID can replace the factory security officer PIN (SOPIN) with a randomized value.
  - MyID can replace the randomized SOPIN with the factory security officer PIN (SOPIN) at the cancellation of the smart card (when the smart card is present).
  - MyID can unlock the user PIN using the SOPIN to access the card.
  - MyID can provide an unlock code to a remote user to allow the smart card user PIN to be unlocked.

    Note: Earlier versions of MyID used the **Remote Unlock** workflow for this procedure. From MyID 10.7, the **Unlock Credential** workflow supersedes **Remote Unlock**.
  - MyID can reset the user PIN to a predefined value at the cancellation of the smart card (when the smart card is present).
  - MyID can set on-card PIN policy settings.

    MyID allows you to set various policies for PINs using the settings in the credential profile. MyID enforces these settings (where possible) for any operations carried out by MyID. For some smart cards, some or all of these settings are applied directly to the card, which means that the settings will also be enforced by third-party tools and utilities.

- **GP**

GlobalPlatform – determines whether MyID can work with the GlobalPlatform keys on the smart card. This incorporates the following features:

- MyID can replace the factory GlobalPlatform keys with customer defined keys during issuance.
- MyID can replace the customer defined keys with the factory GlobalPlatform key at cancellation of the smart card (when present).

Many of the devices supported by MyID are based on card platforms that can support GlobalPlatform features. The GlobalPlatform keys, which are required to configure the features, are not always provided by card manufacturers, and so are tested only as part of specific project requirements or where the capabilities are a standard part of the card lifecycle management processes; for example, PIV cards. If you want to make more use of GlobalPlatform features and this document does not explicitly show support for them for your selected smart cards, contact Intercede to discuss your requirements in more detail.

- **Applet**

  Determines whether MyID can add and remove applets using GlobalPlatform technology. This incorporates the following features:

  - MyID can add an applet onto the smart card during issuance or update.
  - MyID can remove an applet from the smart card during update or cancellation.

- **RSA**

  PKI – RSA – determines whether MyID can work with certificates using RSA keys on the smart card. Some of the features listed below depend on the certificate authority you are using; see the integration guide for your CA.

  This incorporates the following features:

  - MyID can force the smart card to generate a private key for use in a certificate request.
  - MyID can write a certificate to the smart card. This occurs during personalization of the smart card in smart card issuance, activation and update.
  - MyID can use a certificate on the smart card to sign data cryptographically.
  - MyID can specify the default certificate on the smart card that is used for Windows logon.
  - MyID can write certificates with RSA 1024 bit keys to the smart card.
  - MyID can write certificates with RSA 2048 bit keys to the smart card.
  - MyID can write certificates with RSA 3072 bit keys to the smart card.
  - MyID can write certificates with RSA 4096 bit keys to the smart card.
  - MyID can remove certificates and their associated private keys from the smart card. This occurs during update or cancellation of the smart card.
  - MyID can inject a private key to the smart card for certificate recovery operations.

- MyID can enumerate all certificates on the card, and mark those expected to be present that are not present as missing in the **Identify Card** workflow.

Note: Support for RSA 3072 and 4096 bit keys depends on the certificate authority. Check your certificate authority integration guide to ensure that RSA 3072 and 4096 bit keys are explicitly supported.

MyID uses the SHA-384 hash algorithm when issuing devices with 3072 and 4096 bit keys.

If you attempt to issue RSA 3072 or 4096 bit keys to smart cards that do not support them, the error message may differ from device to device. For example, you may see an error similar to:

```
Error: There has been an error writing to the card

PKCS#10 Error

Details

Error: There has been an error writing to the card

• -2147220715 Exception thrown: class CardException

  Error: 0x80040315: Error creating PKCS#10 request

  Extra Info: Exception thrown: class CardException

  Error: 0x8004032c : Smartcard - Unknown card status

  Extra Info: 5FC105

  Status 0x6A81
```

- **ECC**

  PKI – ECC – determines whether MyID can work with certificates using ECC keys on the smart card. Some of the features listed below depend on the certificate authority you are using; see the integration guide for your CA.

  This incorporates the following features:

  - MyID can force the smart card to generate a private key for use in a certificate request.
  - MyID can write a certificate to the smart card. This occurs during personalization of the smart card in smart card issuance, activation and update.
  - MyID can specify the default certificate on the smart card that is used for Windows logon.
  - MyID can write certificates with ECC NIST P256 Curve to the smart card.
  - MyID can write certificates with ECC NIST P384 Curve to the smart card.
  - MyID can write certificates with ECC NIST P521 Curve to the smart card.
  - MyID can remove certificates and their associated private keys from the smart card. This occurs during update or cancellation of the smart card.
  - MyID can support archive certificate operations.

- MyID can enumerate all certificates on the card, and mark those expected to be present that are not present as missing in the **Identify Card** workflow.

Note: MyID can issue certificates using ECC keys to appropriate smart cards, but using ECC certificates on smart cards with Windows operating system features requires an appropriate minidriver or middleware that supports ECC certificates for that feature to be installed. Injecting an ECC private key to the smart card for certificate recovery operations is not supported.

- **PIV**

  Determines whether MyID can personalize and manage the smart card as a PIV card.

  Note: Issuance of PIV cards to NIST standards, in accordance with the NIST specification SP800-73-3 and the latest available version of the NIST SP800-85B Data Conformance Test Tool, is available only in PIV installations. You must configure your system to support the PIV standard for issuing PIV or PIV-I devices that conform to these specifications.

  MyID allows you to issue PIV cards without having a PIV system; however, PIV cards issued on non-PIV systems will not comply with NIST standards.

  If you want to issue additional identities to devices with PIV applets, you must have a Windows minidriver installed to make the certificates available for uses such as Windows logon. For more information, see the *Additional identities on devices with PIV applets* section in the ***Administration Guide***.

  - MyID can personalize a PIV card in accordance with the NIST specification SP800-73-3 – available on PIV systems only.
  - A PIV smart card issued by MyID must pass all applicable tests in the latest available version of the NIST SP800-85B Data Conformance Test Tool – available on PIV systems only.
  - MyID can replace the factory PIV 9B key with a value defined by the customer.
  - MyID can replace the customer PIV 9B key with the factory PIV 9B key at cancellation of the card (when present).
  - MyID can depersonalize a PIV card so no end user information remains on the card (excluding the printed card surface).
  - MyID can recover certificates into each of the historic key containers on the card (max 20).

    Note: MyID recovers only as many certificates as the card will hold. During a certificate recovery operation, MyID actively interrogates the PIV card to determine the maximum number of certificates that can be recovered to it, and then restricts the number of certificates permitted for recovery to match. Some cards are manufactured with a restricted number of containers, and others may contain 20 containers but have only a smaller number available for key recovery. Contact your card vendor to discuss your requirements for the number of available certificate recovery containers.
  - MyID can lock the GlobalPlatform keys on the smart card.
  - MyID can unlock the GlobalPlatform keys on the smart card.

- MyID can unlock the PIN remotely with challenge response using the MyID Card Utility; see the *Remote PIN Management utility for PIV cards* section in the ***Operator's Guide*** for details.

- **OPACITY**

  Determines whether MyID can personalize a card to support OPACITY.

  For more information, see section *2.11*, *Setting up OPACITY*.

  - MyID can enable the OPACITY capability of a PIV card, in Zero Key Management mode (OPACITY-ZKM)
  - MyID can generate an OPACITY pairing code for a PIV card when it is personalized, which is stored as an encrypted value in the MyID database.

- **Print**

  Determines whether MyID can print a card layout to the surface of the smart card.

- **Client OS**

  Determines whether MyID can issue the smart card to be used for Windows operations. This incorporates the following features:

  - The issued smart card can be used for Windows logon when it holds an appropriate certificate.

    You may need additional configuration of your Windows environment, including specific settings where elliptic curve cryptography (ECC) is used. See your Microsoft documentation for details.

    Note: MyID communicates directly with PIV cards without using a driver or minidriver. You can use PIV cards for Windows logon; however, you may require additional software, such as a Windows minidriver. Contact your card vendor for details.

    For ECC certificates on PIV cards, the built-in Windows minidriver – which registers the smart card as "Identity Device (NIST SP 800-73[PIV])" in Windows Device Manager – does not allow the use of ECC certificates with functionality such as Windows logon.

    Note: If you want to use RSA 3072 and 4096 bit keys for Windows logon, you must ensure that the combination of devices and drivers you are using supports these keys for Windows logon. Check with your device vendor whether specific drivers are required.

  - The issued smart card can be used for email signing when it holds an appropriate certificate.
  - The issued smart card can be used for email encryption when it holds an appropriate certificate.

2.2 General features

The following features are supported by MyID if they are available on individual smart cards. Support for these features does not depend on the type of smart card to which it is attached;

for example, if a card has a magnetic stripe, and you have a card reader or printer that can write to magnetic stripes, MyID supports the ability to write user data to the magnetic stripe on a smart card.

- **HID Prox**

  MyID can import an HID correlation file containing the PROX serial numbers and facility codes. These are associated with smart card records in MyID, which can then be sent to a Physical Access System.

  You may require additional changes to your version of MyID to enable this feature. Contact customer support quoting reference SUP-77 for details.

  See the *Importing serial numbers* section of the ***Administration Guide*** for details of importing serial numbers.

- **Magnetic Stripe**

  MyID can write user data to the magnetic stripe on a smart card.

2.3 Smart card readers

For this release, the following card readers have been tested:

- OMNIKEY 3021
- OMNIKEY 3121
- OMNIKEY 5125

  Note: You may experience problems with Omnikey readers if you do not use the drivers provided by Omnikey. You are recommended to use the Omnikey drivers rather than the equivalent Windows drivers.

- SCM Microsystems SCR331
- GemPC Twin
- Precise 250

2.4 Minidriver-based smart cards

All cards that use minidrivers require some additional setup.

2.4.1 Archive keys

To allow certificates with archive keys to be used, you must set the following registry settings each client:

```
[HKEY_LOCAL_
MACHINE\SOFTWARE\Microsoft\Cryptography\Defaults\Provider\Microsoft Base
Smart Card Crypto Provider]

"AllowPrivateSignatureKeyImport"=dword:00000001

"AllowPrivateExchangeKeyImport"=dword:00000001
```

2.4.2 Windows integrated unblock

If you want to use the card unblocking feature that is built into Windows for your minidriver-based smart cards, you must enable the feature according to Microsoft's documentation. The Group Policy **AllowIntegratedUnblock** must be enabled in **Computer**

Configuration\Administrative Templates\Windows Components\Smart Card.

The registry key is:

```
[HKEY_LOCAL_
MACHINE\SOFTWARE\Policies\Microsoft\Windows\SmartCardCredentialProvider]

"AllowIntegratedUnblock"=dword:00000001
```

This key can be pushed to clients by a global policy.

To unblock a card using this method, the cardholder uses the Windows unblock feature to generate a code. Once the cardholder has generated this code, they can call the helpdesk, who will use the **Unlock Credential** workflow within MyID to generate an unlocking code that you can use to unblock your smart card.

See the *Unlocking a credential remotely* section in the ***Operator's Guide*** for details of using the **Unlock Credential** workflow.

2.4.3 Certificate propagation

For card issuance workstations, you must ensure that the Certificate Propagation service is not running on the client PC when using minidriver-based cards; if this service is running, the certificates are registered in the current user's certificate store.

For self-service clients, you can retain the Certificate Propagation service.

2.5 Upgrading existing systems

If you are upgrading from an earlier version of MyID, and are using smart cards that are not listed in this document, contact customer support quoting reference SUP-80.

If you are using older versions of minidrivers or middleware not listed in this document, you are recommended to upgrade to the listed versions. For more information, contact customer support quoting reference SUP-80.

2.6 Common criteria smart cards

You can obtain some of the smart cards listed in this document with common criteria functionality; however, MyID does not currently support this feature. In most cases this does not affect use of the device with MyID.

If you would like to discuss this further with Intercede, contact customer support quoting SUP-231.

2.7 Custom SOPINs

If your cards have been created with a non-standard factory Security Officer PIN (SOPIN), you must configure MyID to use this SOPIN – if you do not, you will be unable to issue a card.

If you are using the cards' GlobalPlatform keys, you can specify the factory SOPIN in the **Manage GlobalPlatform Keys** workflow.

If you are *not* using the cards' GlobalPlatform keys to manage the SOPIN on the issued cards, you must contact Intercede for assistance in configuring MyID to support these cards. Contact customer support quoting reference SUP-257.

2.8 PIN history

If your cards have been manufactured with a PIN history setting that prevents the same PIN from being re-used within a certain number of times, you will experience problems if you issue, cancel, and re-issue a card. When the card is canceled, MyID attempts to reassign the SOPIN to the card; this causes a failure because the PIN is the same as a recent PIN used on the card.

2.9 Limit on number of smart cards

You can connect a maximum of ten smart card readers (including both physical smart card readers and VSCs) simultaneously to a PC. This is due to a Windows limitation; any additional readers are ignored.

2.10 Predetermined PIN policies

Smart cards may be manufactured with predetermined PIN policies – these PIN policies are not under the control of MyID.

If you have ordered smart cards like this from your manufacturer, make sure you create credential profiles in MyID that match the PIN policies that your cards can support.

2.11 Setting up OPACITY

The Open Protocol for Access Control Identification and Ticketing with privacY (OPACITY) provides a secure, high speed contactless interface for smart cards that support the protocol. MyID supports OPACITY Zero Key Management (ZKM), enabling interoperability with a range of readers or terminals.

When MyID personalizes the smart card, a Card Verifiable Certificate (CVC) is created on the card which is digitally signed, allowing an application to determine whether it trusts the card sufficiently to communicate over the contactless interface.

The OPACITY information on the smart card is reset when you erase the card; however, if you cancel the card using any other process (for example, **Cancel Credential**) the OPACITY information is not removed from the card, as the card is not physically affected by remote cancellation processes, and no certificate revocation takes place for the CVC.

Optionally, a pairing code can be generated when MyID personalizes the card, preventing the use of OPACITY over the contactless interface until a device has been able to provide the correct pairing code; this code is reset on the card when you erase it.

Note: MyID does not communicate with smart cards over the OPACITY contactless interface. You must always connect a smart card to a smart card reader to communicate with MyID.

2.11.1 Smart cards supported for OPACITY

See the tables of supported features in each chapter in this document for details of which cards support OPACITY. Any additional information about the specifics of the smart cards' support for OPACITY is detailed in the interoperability section in the appropriate chapter.

2.11.2 Setting up the CVC signing certificate

When MyID personalizes a smart card to support OPACITY, it creates a Card Verifiable Certificate (CVC) on the card; this certificate is digitally signed, which means that you must configure MyID to use a signing certificate for this purpose.

The signing certificate must be an ECC certificate with an appropriate size for the cards being issued; for example, IDEMIA ID-One PIV 2.4.1 cards support P256 and P384, therefore ECC NIST P384 Curve is recommended.

To configure the signing certificate in the MyID registry:

1. On the MyID application server, log on using the MyID COM+ account.
2. Request a certificate that will be protected by CNG (Key Storage Provider). You can issue a certificate from any certificate authority as long as it is available to CNG.

   Note: Do not enable strong private key protection on the certificate, as this will prevent processing of the request by the MyID account.
3. Once the certificate has been generated, install and save it as a `.cer` file (either Base64/PEM or binary format). You must save it in a location accessible to the MyID application, so save it to the `Components` folder within the MyID installation folder.

   Note: You may need administrative privileges to save files to this area.
4. Enter the filename of the certificate in the system registry.
   a. From the Start menu, run `regedit`.
   b. Navigate to:

      `HKEY_LOCAL_MACHINE\SOFTWARE\Intercede\Edefice\PIV`

      If this key does not exist, you can create it.
   c. Set the value of the following string to the full path and filename of the certificate:

      `CVCSigningCertificate`

      Create the value if it does not exist.

2.11.3 Setting up the credential profile

You must set up a credential profile in MyID to allow you to issue smart cards with support for OPACITY.

To set up a credential profile for OPACITY support:

1. From the **Configuration** category, select **Credential Profiles**.
2. Edit an existing credential profile or create a new one.
3. In the **Issuance Settings** section, set the following options:
   - **OPACITY** – set this to one of the following values:
     - **None** – Do not attempt to perform OPACITY personalization.
     - **OPACITY without Pairing Codes** – Personalize the OPACITY CVC but do not set an OPACITY pairing code.
     - **OPACITY with Pairing Codes** – Personalize the OPACITY CVC and generate and set an OPACITY pairing code.

- **Send Pairing Code Emails** – when the card is issued, send an email to the cardholder containing the pairing code.

  See section *2.11.4*, *Distributing the pairing code*

4. In the **Mail Documents** section, set the following option:
   - **Select PIN Mailing Document** – select a PIN mailing document template that contains the user's pairing code.

     See section *2.11.4*, *Distributing the pairing code* for details of your options for distributing pairing codes.
5. Complete the credential profile.

See the *Managing credential profiles* section in the ***Administration Guide*** for details of setting up credential profiles.

Note: MyID can personalize a smart card to support OPACITY when it is issued; however, it *cannot* update an already-issued smart card to a new version of the credential profile that has had OPACITY added. If you want to issue smart cards to support OPACITY, you must set up the credential profile to support OPACITY before you initially issue the cards. Alternatively, you can reprovision a smart card to add OPACITY support with an updated credential profile, as this carries out a full personalization.

2.11.4 Distributing the pairing code

If you are setting up your smart cards to use pairing codes for OPACITY, you must send the code to the cardholder when the card is issued. You can provide the pairing code in the following ways:

- Using an email template.

  Select the **Send Pairing Code Emails** option in the credential profile, and MyID sends an email to the cardholder's email address using the **Pairing Code Notification** email template. You can edit this template using the **Email Templates** workflow.

  For information on editing email templates, see the *Changing email messages* section in the ***Administration Guide***.

  To confirm that a pairing code has been sent in an email notification, you can review the **Notifications Manager** workflow.

- Using a PIN mailing document.

  Note: Only the **Collect Card** and **Batch Collect Card** workflows supports mailing document templates. Other workflows, for example **Print Mailing Document**, use the previous Microsoft Word-based mail merge document templates, which do *not* support pairing codes. If you are using card activation, you are recommended to send pairing codes in an email instead.

  Select a mailing document template from the **Select PIN Mailing Document** option in the credential profile, and MyID generates a document when the card is issued that you can print and send to the cardholder.

  To include the pairing code in a mailing document, you must add the following substitution code to the template:

  ```
  %%rawdevice.PairingCode_decrypt%%
  ```

For details of configuring templates for PIN mailing documents, contact customer support, quoting reference SUP-255.

To confirm that a pairing code has been printed, you can review the **Audit Reporting** workflow for the **Print Mailing Document** operation.

Note: If you generate a mailing document and the document contains the text "Pairing Code" instead of an actual pairing code, check that you have set the **OPACITY** option in the credential profile to **OPACITY with Pairing Codes**.

2.11.5 Identifying SPE cards

You can confirm whether a card has been issued with support for OPACITY Secure PIN Entry (SPE) by using the **Identify Card** workflow. The **Chip Type** displayed in the workflow includes "SPE" if the card requires OPACITY Secure PIN Entry.

2.11.6 Audit details

You can confirm that a card has been issued with support for OPACITY by checking the **Audit Reporting** workflow in MyID.

1. From the **Reports** category, select **Audit Reporting**.
2. From the **Operation** drop-down list, select **Issue Card**.
3. Click **Search**.
4. Click the green icon on the audit record for the card issuance you want to view.

   This displays the breakdown of the actions carried out during the card issuance.
5. Click the green icon for the top action in the list.
6. In the Audit Information Gathered dialog, click **Card Content**.

   At the bottom of the list, an entry similar to the following means that the card has been issued with support for OPACITY:

   ```
   2019-04-04 15:18:56 Personalised the Secure Messaging CVC object.
   Success
   ```

2.11.7 Troubleshooting OPACITY smart cards

If you see an error similar to the following when attempting to collect a smart card set up for OPACITY:

```
Unable to perform the requested operation
Solutions:
A problem occurred attempting to process your selection.
Please contact your administrator.
Error Number: 890493
```

The audit for the failure may additionally mention the `LoadCVC` operation.

This error may be caused by the following:

- Using an older version of MyID Desktop.

  Update your client software to the latest version.
- Using a smart card reader that does not support extended APDU commands.

Use a smart card reader that supports extended APDU commands; see section *6.5.7*, *Smart card readers supported for OPACITY* for details.

- Attempting to create a CVC but the CVC signing certificate is not present or invalid.

  Set up a CVC signing certificate; see section *2.11.2*, *Setting up the CVC signing certificate*.

If you see an error similar to the following:

```
An unexpected error has occurred.
Solutions:
Please contact your administrator.
Error Number: -2147220720
```

The extra information may contain the following:

```
Error: 0x80040310: Not logged into card
Extra Info: Error caused by function Unlock Pin
```

This error may be caused by attempting to collect an SPE card using a credential profile that is not set up for OPACITY.

2.12 Issuing smart cards that have PIV applets

Many of the smart cards and USB tokens that are supported by MyID contain a PIV applet; this applet is used to store certificates and information on the device, and is designed to support compliance with the Personal Identity Verification standards (FIPS 201-3) as laid down for federal agencies by the US Government.

To issue a PIV card that is fully compliant with the standards, you must use the PIV edition of MyID; however, if you have the non-PIV edition of MyID, you can issue these smart cards without having to comply fully with the US Government standards – this is sometimes referred to as CIV (Commercial Identity Verification).

To issue a card with a PIV applet, you must carry out the following:

1. Set up a PIV 9B key for the credential type.

   This is sometimes known as the "management key".

   You must use the **Key Manager** workflow within MyID to add a factory **PIV 9B Card Administration Key** to the system. See the *Managing keys* section in the ***Administration Guide*** for details.

2. Set up a GlobalPlatform key for the credential type.

   GlobalPlatform keys are required to carry out operations on some types of smart card.

   If your smart cards support GlobalPlatform keys, you must use the **Manage GlobalPlatform Keys** workflow to add a factory GlobalPlatform key. See the *GlobalPlatform keys* section in the ***Administration Guide*** for details.

3. Set up a credential profile to specify a CIV-compatible card format.

   The card format determines which containers are available for certificates.

   In the **Credential Profiles** workflow, in the **Device Profiles** section, from the **Card Format** drop-down list select one of the following:

   - `CivCertificatesOnly.xml`
   - `CivCertificatesOnlyCompressed.xml`

You can then select containers for the certificates on the Select Certificates screen.

See the *Managing credential profiles* section in the ***Administration Guide*** for details.

See the appropriate chapter of this guide for any specific requirements for your type of smart card; for example, some smart card types may require customer PIV 9B keys in addition to the factory PIV 9B key.

Note: If you require customized data in the PIV applet (for example, creating CHUID values, custom data, or signed data objects) contact your Intercede account manager to discuss your requirements.

Warning: PIV applets hold certificates in named containers. The Card Authentication (9E) container is designed for physical access control, so certificates within this container can be accessed without providing the user PIN, even over a contactless interface; you must ensure that the certificate contains only necessary information and does not expose cardholder details. If you do not have a suitable certificate policy, you are recommended to leave this container empty; do not assign a certificate policy to it when configuring the credential profile.

Note, however, that if you leave this container empty, you will be unable to carry out a self-service PIN unlock, and MyID will display an error similar to the following:

```
890467 Unable to authenticate card. Unlocking your own card is not allowed.
```

2.13 Unlocking smart cards that have a PIV applet

For cards that include a PIV applet (that is, PIV cards, and devices such as the YubiKey tokens that use PIV technology in a USB form factor) MyID provides the MyID Card utility, which allows a user to carry out a remote challenge/response unlock operation, and to change the user PIN.

For information on using the MyID Card Utility, see the *Remote PIN Management utility for PIV cards* section in the ***Operator's Guide***.

MyID also provides an unlock credential provider that allows a user to unlock their PIV-based device from the Windows logon screen. This provides the same functionality as the MyID Card Utility for remotely unlocking cards.

For details of installing and configuring the unlock credential provider, see the *Installing the unlock credential provider* section in the ***Installation and Configuration Guide***.

For details of using the unlock credential provider to unlock a PIV card, see the *Unlock credential provider* section in the ***Operator's Guide***.

See the interoperability section of each chapter in this document for details of which devices support the MyID Card Utility and the unlock credential provider.

2.14 Transaction locking

During the collection of a smart card, MyID makes use of transaction locks on the smart card reader. This is to ensure that the interaction with the smart card is not interrupted by other applications. If other applications are allowed access, then the collection will fail.

MyID will hold a transaction lock on a smart card only when it is necessary for card personalization.

During smart card collection it is strongly recommended that you *do not* lock your workstation. If any user input is required, for example user PIN entry, you will not be able to unlock your workstation. This is due to MyID having an active transaction lock. The only way to recover from this is to remove the smart card you are collecting.

If you are carrying out a batch issuance, if you set the **Suppress errors during batch issue** option, you can lock and unlock your workstation without any problems.

2.14.1 Issues with transaction locking

Different smart cards and middlewares behave in different ways, and you may encounter some problems with transaction locking with some smart cards under certain circumstances.

For example:

- If you log on to Windows with a SafeNet SC650 card, log on to MyID, then attempt to issue another SC650 to another user, if you lock and unlock the machine several times you may experience a signing error within MyID, or an error when trying to unlock Windows.
- When using IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 smart cards with Secure PIN Entry (SPE) support, if you have another, unissued, SPE cards in a card reader, you may experience problems if you lock your workstation, launch the UAC process, or use another application to access the smart card.
- When logged on to MyID using a PIV card, if you use the Identify Card workflow to identify a card issued to another user, then lock your workstation, the transaction lock is not released, and you must remove your operator card before you can log back in.
- If you log on to Windows using a Giesecke+Devrient Sm@rt Café® Expert 6.0 smart card, log on to MyID, then lock your workstation, you cannot log back in to Windows. This is an issue with the middleware.
- If you log on to Windows using a smart card, log on to MyID, then use the Switch User option in Windows to log back in as the same user, you may experience visual glitches in the MyID interface. If this happens, you can use the menu button at the top left of MyID Desktop to return to the Dashboard, or to log off and log on again.
- If you lock your workstation in the middle of a workflow, when you unlock, you may be required to log back in with your card.
- If you log on to Windows with a YubiKey USB token, log on to MyID, then lock your workstation in the middle of a workflow, when you unlock, you may experience a signing error. You can restart the workflow to resolve the problem.

2.15 Saving container data

When issuing a smart card using a data model, you can save the data that is written to a container to the MyID database; to configure MyID to do so, you must modify the data model XML file for the appropriate device type.

To save container data:

1. Open the data model file in a text editor.

   By default, the card data model files are stored on the application server in the following folder:

   `C:\Program Files\Intercede\MyID\Components\CardServer\CardFormats\`

   Note: You are recommended to take a copy of the existing file, rename it, and make your changes in the renamed file to ensure that your changes are not overwritten when updating your MyID system.

   You must back up your custom data model files before carrying out an upgrade. See the *Upgrading systems with customized card data models* section in the ***Installation and Configuration Guide***.

2. Locate the required container data in the data model file by finding the matching container ID or checking the container description.

```
<Container>
  <ID>5FC102</ID>
  <Name>Card Holder Unique Identifier</Name>
  ...
</Container>
```

3. Modify the data model by adding a `<SaveContainer>` node with the required container identifier.

   It makes sense to set the container identifier to be the same as the container ID; for example, for container ID 5FC102 add the node as follows:

```
<Container>
  <ID>5FC102</ID>
  <Name>Card Holder Unique Identifier</Name>
  <SaveContainer>DeviceContainers.5FC102</SaveContainer>
  ...
</Container>
```

4. Save the XML file.

The container data is saved in the `DeviceContainers` table in the MyID database when:

- Issuing a card.
- Updating a card if the update results in the container being updated.
- Erasing a card. The stored container data is updated with the erased container content.

2.15.1 Data storage

The saved data is stored in the `DeviceContainers` table in the following columns:

Column	Description
`DeviceID`	The reference to the `Devices` table entry associated with this data.
`ContainerIdentifier`	The identifier specified in the `<SaveContainer>` node.
`PersoDate`	The last date on which the data was written or updated.
`Data`	The container data in hex format.

An example of data written to the table for the container 5FC102 is:

ID	DeviceID	ContainerIdentifier	PersoDate	Data
1	3	5FC102	2021-07-02 07:55:28.323	3019D4E739DA739C ...

2.15.2 Retrieving data

It is the responsibility of the system integrator to retrieve the data from database and push it to the required system; for example, into your PACS. You are also recommended to purge the records after pushing the data. No user interface is provided for these procedures.

3 Athena smart cards

MyID has been tested with the following Athena smart cards:

Smart card	Type	Middleware	Support
Athena IDProtect	Smart card	IDProtect Client 7.1.2.7	Deprecated

Note: MyID has been tested with the minidrivers listed in the table above. Your version of the minidriver may be different, depending on which Windows updates you have installed. Make sure that you have the supported version of the minidriver installed.

Note: If you want to use Athena cards with Athena IDProtect PKCS#11 middleware, contact Intercede customer support for further information, quoting reference SUP-4.

3.1 Platforms for Athena smart cards

These smart cards have been tested on:

	Operating System		
Smart card	Windows 8.1	Windows 10	Windows 11
Athena IDProtect	Y		

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

3.2 Supported features for Athena smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

3.2.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with Athena smart cards.

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
Athena IDProtect	Y	P			P	P			Y	Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

3.2.1.1 PIN management

The following Athena cards support a limited range of PIN management features:

	Smart card
Feature	**Athena IDProtect**
Lock the PIN after issuance.	Y
Identify when the PIN is locked.	Y
Replace the SOPIN with a randomized value.	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y
Unlock the PIN using the SOPIN.	Y
Provide a remote unlock code.	Y
Reset the PIN at cancellation.	Y
Configure on-card PIN policy.	P

Key:

- Y – Fully supported.
- P – Partially supported. For details of supported on-card PIN policy features, see section *3.4.1*, *PIN policy settings*.
- blank – Not supported.

3.2.1.2 PKI – RSA

The following Athena smart card supports a limited range of PKI – RSA features:

	Smart card
Feature	**Athena IDProtect**
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Cryptographically sign or encrypt data.	Y
Specify the default certificate for Windows logon.	Y
Write 1024 bit certificates.	Y
Write 2048 bit certificates.	Y
Write 3072 bit certificates.	
Write 4096 bit certificates.	
Remove certificates.	Y
Inject a private key for certificate recovery.	Y
Enumerate certificates on the card.	Y

Key:

- Y – Fully supported.
- blank – Not supported.

3.2.1.3 PKI – ECC

The following Athena smart cards support a limited range of PKI – ECC features:

	Smart card
Feature	**Athena IDProtect**
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Specify the default certificate for Windows logon.	Y
ECC NIST P256 Curve	Y
ECC NIST P384 Curve	Y
ECC NIST P521 Curve	Y
Remove certificates.	Y
Archive certificates.	
Enumerate certificates on the card.	Y

Key:

- Y – Fully supported.
- blank – Not supported.

3.3 Installation and configuration for Athena smart cards

This section provides any information required when installing the middleware for the smart cards or configuring the smart cards either through their middleware or through MyID.

3.3.1 Using minidrivers for Athena smart cards

If you are using Athena smart cards with minidrivers, you must have the following:

- Athena IDProtect Client

See also section *2.4*, *Minidriver-based smart cards*.

Note: The IDProtect software has an installer like middleware, but is treated by MyID as a minidriver.

3.4 Interoperability for Athena smart cards

This section contains information about any considerations for using these smart card with other systems.

3.4.1 PIN policy settings

MyID allows you to set various policies for PINs using the settings in the credential profile. MyID enforces these settings for any operations carried out by MyID. For some smart cards, some or all of these settings are applied directly to the card, which means that the settings will also be enforced by third-party tools and utilities.

The following settings are supported for on-card PIN policy settings:

	Smart card
PIN Setting	**Athena IDProtect**
Maximum PIN Length	Y
Minimum PIN Length	Y
Repeated Characters Allowed	
Sequential Characters Allowed	
Logon Attempts	Y
PIN Inactivity Timer	Y
PIN History	Y
Lowercase PIN Characters	Y (optional or mandatory)
Uppercase PIN Characters	Y (optional or mandatory)
Numeric PIN Characters	Y (optional or mandatory)
Symbol PIN Characters	Y (optional or mandatory)
Lifetime	Y

- Y – Supported.
- blank – Not supported.

3.4.2 Known issues

- **Issues with smart card detection**

  Intercede has seen issues with the IDProtect Client software where MyID is not able to detect a new card. This is caused by the minidriver failing to return a serial number for the new card. This has been seen only with uninitialized cards, as they are delivered from the factory. NXP/Athena have provided Intercede with the following registry change to enable the serial number to be retrieved. You must apply this registry change to every client used to issue new cards:

  ```
  [HKEY_LOCAL_MACHINE\SOFTWARE\Athena Smartcard Solutions\IDProtect Client]

  "MDAllowWorkWithUnformattedCards"=dword:00000001

  [HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Athena Smartcard Solutions\IDProtect Client]

  "MDAllowWorkWithUnformattedCards"=dword:00000001
  ```

4 Egofy smart cards

MyID has been tested with the following Egofy smart cards:

Smart card	Type	Middleware	Support
TicTok v1.1	Smart card	lasermd.dll v7.1.7.0	Supported
TicTok v2.0	Smart card	lasermd.dll v7.1.7.0	Supported
Egofy v3.0	Smart card	ciamd.dll v7.1.8.0	Supported
Egofy v3.0 with FIDO	Smart card	ciamd.dll v7.6.0.2	Supported

Note: Egofy smart cards were previously known as TicTok smart cards.

Note: MyID has been tested with the minidrivers listed in the table above. Your version of the minidriver may be different, depending on which Windows updates you have installed. Make sure that you have the supported version of the minidriver installed.

4.1 Platforms for Egofy smart cards

These smart cards have been tested on:

	Operating System		
Smart card	Windows 8.1	Windows 10	Windows 11
TicTok v1.1	Y	Y	
TicTok v2.0	Y	Y	
Egofy v3.0	Y	Y	
Egofy v3.0 with FIDO	Y	Y	

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

4.2 Supported features for Egofy smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

4.2.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with Egofy smart cards.

Smart card	Features									
	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
TicTok v1.1	Y	P			P				Y	Y
TicTok v2.0	Y	P			P	P			Y	Y
Egofy v3.0	Y	P			P	P			Y	Y
Egofy v3.0 with FIDO	Y	P			P	P			Y	Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

4.2.1.1 PIN management

The following Egofy cards support a limited range of PIN management features:

	Smart card	
Feature	TicTok v1.1	TicTok v2.0
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.	P	P

	Smart card	
Feature	Egofy v3.0	Egofy v3.0 with FIDO
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.	P	P

Key:

- Y – Fully supported.
- P – Partially supported. For details of supported on-card PIN policy features, see section *4.4.1*, *PIN policy settings*.
- blank – Not supported.

4.2.1.2 PKI – RSA

The following Egofy smart cards support a limited range of PKI – RSA features:

	Smart card	
Feature	**TicTok v1.1**	**TicTok v2.0**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**Egofy v3.0**	**Egofy v3.0 with FIDO**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y

	Smart card	
Feature	**Egofy v3.0**	**Egofy v3.0 with FIDO**
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Key:

- Y – Fully supported.
- blank – Not supported.

4.2.1.3 PKI – ECC

The following Egofy smart cards support a limited range of PKI – ECC features:

	Smart card		
Feature	**TicTok v2.0**	**Egofy v3.0**	**Egofy v3.0 with FIDO**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
ECC NIST P256 Curve	Y	Y	Y
ECC NIST P384 Curve	Y	Y	Y
ECC NIST P521 Curve	Y	Y	Y
Remove certificates.	Y	Y	Y
Archive certificates.			
Enumerate certificates on the card.	Y	Y	Y

Key:

- Y – Fully supported.
- P – Partially supported.
- blank – Not supported.

4.3 Installation and configuration for Egofy smart cards

This section provides any information required when installing the middleware for the smart cards or configuring the smart cards through either their middleware or through MyID.

4.3.1 Using minidrivers for Egofy smart cards

If you are using Egofy smart cards with minidrivers, see section *2.4*, *Minidriver-based smart cards*.

Contact the card vendor for the drivers required for card support.

4.3.2 PIN Inactivity Timer for Egofy smart cards

The credential profile contains a **PIN Inactivity Timer** setting in the PIN Settings. This value is in minutes.

Important: In previous versions of MyID, for Egofy cards, this setting was in seconds, and users were recommended to set up a separate credential profile for Egofy cards, and to set the **PIN Inactivity Timer** setting to the required number of minutes multiplied by 60. *This is no longer the case*. You must now specify a value in minutes. If you set up this workaround for a previous version, you must contact Intercede customer support, quoting reference SUP-203.

4.3.3 Support for TicTok v1.1 cards

You must edit the registry on each client on which you want to issue TicTok v1.1 cards to allow them to support the secure messaging keys.

In the following locations:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Athena Smartcard Solutions\IDProtect Client
```

and

```
HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Athena Smartcard
Solutions\IDProtect Client
```

set the following:

```
aseSMFormatType = 0
```

4.3.4 Support for Egofy v3.0 cards

To support Egofy v3.0 cards, you must update the registry on each client on which you want to issue these cards to add the ATR (Answer to Reset) values for Egofy v3.0 smart cards. Contact your card vendor for more information.

4.3.5 FIDO for Egofy devices

For information on FIDO, see the ***FIDO Authenticator Integration Guide***.

4.4 Interoperability for Egofy smart cards

This section contains information about any considerations for using these smart card with other systems.

4.4.1 PIN policy settings

MyID allows you to set various policies for PINs using the settings in the credential profile. MyID enforces these settings for any operations carried out by MyID. For some smart cards, some or all of these settings are applied directly to the card, which means that the settings will also be enforced by third-party tools and utilities.

The following settings are supported for on-card PIN policy settings:

	Smart card	
PIN Setting	**TicTok v1.1/v2.0**	**Egofy v3.0/v3.0 with FIDO**
Maximum PIN Length	Y	Y
Minimum PIN Length	Y	Y
Repeated Characters Allowed		
Sequential Characters Allowed		
Logon Attempts	Y	Y
PIN Inactivity Timer	Y	Y
PIN History	Y	Y
Lowercase PIN Characters	Y (optional or mandatory)	Y (optional or mandatory)
Uppercase PIN Characters	Y (optional or mandatory)	Y (optional or mandatory)
Numeric PIN Characters	Y (optional or mandatory)	Y (optional or mandatory)
Symbol PIN Characters	Y (optional or mandatory)	Y (optional or mandatory)
Lifetime	Y	Y

- Y – Supported.
- blank – Not supported.

Note: There is currently an issue with the minidriver where you can still set a PIN without symbol characters even if you specify symbol PIN characters as mandatory.

4.4.2 Known issues

- **Issues with smart card detection**

  Intercede has seen issues with the IDProtect Client software where MyID is not able to detect a new card. This is caused by the minidriver failing to return a serial number for the new card. This has been seen only with uninitialized cards, as they are delivered from the factory. NXP/Athena have provided Intercede with the following registry change to enable the serial number to be retrieved. You must apply this registry change to every client used to issue new cards:

  ```
  [HKEY_LOCAL_MACHINE\SOFTWARE\Athena Smartcard Solutions\IDProtect Client]

  "MDAllowWorkWithUnformattedCards"=dword:00000001

  [HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Athena Smartcard Solutions\IDProtect Client]

  "MDAllowWorkWithUnformattedCards"=dword:00000001
  ```

5 Giesecke+Devrient smart cards

MyID has been tested with the following Giesecke+Devrient smart cards:

Smart card	Type	Middleware	Support
Sm@rt Café® Expert 6.0	Smart card/Chip	AET SafeSign v3.0.97	Deprecated
SCE v7.0	PIV card	n/a	Supported
GieseckeDevrient – CoolKey	Smart card/Chip	CoolKey applet v1.4	Supported

The CoolKey applet is currently supported on Giesecke+Devrient SCE v7.0 smart cards. Support for the CoolKey applet on these cards requires an additional software update.

For information about acquiring the CoolKey update, contact customer support quoting reference SUP-323.

Important: If you are using Giesecke+Devrient SCE v7.0 smart cards with the CoolKey applet, you cannot use SCE v7.0 smart cards as listed in the table above – the cards have the same identifier and cannot be distinguished within MyID. If you install the configuration update for CoolKey support, the cards are identified as "GieseckeDevrient – CoolKey".

5.1 Keys for Giesecke+Devrient smart cards

This section provides information you need when setting up keys for Giesecke+Devrient smart cards.

5.1.1 Secure Channel Protocol

The Secure Channel Protocol (SCP) is used in the **Manage GlobalPlatform Keys** workflow.

When configuring your GlobalPlatform keys, use the following Secure Channel Protocol:

Smart card	SCP
SCE v7.0	SCP03
GieseckeDevrient – CoolKey	SCP03

5.1.2 Cryptographic keys for Giesecke+Devrient cards

When you configure the cryptographic keys, use the following details:

	SCE v7.0	GieseckeDevrient – CoolKey
Credential Type in MyID	GieseckeDevrient PIV	GieseckeDevrient - CoolKey
GlobalPlatform Secure Channel	SCP03	SCP03
Factory GlobalPlatform Key Type	AES128	AES128
Factory GlobalPlatform Key Diversification Algorithm	Static	Static *or* Diverse108*
Factory PIV 9B Key Encryption Type	3DES	n/a
PIV 9B Factory Key Diversity	Static	n/a
Recommended PIV 9B Customer Key Diversity	Diverse2	n/a

* Intercede is aware of two variants of the Giesecke+Devrient SCE v7.0 smart cards with the CoolKey applet, one of which uses static factory keys, the other of which uses diverse factory keys with a key diversification algorithm of Diverse108. Contact your card supplier for more information.

5.2 Platforms for Giesecke+Devrient smart cards

These smart cards have been tested on:

	Operating System		
Smart card	**Windows 8.1**	**Windows 10**	**Windows 11**
Sm@rt Café® Expert 6.0		Y	
SCE v7.0	Y	Y	
GieseckeDevrient – CoolKey		Y	

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

5.3 Supported features for Giesecke+Devrient smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

5.3.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with Giesecke+Devrient smart cards.

	Features									
Smart card	**MyID**	**PIN**	**GP**	**Applet**	**RSA**	**ECC**	**PIV**	**OPACITY**	**Print**	**Client OS**
Sm@rt Café® Expert 6.0	Y	P			P				Y	Y
SCE v7.0		P	Y		P	P	Y		Y	Y
GieseckeDevrient – CoolKey	Y	P	Y		P				Y	Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

5.3.1.1 PIN management

The following Giesecke+Devrient cards support a limited range of PIN management features:

	Smart card		
Feature	**Sm@rt Café® Expert 6.0**	**SCE v7.0**	**GieseckeDevrient – CoolKey**
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	
Unlock the PIN using the SOPIN.	Y	Y	
Provide a remote unlock code.	Y	Y	
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.			

Key:

- Y – Fully supported.
- blank – Not supported.

5.3.1.2 PKI – RSA

The following Giesecke+Devrient smart card supports a limited range of PKI – RSA features:

	Smart card		
Feature	**Sm@rt Café® Expert 6.0**	**SCE v7.0**	**GieseckeDevrient – CoolKey**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.	Y		
Write 2048 bit certificates.[1]	Y	Y	Y
Write 3072 bit certificates.			
Write 4096 bit certificates.			

[1]Not all Giesecke+Devrient cards support 2048-bit certificates. Contact your card supplier for details.

Feature	Smart card		
	Sm@rt Café® Expert 6.0	SCE v7.0	GieseckeDevrient – CoolKey
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.	Y		Y

Key:

- Y – Fully supported.
- blank – Not supported.

5.3.1.3 PKI – ECC

The following Giesecke+Devrient smart cards support a limited range of PKI – ECC features:

Feature	Smart card
	SCE v7.0
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Specify the default certificate for Windows logon.	Y
ECC NIST P256 Curve	Y
ECC NIST P384 Curve	
ECC NIST P521 Curve	
Remove certificates.	Y
Archive certificates.	
Enumerate certificates on the card.	

Key:

- Y – Fully supported.
- blank – Not supported.

5.3.2 Remote unlock

Note: Not all Giesecke+Devrient cards support remote unlocking. Contact your card supplier for more details.

MyID supports remote unlocking of Giesecke+Devrient using the standard **Unlock Credential** workflow.

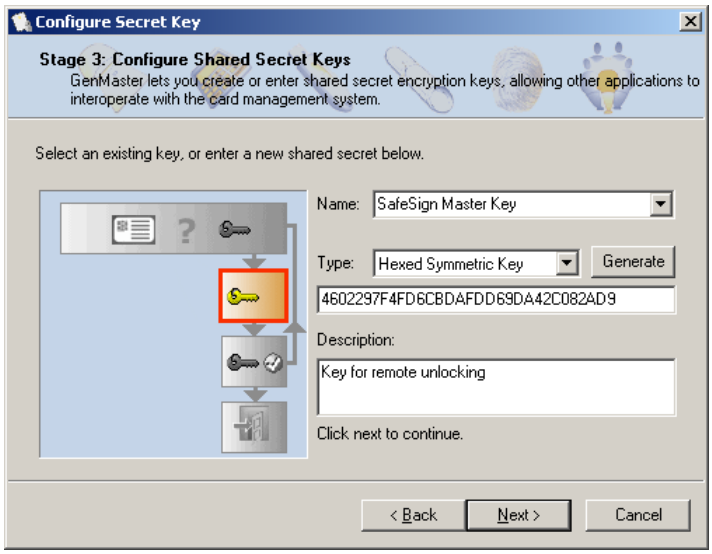
Note: If you set up your MyID system to use remote unlocking, you cannot issue any Giesecke+Devrient cards that do not support remote unlocking. If you attempt to issue a card that does not support remote unlocking, you will see any error similar to the following:

```
Initialize Error
-2147220734 Exception thrown: class CCardException
Message: A general smartcard error occurred
HRESULT: 80040302
PKCS Error: 30
```

```
From file: .\Card Drivers\GDSmartCard.cpp
From line: 395
Meaning: Smart Card Exception
```

5.3.2.1 Creating a secret key

1. Start GenMaster from the **Start** menu.
2. Select the option to **Configure Secret Keys**. Click **Next**.
3. The **Configure Shared Secret Keys** dialog is displayed.



   a. In **Name**, enter **SafeSign Master Key**.
   b. In **Type**, select **Hexed Symmetric Key**.
   c. Click **Generate**.
   d. Enter an appropriate **Description**.
   e. Click **Next**.

   Note: **Next** is disabled until all information has been entered.
4. A confirmation message is displayed – click **Next** to continue.
5. Click **Cancel** to close GenMaster.

Note: The secret keys are written to the cards when they are issued, so you will not be able to use the remote unlock facility with any cards that were issued prior to creating this key.

5.3.2.2 Configuration settings

The **Offline Unlock Method** configuration option specifies which remote unlocking method you are going to use.

To specify the unlock method:

1. Select **Security Settings** from the **Configuration** category.
2. Select the **PINs** tab.
3. From the drop-down list for **Offline Unlock Method**, select one of the following:

- **None** – no remote unlocking
- **Challenge** – a 16-character challenge code is required
- **Witness** – a 56-character challenge code is required, that consists of both the challenge code and a HASH.

4. Click **Save Changes**.

5.3.2.3 Operating instructions

If a cardholder repeatedly enters an incorrect PIN, the card will lock.

1. The cardholder contacts the Helpdesk operator by telephone.
2. The Helpdesk operator uses the **Unlock Credential** workflow within MyID and guides the cardholder through generating a challenge using the Giesecke+Devrient Token Administration Utility.

   When prompted, inform the cardholder to select **Unlock PIN via off-line PIN unlock**, then select either:

   - 3DES ECB Challenge/Response
   - 3DES ECB Witness/Challenge/Response

   See the *Unlocking a credential remotely* section in the ***Operator's Guide*** for details of using the **Unlock Credential** workflow.

   Note: Earlier versions of MyID used the **Remote Unlock** workflow for this procedure. From MyID 10.7, the **Unlock Credential** workflow supersedes **Remote Unlock**.
3. The Helpdesk operator reads the unlocking code to the cardholder, who enters it into the Token Administration Utility. The code must be entered exactly as read, with no spaces. Case is not important.

5.4 Installation and configuration for Giesecke+Devrient smart cards

This section provides any information required when installing the middleware for smart cards or configuring smart cards through either their middleware or through MyID.

5.4.1 CoolKey configuration

Information about configuring MyID to issue CoolKey cards is included in the document supplement provided with the additional software update that is required for support for the CoolKey applet on these cards.

For information about acquiring this update, contact customer support quoting reference SUP-323.

5.4.2 Installation options

While installing this middleware, ensure that the 'CSP' and 'PKCS11' subcomponents are selected – these are required for MyID to communicate with the smart cards. You must install the middleware before installing MyID.

5.4.3 Special usage notes for MyID

Note: It is claimed that production cards cannot be initialized twice. Like IdenTrust these cards are issued once and are issued for life.

5.4.4 Issuing smart cards that have PIV applets

For information on issuing smart cards that have PIV applets using a non-PIV MyID system, see section *2.12*, *Issuing smart cards that have PIV applets*.

5.5 Interoperability for Giesecke+Devrient smart cards

This section contains information about any considerations for using these smart card with other systems.

5.5.1 CoolKey applets

You can issue SCE v7.0 smart cards that have the CoolKey applet. These smart cards are displayed within MyID with a device type of "GieseckeDevrient – CoolKey".

Support for the CoolKey applet on these cards requires an additional software update – for information about acquiring this update, contact customer support quoting reference SUP-323.

Note: You may experience problems if you attempt to use GemPC Twin smart card readers with smart cards that have the CoolKey applet loaded. You are recommended to use a different card reader.

5.5.2 Unlocking Giesecke+Devrient PIV cards

Giesecke+Devrient SCE v7.0 PIV cards include a PIV applet, which means that you can use the MyID Card Utility to carry out a remote challenge/response unlock operation and change the user PIN, and the unlock credential provider to unlock the devices from the Windows logon screen.

See section *2.13*, *Unlocking smart cards that have a PIV applet*.

5.5.3 Interoperability with AET middleware

If you have AET middleware installed, you may not be able to use PIV or minidriver-based cards with MyID; this is because the AET middleware attempts to communicate with the card, thereby preventing MyID from communicating directly with the card.

If you are using cards that do not require the AET middleware, you are recommended to make sure that AET middleware is not installed on any of your client workstations where you will be using these cards.

5.5.4 Initializing cards

If you are experiencing problems initializing cards, you may have to disable the certificate expiration check utility (`aetcrss1.exe`) on the client machine.

To disable the certificate expiration check utility:

1. Remove the check from the **Tasks** list within the **Token Utility**.
2. Remove the following key from the registry:

   ```
   HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\
   CertificateExpiration
   ```

   Note: On 64-bit systems, this is:

   ```
   HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\
   ```

`CurrentVersion\Run\CertificateExpiration`

3. Restart the machine.

5.5.5 Deleting individual certificates from PIV cards

If you update a Giesecke+Devrient PIV card with a credential profile that has a certificate removed, the certificate is not removed from the card. This is because the PIV standard does not specify a delete command; other PIV card manufacturers may provide custom commands to delete individual certificates from their PIV cards, but this is not possible with Giesecke+Devrient PIV cards. Certificates are removed from the card only when it is erased.

5.5.6 Collecting a Sm@rt Café card on a PC with a VSC

You may experience problems when issuing Sm@rt Café cards if there is a VSC present on your PC. For more information, contact customer support quoting reference SUP-291.

5.5.7 PIN characters for PIV cards

The SP800-73 PIV specification requires that PIV cards use numeric-only PINs. It is possible to configure MyID to use non-numeric PIN characters for PIV cards, although the smart cards will fail to issue.

Make sure you set up the credential profile correctly; in the **PIN Characters** section of the **Credential Profiles** workflow, set number to be **Mandatory**, and uppercase letters, lowercase letters, and symbols to **Not Allowed**.

5.5.8 Additional identities for Giesecke+Devrient PIV cards

If you want to issue additional identities to devices with PIV applets, you must have a Windows minidriver installed to make the certificates available for uses such as Windows logon. MyID has not yet been tested with a minidriver that provides this feature for Giesecke+Devrient PIV cards.

For more information, see the *Additional identities on devices with PIV applets* section in the ***Administration Guide***.

5.5.9 Known issues

- **IKB-239 – Giesecke+Devrient PIV cards cannot be issued without the full PIV data model being used**

  You must use Giesecke+Devrient SCE v7.0 PIV cards with the PIV data model (`PivDataModel.xml`) – configure this in the credential profile. Attempting to issue this card with an alternative data model will fail with an error 890493.

6 IDEMIA smart cards

Note: IDEMIA cards were previously issued under the Oberthur name.

MyID has been tested with the following IDEMIA smart cards:

Smart card	Type	Middleware	Support
Oberthur ID-One Cosmo v7.0.1 with IAS Standard applet	Smart card/Chip	Oberthur IAS-ECC minidriver v2.2.8	Deprecated
Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"	PIV card	n/a	Supported
Oberthur ID-One PIV (v2.3.4)	PIV card	n/a	Supported
Oberthur ID-One PIV (v2.3.5)	PIV card	n/a	Supported
Oberthur ID-One PIV (v2.4.0)	PIV card	n/a	Supported
IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1	PIV card	n/a	Supported
IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2	PIV card	n/a	Supported

Note: MyID has been tested with the minidrivers listed in the table above. Your version of the minidriver may be different, depending on which Windows updates you have installed. Make sure that you have the supported version of the minidriver installed.

For Oberthur ID-One PIV (v2.3.2) cards, MyID supports the following specification:

- *BAP#087284 – ID-One (Type A) default configuration for Intercede CMS.pdf*.

If you intend to use ID-One PIV (v2.3.2) cards manufactured to another specification, contact customer support for more information, quoting reference SUP-9.

For Oberthur ID-One PIV (v2.3.5) cards, MyID supports the following specification:

- *BAP#087424 – ID-One PIV (NPIVP-Basic) on Cosmo v8, high speed*

For Oberthur ID-One PIV (v2.4.0) cards, MyID supports the following specifications:

- *BAP#087430 – ID-One PIV (NPIVP-Basic) on Cosmo v8*
- *BAP#087434 – ID-One PIV (NPIVP-Basic) on Cosmo v8, high speed*
- *BAP#087432 – ID-One PIV (CIV) on Cosmo v8*

Note: Oberthur ID-One PIV (v2.4.0) cards are supported on MyID only in conjunction with specific integration for a particular customer. If you want to use these cards with MyID, contact your Intercede account manager.

For IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 cards, MyID supports the following specifications:

- *BAP#087484 – ID-One PIV 2.4 on Cosmo v8.1 NPIVP*
- *BAP#087494 – ID-One PIV 2.4 on Cosmo v8.1 NPIVP (transitional configuration)*
- *BAP#087483 – ID-One PIV 2.4 on Cosmo v8.1 SPE*
- *BAP#087487 – ID-One PIV 2.4 on Cosmo v8.1 CIV (with 125Khz prox loop)*

Note: The historic bytes for the BAP#087487 device `80, 31, C1, 52, xx, 12` indicate that this card has been initialized using the CIV configuration. The prox loop is not supported.

For IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 cards, MyID supports the following specifications:

- *BAP#087584 – ID-One PIV 2.4 on Cosmo v8.2 NPIVP*
- *BAP#087586 – ID-One PIV 2.4 on Cosmo v8.2 SPE+*
- *BAP#087583 – ID-One PIV 2.4 on Cosmo v8.2 Global PIN*

For more information about Secure PIN Entry (SPE), see section *6.5.6, OPACITY Secure PIN Entry support*. For more information about Global PIN, see section *6.5.9, Global PIN support*.

6.1 Keys for IDEMIA smart cards

This section provides information you need when setting up keys for IDEMIA smart cards.

6.1.1 Secure Channel Protocol

The Secure Channel Protocol (SCP) is used in the **Manage GlobalPlatform Keys** workflow.

When configuring your GlobalPlatform keys, use the following Secure Channel Protocol:

Smart card	SCP
Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"	OT-SCP03
Oberthur ID-One PIV (v2.3.4)	OT-SCP03
Oberthur ID-One PIV (v2.3.5)	SCP03
Oberthur ID-One PIV (v2.4.0)	SCP03
IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1	SCP03
IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2	SCP03

6.1.2 Cryptographic keys for ID-One PIV cards

When you configure the cryptographic keys, use the following details:

	Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"	Oberthur ID-One PIV (v2.3.4)	Oberthur ID-One PIV (v2.3.5)
Credential Type in MyID	Oberthur ID-One PIV	Oberthur ID-One PIV	Oberthur ID-One PIV v8
GlobalPlatform Secure Channel	OT-SCP03	OT-SCP03	SCP03
Factory GlobalPlatform Key Type	AES128	AES128	AES256
Factory GlobalPlatform Key Diversification Algorithm	Diverse3	Diverse3	DiverseOT108

	Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"	Oberthur ID-One PIV (v2.3.4)	Oberthur ID-One PIV (v2.3.5)
Factory PIV 9B Key Encryption Type	3DES	3DES	AES256
PIV 9B Factory Key Diversity	Static	Static	DiverseOT108
Recommended PIV 9B Customer Key Diversity	Diverse2	Diverse2	DiverseOT108

	Oberthur ID-One PIV (v2.4.0)	IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1
Credential Type in MyID	Oberthur ID-One PIV v8	IDEMIA ID-One PIV v81
GlobalPlatform Secure Channel	SCP03	SCP03
Factory GlobalPlatform Key Type	AES256	AES256
Factory GlobalPlatform Key Diversification Algorithm	DiverseOT108	DiverseOT108
Factory PIV 9B Key Encryption Type	AES256	AES256
PIV 9B Factory Key Diversity	DiverseOT108	DiverseOT108
Recommended PIV 9B Customer Key Diversity	DiverseOT108	DiverseOT108

	IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2
Credential Type in MyID	IDEMIA ID-One PIV v82
GlobalPlatform Secure Channel	SCP03
Factory GlobalPlatform Key Type	AES256
Factory GlobalPlatform Key Diversification Algorithm	DiverseOT108
Factory PIV 9B Key Encryption Type	AES256
PIV 9B Factory Key Diversity	DiverseOT108
Recommended PIV 9B Customer Key Diversity	DiverseOT108

6.2 Platforms for IDEMIA smart cards

These smart cards have been tested on:

Smart card	Operating System		
	Windows 8.1	Windows 10	Windows 11
Oberthur ID-One Cosmo v7.0.1 with IAS Standard applet	Y		
Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"	Y	Y	Y
Oberthur ID-One PIV (v2.3.4)	Y		
Oberthur ID-One PIV (v2.3.5)	Y	Y	
Oberthur ID-One PIV (v2.4.0)	Y	Y	Y
IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1	Y	Y	Y
IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2	Y	Y	Y

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

6.3 Supported features for IDEMIA smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

6.3.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with IDEMIA smart cards.

	Features									
Smart card	**MyID**	**PIN**	**GP**	**Applet**	**RSA**	**ECC**	**PIV**	**OPACITY**	**Print**	**Client OS**
Oberthur ID-One Cosmo v7.0.1 with IAS Standard applet	Y	P			P				Y	Y
Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"		P	Y		P	P	Y		Y	Y
Oberthur ID-One PIV (v2.3.4)		P	Y		P	P	Y		Y	Y
Oberthur ID-One PIV (v2.3.5)		P	Y		P	P	Y		Y	Y
Oberthur ID-One PIV (v2.4.0)		P	Y		P	P	Y		Y	Y
IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1		P	Y		P	P	Y	Y	Y	Y
IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2		P	Y		P	P	Y	Y	Y	Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

6.3.1.1 PIN management

The following IDEMIA cards support a limited range of PIN management features:

	Smart card	
Feature	**Oberthur ID-One Cosmo v7.0.1 with IAS Standard applet**	**Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card	
Feature	**Oberthur ID-One PIV (v2.3.4)**	**Oberthur ID-One PIV (v2.3.5)**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

Feature	Smart card	
	Oberthur ID-One PIV (v2.4.0)	IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		P

Feature	Smart card
	IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2
Lock the PIN after issuance.	Y
Identify when the PIN is locked.	Y
Replace the SOPIN with a randomized value.	Y
Replace the SOPIN with the factory SOPIN at cancellation.	
Unlock the PIN using the SOPIN.	Y
Provide a remote unlock code.	Y
Reset the PIN at cancellation.	Y
Configure on-card PIN policy.	P

Key:

- Y – Fully supported.
- P – Partially supported. For details of supported on-card PIN policy features, see section *6.5.2*, *PIN policy settings*.
- blank – Not supported.

6.3.1.2 PKI – RSA

The following IDEMIA smart cards support a limited range of PKI – RSA features:

	Smart card		
Feature	**Oberthur ID-One Cosmo v7.0.1 with IAS Standard applet**	**Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"**	**Oberthur ID-One PIV (v2.3.4)**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.	Y	Y	Y
Write 2048 bit certificates.	Y	Y	Y
Write 3072 bit certificates.			
Write 4096 bit certificates.			
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.	Y		

	Smart card	
Feature	**Oberthur ID-One PIV (v2.3.5)**	**Oberthur ID-One PIV (v2.4.0)**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y

Feature	Smart card	
	Oberthur ID-One PIV (v2.3.5)	Oberthur ID-One PIV (v2.4.0)
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.		

Feature	Smart card	
	IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1	IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		Y[1]
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.		

Key:

- Y – Fully supported.
- blank – Not supported.

6.3.1.3 PKI – ECC

The following IDEMIA smart cards support a limited range of PKI – ECC features:

[1] 3072 bit keys are supported only on devices conforming to *BAP#087586 – ID-One PIV 2.4 on Cosmo v8.2 SPE+*.

Feature	Smart card	
	Oberthur ID-One PIV (v2.3.2) "ID-One PIV (Type A) Large D"	Oberthur ID-One PIV (v2.3.4)
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.	Y	Y
Enumerate certificates on the card.		

Feature	Smart card	
	Oberthur ID-One PIV (v2.3.5)	Oberthur ID-One PIV (v2.4.0)
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.	Y	Y
Enumerate certificates on the card.		

Feature	Smart card	
	IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1	IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.	Y	Y
Enumerate certificates on the card.		

Key:

- Y – Fully supported.
- blank – Not supported.

6.3.1.4 ECC support for PIV cards

The ECC features you can use for PIV cards are defined in NIST sp800-78-4:

- The `piv-auth` and `cardauth` containers can hold P256 certificates.
- The `dig-sig` and `key-management` containers can hold P256 or P384 certificates.
- P521 certificates are not allowed.

6.3.2 Additional features

ID-One PIV smart cards can be provided by IDEMIA to support the following additional features:

- HID Prox support.
- IDEMIA may ship their ID-One PIV cards with the contactless portion disabled. When you first issue an ID-One PIV card through MyID, whether by standard issuance, bureau issuance with card activation, through **Batch Encode Card**, or deferred activation, MyID will enable the contactless portion of the card if it is not already enabled.

IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 and IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 cards support the following additional feature:

- Symmetric PIV 9E key.

  To enable this feature, set the **Manage PIV 9E key on supported devices** configuration option (on the **Device Security** page of the **Security Settings** workflow) to Yes. The

symmetric 9E key is diversified using the 9B Master Key. During card issuance the 9E Key is set using the Customer 9B master key, while the Factory 9B master key is used when the device is erased.

6.4 Installation and configuration for IDEMIA smart cards

This section provides any information required when installing the middleware for smart cards or configuring smart cards through either their middleware or through MyID.

6.4.1 PIN characters for PIV cards

The SP800-73 PIV specification requires that PIV cards use numeric-only PINs. It is possible to configure MyID to use non-numeric PIN characters for some PIV cards, although some smart cards will fail to issue; for example the Oberthur ID-One PIV (v2.3.4), Oberthur ID-One PIV (v2.3.5), and Oberthur ID-One PIV (v2.4.0).

Make sure you set up the credential profile correctly; in the **PIN Characters** section of the **Credential Profiles** workflow, set number to be **Mandatory**, and uppercase letters, lowercase letters, and symbols to **Not Allowed**.

6.4.2 Serial numbers for IDEMIA PIV cards

ID-One PIV cards have a serial number which consists of the IIN and CIN.

Oberthur ID-One PIV v2.3.2 and v2.3.4 cards arrive from the factory with a serial number (IIN and CIN) already prepersonalized on the cards. When ordering cards from IDEMIA the customer would specify the IIN, and IDEMIA would create a unique CIN for each card.

Oberthur ID-One PIV v2.3.5 and Oberthur ID-One PIV v2.4.0 cards arrive without a serial number. MyID will create a serial number (IIN and CIN) during personalization.

MyID generates a CIN for each card, but the IIN (the first part of the serial number) is taken from a configuration value in MyID.

Important: On any MyID system that is intended to issue ID-One PIV v2.3.5 or v2.4.0 cards, you *must* configure MyID with the required IIN value.

To configure the IIN value to be personalized on ID-One PIV v2.3.5 or v2.4.0 cards, in the **Operation Settings** workflow, on the **Devices** tab, set the **Serial Number IIN** to the required value. The default is `0123456789`.

When MyID issues an Oberthur ID-One PIV v2.3.5 card or Oberthur ID-One PIV v2.4.0 card, this IIN, and a generated CIN value, will be personalized on the card.

If the card already has a serial number (if it has already been issued by MyID), the serial number will not be repersonalized. Therefore any cards previously issued by MyID will keep the IIN with which they were previously personalized.

IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 cards use the IDEMIA CUID (personalized by IDEMIA at the factory) for the serial number, except for cases where IIN and CIN are present on the card already; in which case MyID uses the IIN and CIN as the serial number. MyID does not personalize IIN and CIN during personalization for IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 cards.

6.4.3 Issuing smart cards that have PIV applets

For information on issuing smart cards that have PIV applets using a non-PIV MyID system, see section *2.12, Issuing smart cards that have PIV applets*.

6.5 Interoperability for IDEMIA smart cards

This section contains information about any considerations for using these smart card with other systems.

6.5.1 Unlocking IDEMIA PIV cards

IDEMIA and Oberthur ID-One PIV cards include a PIV applet, which means that you can use the MyID Card Utility to carry out a remote challenge/response unlock operation and change the user PIN, and the unlock credential provider to unlock the devices from the Windows logon screen.

See section *2.13*, *Unlocking smart cards that have a PIV applet*.

- **IKB-284 – Cannot use the unlock credential provider with IDEMIA cards manufactured for SPE**

  It is not currently possible to unlock an IDEMIA PIV card that has been manufactured to require Secure Pin Entry.

6.5.2 PIN policy settings

MyID allows you to set various policies for PINs using the settings in the credential profile. MyID enforces these settings for any operations carried out by MyID. For some smart cards, some or all of these settings are applied directly to the card, which means that the settings will also be enforced by third-party tools and utilities.

The following settings are supported for on-card PIN policy settings:

	Smart card	Smart card
PIN Setting	**IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1**	**IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2**
Maximum PIN Length		
Minimum PIN Length		
Repeated Characters Allowed		
Sequential Characters Allowed		
Logon Attempts	Y	Y
PIN Inactivity Timer		
PIN History		
Lowercase PIN Characters		
Uppercase PIN Characters		
Numeric PIN Characters		
Symbol PIN Characters		
Lifetime		

- Y – Supported.
- blank – Not supported.

6.5.3 Logon attempts

The number of attempts to log on to a card before it is locked may be set by the manufacturer according to the BAP and may not be configurable through MyID, depending on the smart card being used. For example, if you set the number of logon attempts to 5, the following cards lock after the listed number of attempts, ignoring the value set in MyID:

- Oberthur ID-One PIV (v2.3.2) (Type A) Large D – 10 attempts.
- Oberthur ID-One PIV (v2.3.4) – 10 attempts.
- Oberthur ID-One PIV (v2.3.5) – 10 attempts.
- Oberthur ID-One PIV (v2.4.0) – 10 attempts.

The **Logon Attempts** option in the credential profile *is* encoded as the PIN try counter for the following:

- IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1
- IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2

This means that you can configure the number of logon attempts through MyID for this smart card.

Note: It is a feature of PIV cards that PIN attempts that are too short (for example, four digits) are rejected without being sent to the smart card, and therefore do not count towards the number of PIN attempts. Only PIN attempts that provide six or more digits are counted towards the number of attempts.

6.5.4 Card readers

Oberthur ID-One PIV (v2.3.5), Oberthur ID-One PIV (v2.4.0) cards, and IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 cards have been found to have interoperability problems with SCR331 card readers. You may also experience problems with IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 cards.

6.5.5 Windows logon using Oberthur ID-One PIV (v2.4.0), IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1, or IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 cards

If you want to use Oberthur ID-One PIV (v2.4.0), IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1, or IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 cards to log on to Windows, you must install the minidriver for PIV cards. The versions that have been verified are:

- Oberthur ID-One PIV (v2.4.0) – Oberthur minidriver for PIV cards version 1.1.3.1025.
- IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 or IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 (including SPE smart cards) – IDEMIA minidriver for PIV cards version 1.2.8.438.

This minidriver is used only for Windows logon – you do not need to install the minidriver to use the cards with MyID.

6.5.6 OPACITY Secure PIN Entry support

OPACITY Secure PIN Entry (SPE) requires that whenever a PIN or PUK is sent in an APDU (Application Protocol Data Unit) command to a smart card, it is sent using an encrypted secure channel.

Important: To issue smart cards that are manufactured to use SPE, you *must* set up the credential profile to use OPACITY; if you attempt to issue an SPE card with a credential profile that is not set up to use OPACITY, issuance of the card will fail. An error with number `-2147220720` may appear; the audit may contain the message `Not logged into card` for the failure. See section *2.11*, *Setting up OPACITY* for details of setting up your credential profile.

Note: Smart cards that are manufactured to use SPE are *not* PIV compliant.

This feature is supported within MyID on IDEMIA smart cards that have this capability. Currently, this includes the following:

- IDEMIA ID-One PIV 2.4.1 on Cosmo V8.1 smart cards, manufactured to *BAP#087483 – ID-One PIV 2.4 on Cosmo v8.1 SPE*.
- IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 smart cards, manufactured to *BAP#087586 – ID-One PIV 2.4 on Cosmo v8.2 SPE+*.
- IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 smart cards, manufactured to *BAP#087583 – ID-One PIV 2.4 on Cosmo v8.2 Global PIN*.

You can confirm whether a card has been issued with support for OPACITY Secure PIN Entry (SPE) by using the **Identify Card** workflow. The **Chip Type** displayed in the workflow includes "SPE" if the card requires OPACITY Secure PIN Entry.

If you want to use cards manufactured to different specifications for SPE with MyID, contact your Intercede account manager to discuss your requirements.

Note: SPE-EP (Secure PIN Entry – Enhanced Privacy) is not supported.

6.5.7 Smart card readers supported for OPACITY

OPACITY personalization is supported for IDEMIA PIV cards when using a smart card reader that supports Extended APDU; for example, OmniKey 5x21 or OmniKey 5x25.

Only OPACITY personalization requires these readers; other operations are not restricted.

6.5.8 Additional identities for IDEMIA PIV cards

MyID has been tested issuing additional identities to IDEMIA PIV cards using the IDEMIA minidriver v1.28.

For more information, see the *Additional identities on devices with PIV applets* section in the ***Administration Guide***.

6.5.9 Global PIN support

PIV cards support only numeric PINs for their user PINs. If you want to use alphanumeric PINs, your smart card must support Global PINs; this is an alternative PIN that can allow a wider range of characters, if the smart card has been manufactured to a custom specification that allows this. When you issue a smart card with Global PIN enabled, the user PIN and the user PUK (Personal Unblocking Key) are disabled, and the Global PIN and Global PUK are used instead.

Note: You cannot use the MyID Card Utility or the Unlock Credential Provider to unlock devices with Global PINs.

To issue a smart card with a Global PIN, you must enable the **Use Global PIN** option in the **PIN Settings** section of the **Credential Profiles** workflow.

This feature is supported within MyID on IDEMIA smart cards that have this capability. Currently, this includes the following:

- IDEMIA ID-One PIV 2.4.2 on Cosmo V8.2 smart cards, manufactured to the following specifications:
  - *BAP#087584 – ID-One PIV 2.4 on Cosmo v8.2 NPIVP*
  - *BAP#087586 – ID-One PIV 2.4 on Cosmo v8.2 SPE+*
  - *BAP#087583 – ID-One PIV 2.4 on Cosmo v8.2 Global PIN*

    This specification of card has been manufactured to require alphanumeric PINs. Within MyID this type of card is displayed with a device type of "IDEMIA ID-One PIV 2.4 on Cosmo v8.2 GT (GovTech)".

7 TCOS smart cards

MyID has been tested with the following TCOS smart cards:

Smart card	Type	Middleware	Support
TCOS	Smart card	TCOS3 Smart Card Minidriver v1.7.5.0	Supported

Note: MyID has been tested with the minidrivers listed in the table above. Your version of the minidriver may be different, depending on which Windows updates you have installed. Make sure that you have the supported version of the minidriver installed.

7.1 Platforms for TCOS smart cards

These smart cards have been tested on:

	Operating System		
Smart card	Windows 8.1	Windows 10	Windows 11
TCOS	Y		

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

7.2 Supported features for TCOS smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

7.2.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with TCOS smart cards.

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
TCOS	P	P			P				Y	Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

7.2.1.1 MyID

The following TCOS smart cards support a limited range of MyID features:

	Smart card
Feature	**TCOS**
Can be used to generate an RSA keypair that can be used for operations in MyID.	
Can be used to sign data (including logon to MyID) with an RSA keypair on the smart card.	
Can be used to encrypt data with an RSA keypair on the smart card.	
MyID can set the label of the smart card.	Y
MyID can erase the content of the smart card (excluding the printed card surface)	Y

Key:

- Y – Fully supported.
- blank – Not supported.

7.2.1.2 PIN management

The following TCOS cards support a limited range of PIN management features:

	Smart card
Feature	**TCOS**
Lock the PIN after issuance.	Y
Identify when the PIN is locked.	Y
Replace the SOPIN with a randomized value.	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y
Unlock the PIN using the SOPIN.	Y
Provide a remote unlock code.	Y
Reset the PIN at cancellation.	Y
Configure on-card PIN policy.	

Key:

- Y – Fully supported.
- blank – Not supported.

7.2.1.3 PKI – RSA

The following TCOS smart cards support a limited range of PKI – RSA features:

	Smart card
Feature	**TCOS**
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Cryptographically sign or encrypt data.	Y

	Smart card
Feature	**TCOS**
Specify the default certificate for Windows logon.	Y
Write 1024 bit certificates.	
Write 2048 bit certificates.	Y
Write 3072 bit certificates.	
Write 4096 bit certificates.	
Remove certificates.	Y
Inject a private key for certificate recovery.	Y
Enumerate certificates on the card.	Y

Key:

- Y – Fully supported.
- blank – Not supported.

7.3 Installation and configuration for TCOS smart cards

This section provides any information required when installing the middleware for the smart cards or configuring the smart cards through either their middleware or through MyID.

7.3.1 Using minidrivers for TCOS smart cards

If you are using TCOS smart cards with minidrivers, you must have the following:

- TCOS3 Smart Card Minidriver (`tcos3cmd.dll`)

See also section *2.4*, *Minidriver-based smart cards*.

8 Thales authentication devices

Thales authentication devices have previously been listed under a range of different brands; for example, Gemalto or SafeNet. These legacy names continue to be referenced in MyID.

These devices are distinct from the SC650 devices provided by Thales Trusted Cyber Technologies; see section 9, *Thales Trusted Cyber Technologies smart cards* for details.

MyID has been tested with the following Thales authentication devices:

Smart card	Type	Middleware	Part number	Support
IDPrime MD3810	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1095608	Deprecated
IDPrime MD830	Smart card/Chip	SafeNet Minidriver 10.8 R8		Deprecated
IDPrime MD830 Rev B FIPS Level 2	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1094404	Deprecated
IDPrime MD830 Rev B FIPS Level 3	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1094403	Deprecated
IDPrime MD830nc	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1170991	Supported
IDPrime MD831	Smart card/Chip	SafeNet Minidriver 10.8 R8		Deprecated
IDPrime MD3840	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1095676	Deprecated
IDPrime MD840 Rev A	Smart card/Chip	SafeNet Minidriver 10.8 R8		Deprecated
IDPrime MD940	Smart card/Chip	SafeNet Minidriver 10.8 R9	O1132421	Supported
IDPrime 940B T1 CC	Smart card/Chip	SafeNet Minidriver 10.8 R8†	O1173143	Supported
IDPrime MD930 FIPS Level 2	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1151236	Supported
IDPrime MD930nc	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1170984	Supported
IDPrime MD930 FIPS Level 3	Smart card/Chip	SafeNet Minidriver 10.8 R9	O1153243	Supported
IDPrime MD3930 FIPS Level 2	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1152066	Supported
IDPrime 931 FIPS 140-2 L2	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1152492 O1152483	Supported
IDPrime MD3940	Smart card/Chip	SafeNet Minidriver 10.8 R9	O1130317	Supported

Smart card	Type	Middleware	Part number	Support
IDPrime 3940 FIDO	Smart card/Chip	SafeNet Minidriver 10.8 R8	O1157191	Supported
IDPrime PIV Card v2.0	PIV card	n/a	C1070904 C1072203	Deprecated
IDPrime PIV Card v2.1	PIV card	n/a	O1110994	Supported
IDPrime PIV Card v3.0	PIV card	n/a	O1138439	Supported
SafeNet eToken 4100	Smart card/Chip	SafeNet Authentication Client 10.8 R6		Deprecated
SafeNet eToken 5100	USB Token/Chip	SafeNet Authentication Client 10.8 R6		Deprecated
SafeNet eToken 5110	USB Token/Chip	SafeNet Authentication Client 10.8 R6		Deprecated
SafeNet eToken 5110 FIPS	USB Token/Chip	SafeNet Authentication Client 10.8 R6	909-000451-001	Deprecated
SafeNet eToken 5110+	USB Token/Chip	SafeNet Authentication Client 10.8 R6	909-000417-002	Deprecated
SafeNet eToken 5110+ FIPS Level 2	USB Token/Chip	SafeNet Minidriver 10.8 R8	909-000156-001	Supported
SafeNet eToken 5110+ FIPS Level 3	USB Token/Chip	SafeNet Minidriver 10.8 R8	909-000154-001	Supported
SafeNet eToken 5110 CC	USB Token/Chip	SafeNet Minidriver 10.8 R8	909-000115-001	Deprecated
SafeNet eToken 5110+ CC (940B)	USB Token/Chip	SafeNet Minidriver 10.8 R8	909-000167-001	Supported
SafeNet eToken 5300 FIPS (Mini)	USB Token/Chip SafeNet Authentication	SafeNet Minidriver 10.8 R9	909-000080-001	Supported*
SafeNet eToken 5300 (Micro)	USB Token/Chip SafeNet Authentication	SafeNet Minidriver 10.8 R9	909-000084-001	Supported*
SafeNet eToken 5300 (USB-C)	USB Token/Chip SafeNet Authentication	SafeNet Minidriver 10.8 R9	909-000138-001	Supported*

Smart card	Type	Middleware	Part number	Support
Thales IDPrime 931nc - NXP Mifare EV1 4Kb	Smart card/Chip	SafeNet Minidriver 10.8 R9	01170972	Supported
Thales IDPrime 931 FIDO	Smart card/Chip	SafeNet Minidriver 10.8 R9	01166028	Supported
Thales IDPrime 941B CC - NXP Mifare EV1 4Kb	Smart card/Chip	SafeNet Minidriver 10.8 R9	01170997	Supported
Thales IDPrime 940C	Smart card/Chip	SafeNet Minidriver 10.8 R9	O1187204-001	Supported
Thales SafeNet eToken Fusion CC USB Mini	USB Token/Chip	SafeNet Minidriver 10.8 R9	909-000224-001	Supported
Thales SafeNet eToken Fusion CC USB-C	USB Token/Chip	SafeNet Minidriver 10.8 R9	909-000230-001	Supported
Thales SafeNet eToken Fusion FIPS	USB Token/Chip	SafeNet Minidriver 10.8 R9	909-000250-001	Supported
Thales SafeNet eToken Fusion FIPS USB-C	USB Token/Chip	SafeNet Minidriver 10.8 R9	909-000252-001	Supported
SafeNet eToken 5110+ CC (940C)	USB Token/Chip	SafeNet Minidriver 10.8 R9	909-000316-001	Supported

Note: MyID has been tested with the minidrivers listed in the table above. Your version of the minidriver may be different, depending on which Windows updates you have installed. Make sure that you have the supported version of the minidriver installed.

For smart cards that use the SafeNet Authentication Client, see section *8.4*, *Installation and configuration for Thales authentication devices* for details of configuring the SAC software for middleware or minidriver operation.

Currently, MyID is compatible with the following IDPrime PIV Card v2.0 configurations:

- Customer item C1070904 – secure channel SCP-01 and 3-DES PIV 9B keys
- Customer item C1072203 – secure channel SCP-03 and AES-128 PIV 9B keys.

Note: All Thales minidriver-based cards, including the SafeNet eToken 5110 CC, are displayed in the **Identify Card** workflow with a **Chip Type** of "Gemalto IDPrime MD8310".

* Due to issues relating to signing operations with SafeNet eToken 5300 devices with a Touch Sensor, versions of the 5300 devices with a Touch Sensor are not currently supported with MyID. For more information, see section *8.5.9*, *SafeNet eToken 5300 tokens with Touch Sensor*.

† The IDPrime 940B T1 CC device requires a minimum minidriver version of SafeNet Minidriver 10.8 R6 (Post GA) build number 10.8.2164.0.

8.1 Keys for Thales authentication devices

This section provides information you need when setting up keys for Thales authentication devices.

8.1.1 Secure Channel Protocol

The Secure Channel Protocol (SCP) is used in the **Manage GlobalPlatform Keys** workflow.

When configuring your GlobalPlatform keys, use the following Secure Channel Protocol:

Smart card	SCP
IDPrime PIV Card v2.0	SCP03
IDPrime PIV Card v2.1	SCP03
IDPrime PIV Card v3.0	SCP03

8.1.2 Cryptographic keys for IDPrime PIV cards

When you configure the cryptographic keys, use the following details:

	IDPrime PIV Card v2.0	IDPrime PIV Card v2.1	IDPrime PIV Card v3.0
Credential Type in MyID	Gemplus PIV V2	Gemplus PIV V21	Gemplus PIV V3
GlobalPlatform Secure Channel	SCP03	SCP03	SCP03
Factory GlobalPlatform Key Type	AES128	AES128	AES128
Factory GlobalPlatform Key Diversification Algorithm	Diverse108	Diverse108	Diverse108
Factory PIV 9B Key Encryption Type	3DES or AES128	AES128	AES128
PIV 9B Factory Key Diversity	Static	Static	Static
Recommended PIV 9B Customer Key Diversity	Diverse2	Diverse2	Diverse2

8.1.3 Cryptographic keys for Thales minidriver devices

For Thales minidriver-based cards (for example, IDPrime MD830, MD831, MD840, MD3810, MD3840, SafeNet eToken 5110 CC, SafeNet eToken 5110+ FIPS Level 2, or SafeNet eToken 5110+ FIPS Level 3), the card technology supports GlobalPlatform keys, but the actual cryptographic key details depend on the cards you order from the manufacturer; for example, the manufacturer may provide you with the necessary cryptographic key details (secure channel, GlobalPlatform keys, and so on), or the cards may be shipped with diversified keys, where the key is kept private by the manufacturer.

To issue cards whose keys are unknown, you must disable customer GlobalPlatform keys within MyID for this device type – use the settings on the **Devices** page of the **Security Settings** workflow. Disabling customer GlobalPlatform keys produces a security message within MyID; for information about disabling this warning, contact customer support to discuss your requirements, quoting reference SUP-273.

See also the *Securing Devices* section in the ***System Security Checklist*** document for important information about device security.

8.2 Platforms for Thales authentication devices

These smart cards have been tested on:

	Operating System		
Smart card	**Windows 8.1**	**Windows 10**	**Windows 11**
IDPrime MD3810	Y	Y	Y
IDPrime MD830	Y	Y	Y
IDPrime MD830 Rev B FIPS Level 2	Y	Y	Y
IDPrime MD830 Rev B FIPS Level 3	Y	Y	Y
IDPrime MD830nc	Y	Y	Y
IDPrime MD831	Y	Y	Y
IDPrime MD3840	Y	Y	Y
IDPrime MD840 Rev A	Y	Y	Y
IDPrime MD940	Y	Y	Y
IDPrime 940B T1 CC	Y	Y	Y
IDPrime MD930 FIPS Level 2	Y	Y	Y
IDPrime MD930nc	Y	Y	Y
IDPrime MD930 FIPS Level 3	Y	Y	Y
IDPrime MD3930 FIPS Level 2	Y	Y	Y
IDPrime 931 FIPS 140-2 L2	Y	Y	Y
IDPrime MD3940	Y	Y	Y
IDPrime 3940 FIDO	Y	Y	Y
IDPrime PIV Card v2.0	Y	Y	Y
IDPrime PIV Card v2.1	Y	Y	Y
IDPrime PIV Card v3.0	Y	Y	Y
SafeNet eToken 4100		Y	Y
SafeNet eToken 5100	Y	Y	Y
SafeNet eToken 5110	Y	Y	Y
SafeNet eToken 5110 FIPS	Y	Y	Y
SafeNet eToken 5110+	Y	Y	Y
SafeNet eToken 5110+ FIPS Level 2	Y	Y	Y
SafeNet eToken 5110+ FIPS Level 3	Y	Y	Y
SafeNet eToken 5110 CC	Y	Y	Y
SafeNet eToken 5110+ CC (940B)	Y	Y	Y
SafeNet eToken 5300 FIPS (Mini)	Y	Y	Y
SafeNet eToken 5300 (Micro)	Y	Y	Y
SafeNet eToken 5300 (USB-C)	Y	Y	Y
Thales IDPrime 931nc - NXP Mifare EV1 4Kb	Y	Y	Y

	Operating System		
Smart card	Windows 8.1	Windows 10	Windows 11
Thales IDPrime 931 FIDO	Y	Y	Y
Thales IDPrime 941B CC - NXP Mifare EV1 4Kb	Y	Y	Y
Thales IDPrime 940C	Y	Y	Y
Thales SafeNet eToken Fusion CC USB Mini	Y	Y	Y
Thales SafeNet eToken Fusion CC USB-C	Y	Y	Y
Thales SafeNet eToken Fusion FIPS	Y	Y	Y
Thales SafeNet eToken Fusion FIPS USB-C	Y	Y	Y
SafeNet eToken 5110+ CC (940C)	Y	Y	Y

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

8.3 Supported features for Thales authentication devices

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

8.3.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with Thales authentication devices.

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
IDPrime MD3810	Y	P			P	P			Y	Y
IDPrime MD830	Y	P			P	P			Y	Y
IDPrime MD830 Rev B FIPS Level 2	Y	P			P	P			Y	Y
IDPrime MD830 Rev B FIPS Level 3	Y	P			P	P			Y	Y

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
IDPrime MD830nc	Y	P			P	P			Y	Y
IDPrime MD831	Y	P			P	P			Y	Y
IDPrime MD3840	Y	P			P	P			Y	Y
IDPrime MD840 Rev A	Y	P			P	P			Y	Y
IDPrime MD940	Y	P			P	P			Y	Y
IDPrime 940B T1 CC	Y	P			P	P			Y	Y
IDPrime MD930 FIPS Level 2	Y	P			P	P			Y	Y
IDPrime MD930nc	Y	P			P	P			Y	Y
IDPrime MD930 FIPS Level 3	Y	P			P	P			Y	Y
IDPrime MD3930 FIPS Level 2	Y	P			P	P			Y	Y
IDPrime 931 FIPS 140-2 L2	Y	P			P	P			Y	Y
IDPrime MD3940	Y	P			P	P			Y	Y
IDPrime 3940 FIDO	Y	P			P	P			Y	Y
IDPrime PIV Card v2.0		P	Y		P	P	Y		Y	Y
IDPrime PIV Card v2.1		P	Y		P	P	Y		Y	Y
IDPrime PIV Card v3.0		P	Y		P	P	Y		Y	Y
SafeNet eToken 4100	Y	P			P				Y	Y

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
SafeNet eToken 5100	Y	P			P					Y
SafeNet eToken 5110	Y	P			P					Y
SafeNet eToken 5110 FIPS	Y	P			P					Y
SafeNet eToken 5110+	Y	P			P					Y
SafeNet eToken 5110+ FIPS Level 2	Y	P			P	P				Y
SafeNet eToken 5110+ FIPS Level 3	Y	P			P	P				Y
SafeNet eToken 5110 CC	Y	P			P	P				Y
SafeNet eToken 5110+ CC (940B)	Y	P			P	P				Y
SafeNet eToken 5300 FIPS (Mini)	Y	P			P	Y				Y
SafeNet eToken 5300 (Micro)	Y	P			P	Y				Y
SafeNet eToken 5300 (USB-C)	Y	P			P	Y				Y
Thales IDPrime 931nc - NXP Mifare EV1 4Kb	Y	P			P	Y			Y	Y

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
Thales IDPrime 931 FIDO	Y	P			P	Y			Y	Y
Thales IDPrime 941B CC - NXP Mifare EV1 4Kb	Y	P			P	P			Y	Y
Thales IDPrime 940C	Y	P			P	P			Y	Y
Thales SafeNet eToken Fusion CC USB Mini	Y	P			P	P				Y
Thales SafeNet eToken Fusion CC USB-C	Y	P			P	P				Y
Thales SafeNet eToken Fusion FIPS	Y	P			P	Y				Y
Thales SafeNet eToken Fusion FIPS USB-C	Y	P			P	Y				Y
SafeNet eToken 5110+ CC (940C)	Y	P			P	P				Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

8.3.1.1 PIN management

The following Thales authentication devices support a limited range of PIN management features:

	Smart card	
Feature	**IDPrime MD3810**	**IDPrime MD830**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card	
Feature	**IDPrime MD830 Rev B FIPS Level 2**	**IDPrime MD830 Rev B FIPS Level 3**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card
Feature	**IDPrime MD830nc**
Lock the PIN after issuance.	Y
Identify when the PIN is locked.	Y
Replace the SOPIN with a randomized value.	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y
Unlock the PIN using the SOPIN.	Y

	Smart card
Feature	**IDPrime MD830nc**
Provide a remote unlock code.	Y
Reset the PIN at cancellation.	Y
Configure on-card PIN policy.	

	Smart card	
Feature	**IDPrime MD831**	**IDPrime MD3840**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card		
Feature	**IDPrime MD840 Rev A**	**IDPrime MD940**	**IDPrime 940B T1 CC**
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	Y
Unlock the PIN using the SOPIN.	Y	Y	Y
Provide a remote unlock code.	Y	Y	Y
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.			

Feature	Smart card	
	IDPrime MD930 FIPS Level 2	IDPrime MD930nc
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

Feature	Smart card	
	IDPrime MD930 FIPS Level 3	IDPrime MD3930 FIPS Level 2
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

Feature	Smart card		
	IDPrime 931 FIPS 140-2 L2	IDPrime MD3940	IDPrime 3940 FIDO
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	Y
Unlock the PIN using the SOPIN.	Y	Y	Y

	Smart card		
Feature	**IDPrime 931 FIPS 140-2 L2**	**IDPrime MD3940**	**IDPrime 3940 FIDO**
Provide a remote unlock code.	Y	Y	Y
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.			

	Smart card	
Feature	**IDPrime PIV Card v2.0**	**IDPrime PIV Card v2.1**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card	
Feature	**IDPrime PIV Card v3.0**	**SafeNet eToken 4100**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	
Configure on-card PIN policy.		P

Feature	Smart card	
	SafeNet eToken 5100	SafeNet eToken 5110
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.		Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.	P	P

Feature	Smart card	
	SafeNet eToken 5110 FIPS	SafeNet eToken 5110+
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.	P	P

Feature	Smart card	
	SafeNet eToken 5110+ FIPS Level 2	SafeNet eToken 5110+ FIPS Level 3
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card	
Feature	**SafeNet eToken 5110 CC**	**SafeNet eToken 5110+ CC (940B)**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card	
Feature	**SafeNet eToken 5300 FIPS (Mini)**	**SafeNet eToken 5300 (Micro)**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

	Smart card
Feature	**SafeNet eToken 5300 (USB-C)**
Lock the PIN after issuance.	Y
Identify when the PIN is locked.	Y
Replace the SOPIN with a randomized value.	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y
Unlock the PIN using the SOPIN.	Y

	Smart card
Feature	**SafeNet eToken 5300 (USB-C)**
Provide a remote unlock code.	Y
Reset the PIN at cancellation.	Y
Configure on-card PIN policy.	

	Smart card		
Feature	**Thales IDPrime 931nc - NXP Mifare EV1 4Kb**	**Thales IDPrime 931 FIDO**	**Thales IDPrime 941B CC - NXP Mifare EV1 4Kb**
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	Y
Unlock the PIN using the SOPIN.	Y	Y	Y
Provide a remote unlock code.	Y	Y	Y
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.			

	Smart card		
Feature	**Thales IDPrime 940C**	**Thales SafeNet eToken Fusion CC USB Mini**	**Thales SafeNet eToken Fusion CC USB-C**
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	Y

	Smart card		
Feature	**Thales IDPrime 940C**	**Thales SafeNet eToken Fusion CC USB Mini**	**Thales SafeNet eToken Fusion CC USB-C**
Unlock the PIN using the SOPIN.	Y	Y	Y
Provide a remote unlock code.	Y	Y	Y
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.			

	Smart card		
Feature	**Thales SafeNet eToken Fusion FIPS**	**Thales SafeNet eToken Fusion FIPS USB-C**	**SafeNet eToken 5110+ CC (940C)**
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	Y
Unlock the PIN using the SOPIN.	Y	Y	Y
Provide a remote unlock code.	Y	Y	Y
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.			

Key:

- Y – Fully supported.
- P – Partially supported. For details of supported on-card PIN policy features, see section *8.5.2, PIN policy settings*.
- blank – Not supported.

8.3.1.2 PKI – RSA

The following Thales authentication devices support a limited range of PKI – RSA features:

	Smart card	
Feature	**IDPrime MD3810**	**IDPrime MD830**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD830 Rev B FIPS Level 2**	**IDPrime MD830 Rev B FIPS Level 3**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD830nc**	**IDPrime MD831**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD3840**	**IDPrime MD840 Rev A**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD940**	**IDPrime 940B T1 CC**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y

	Smart card	
Feature	**IDPrime MD940**	**IDPrime 940B T1 CC**
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD930 FIPS Level 2**	**IDPrime MD930nc**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD930 FIPS Level 3**	**IDPrime MD3930 FIPS Level 2**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		

Feature	Smart card	
	IDPrime MD930 FIPS Level 3	IDPrime MD3930 FIPS Level 2
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Feature	Smart card		
	IDPrime 931 FIPS 140-2 L2	IDPrime MD3940	IDPrime 3940 FIDO
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.			
Write 2048 bit certificates.	Y	Y	Y
Write 3072 bit certificates.			
Write 4096 bit certificates.			
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.	Y	Y	Y

Feature	Smart card	
	IDPrime PIV Card v2.0	IDPrime PIV Card v2.1
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		

Feature	Smart card	
	IDPrime PIV Card v2.0	IDPrime PIV Card v2.1
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.		

Feature	Smart card	
	IDPrime PIV Card v3.0	SafeNet eToken 4100
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.		Y

Feature	Smart card	
	SafeNet eToken 5100	SafeNet eToken 5110
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		

Feature	Smart card	
	SafeNet eToken 5100	SafeNet eToken 5110
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Feature	Smart card	
	SafeNet eToken 5110 FIPS	SafeNet eToken 5110+
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Feature	Smart card	
	SafeNet eToken 5110+ FIPS Level 2	SafeNet eToken 5110+ FIPS Level 3
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		

Feature	Smart card	
	SafeNet eToken 5110+ FIPS Level 2	SafeNet eToken 5110+ FIPS Level 3
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Feature	Smart card	
	SafeNet eToken 5110 CC	SafeNet eToken 5110+ CC (940B)
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Feature	Smart card	
	SafeNet eToken 5300 FIPS (Mini)	SafeNet eToken 5300 (Micro)
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		

	Smart card	
Feature	**SafeNet eToken 5300 FIPS (Mini)**	**SafeNet eToken 5300 (Micro)**
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

	Smart card
Feature	**SafeNet eToken 5300 (USB-C)**
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Cryptographically sign or encrypt data.	Y
Specify the default certificate for Windows logon.	Y
Write 1024 bit certificates.	
Write 2048 bit certificates.	Y
Write 3072 bit certificates.	
Write 4096 bit certificates.	
Remove certificates.	Y
Inject a private key for certificate recovery.	Y
Enumerate certificates on the card.	Y

	Smart card		
Feature	**Thales IDPrime 931nc - NXP Mifare EV1 4Kb**	**Thales IDPrime 931 FIDO**	**Thales IDPrime 941B CC - NXP Mifare EV1 4Kb**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.			
Write 2048 bit certificates.	Y	Y	Y

	Smart card		
Feature	**Thales IDPrime 931nc - NXP Mifare EV1 4Kb**	**Thales IDPrime 931 FIDO**	**Thales IDPrime 941B CC - NXP Mifare EV1 4Kb**
Write 3072 bit certificates.			
Write 4096 bit certificates.			
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.	Y	Y	Y

	Smart card		
Feature	**Thales IDPrime 940C**	**Thales SafeNet eToken Fusion CC USB Mini**	**Thales SafeNet eToken Fusion CC USB-C**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.			
Write 2048 bit certificates.	Y	Y	Y
Write 3072 bit certificates.			
Write 4096 bit certificates.			
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.	Y	Y	Y

	Smart card		
Feature	**Thales SafeNet eToken Fusion FIPS**	**Thales SafeNet eToken Fusion FIPS USB-C**	**SafeNet eToken 5110+ CC (940C)**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.			
Write 2048 bit certificates.	Y	Y	Y
Write 3072 bit certificates.	Y	Y	
Write 4096 bit certificates.	Y	Y	
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.	Y	Y	Y

Key:

- Y – Fully supported.
- blank – Not supported.

8.3.1.3 PKI – ECC

The following Thales authentication devices support a limited range of PKI – ECC features:

	Smart card	
Feature	**IDPrime MD3810**	**IDPrime MD830**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve	Y	Y

	Smart card	
Feature	**IDPrime MD3810**	**IDPrime MD830**
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.	Y	Y

	Smart card	
Feature	**IDPrime MD830 Rev B FIPS Level 2**	**IDPrime MD830 Rev B FIPS Level 3**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve	Y	Y
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.	Y	Y

	Smart card
Feature	**IDPrime MD830nc**
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Specify the default certificate for Windows logon.	Y
ECC NIST P256 Curve	Y
ECC NIST P384 Curve	Y
ECC NIST P521 Curve	Y
Remove certificates.	Y
Archive certificates.	
Enumerate certificates on the card.	Y

	Smart card	
Feature	**IDPrime MD831**	**IDPrime MD3840**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	
ECC NIST P521 Curve	Y	
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.	Y	Y

	Smart card		
Feature	**IDPrime MD840 Rev A**	**IDPrime MD940**	**IDPrime 940B T1 CC**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
ECC NIST P256 Curve	Y	Y	Y
ECC NIST P384 Curve			
ECC NIST P521 Curve			
Remove certificates.	Y	Y	Y
Archive certificates.			
Enumerate certificates on the card.	Y	Y	Y

	Smart card	
Feature	**IDPrime MD930 FIPS Level 2**	**IDPrime MD930nc**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve	Y	Y

Feature	Smart card	
	IDPrime MD930 FIPS Level 2	IDPrime MD930nc
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.	Y	Y

Feature	Smart card	
	IDPrime MD930 FIPS Level 3	IDPrime MD3930 FIPS Level 2
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve	Y	Y
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.	Y	Y

Feature	Smart card		
	IDPrime 931 FIPS 140-2 L2	IDPrime MD3940	IDPrime 3940 FIDO
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
ECC NIST P256 Curve	Y	Y	Y
ECC NIST P384 Curve	Y		
ECC NIST P521 Curve	Y		
Remove certificates.	Y	Y	Y
Archive certificates.			
Enumerate certificates on the card.	Y	Y	Y

Feature	Smart card	
	IDPrime PIV Card v2.0	IDPrime PIV Card v2.1
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.		Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.	Y	Y
Enumerate certificates on the card.		

Feature	Smart card	
	IDPrime PIV Card v3.0	SafeNet eToken 5110+ FIPS Level 2
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		Y
Remove certificates.	Y	Y
Archive certificates.	Y	
Enumerate certificates on the card.		Y

Feature	Smart card	
	SafeNet eToken 5110+ FIPS Level 3	SafeNet eToken 5110 CC
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y

	Smart card	
Feature	**SafeNet eToken 5110+ FIPS Level 3**	**SafeNet eToken 5110 CC**
ECC NIST P384 Curve	Y	
ECC NIST P521 Curve	Y	
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.	Y	Y

	Smart card
Feature	**SafeNet eToken 5110+ CC (940B)**
Generate a private key for a certificate request.	Y
Write a certificate to the smart card.	Y
Specify the default certificate for Windows logon.	Y
ECC NIST P256 Curve	Y
ECC NIST P384 Curve	
ECC NIST P521 Curve	
Remove certificates.	Y
Archive certificates.	
Enumerate certificates on the card.	Y

	Smart card		
Feature	**Thales IDPrime 941B CC - NXP Mifare EV1 4Kb**	**Thales IDPrime 940C**	**Thales SafeNet eToken Fusion CC USB Mini**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
ECC NIST P256 Curve	Y	Y	Y
ECC NIST P384 Curve			
ECC NIST P521 Curve			
Remove certificates.	Y	Y	Y
Archive certificates.	Y	Y	Y
Enumerate certificates on the card.	Y	Y	Y

Feature	Smart card	
	Thales SafeNet eToken Fusion CC USB-C	SafeNet eToken 5110+ CC (940C)
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve		
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.	Y	Y
Enumerate certificates on the card.	Y	Y

Key:

- Y – Fully supported.
- blank – Not supported.

8.3.1.4 ECC support for PIV cards

The ECC features you can use for PIV cards are defined in NIST sp800-78-4:

- The `piv-auth` and `cardauth` containers can hold P256 certificates.
- The `dig-sig` and `key-management` containers can hold P256 or P384 certificates.
- P521 certificates are not allowed.

8.3.2 Unlocking features

Cardholders can unlock their smart cards without access to the MyID system by contacting a helpdesk and providing an alphanumeric code.

For SafeNet Authentication Client-based smart cards, see the SAC documentation for details.

For minidriver-based smart cards, see section *2.4.2*, *Windows integrated unblock* for details.

8.3.3 Hybrid contactless cards

Thales provide hybrid versions of some IDPrime smart cards that incorporate a separate contactless interface; for example, the IDPrime MD831 is the hybrid contactless version of the IDPrime MD830.

These cards have the same contact chip capability as the Smart card/chip version of the card. Multiple configurations of these card types exist, with different contactless interface types. MyID can support functionality that makes use of contactless data; for example, the ability to read the ID from an HID PROX interface.

For more details on using PROX interfaces on a card with MyID, see the *Issuance Settings* section in the ***Administration Guide***. If you require support for other contactless interface types such as MIFARE or DesFire, contact Intercede to discuss your requirements in more detail.

8.4 Installation and configuration for Thales authentication devices

This section provides any information required when installing the minidrivers or middleware for the smart cards or configuring the smart cards through their minidriver, middleware or through MyID.

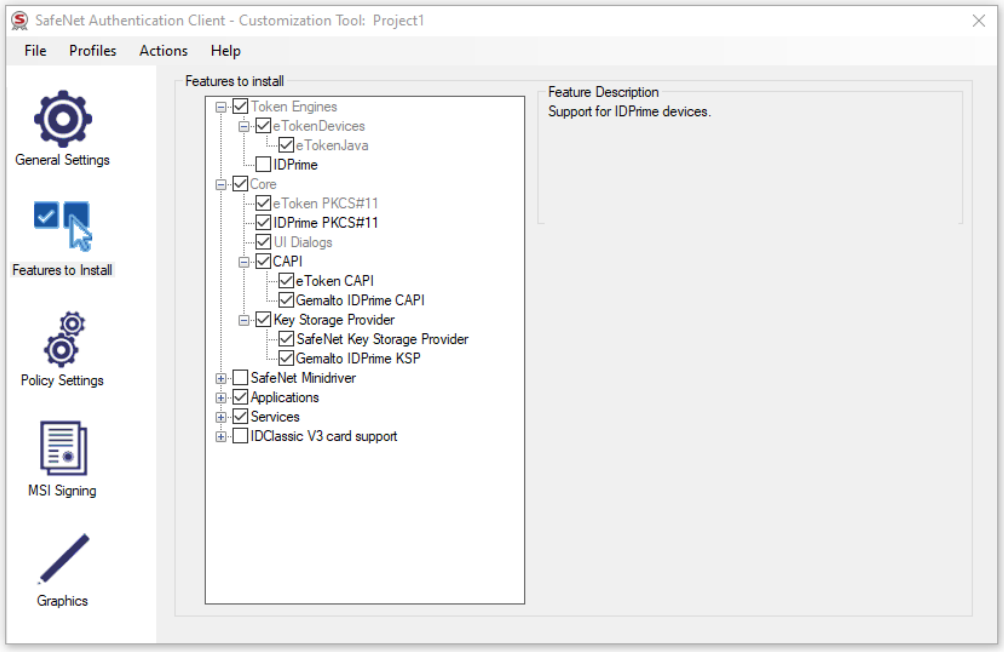
Note: The table in section *8*, *Thales authentication devices* shows the software required for each device type in the Middleware column.

8.4.1 SafeNet Authentication Client 10.8 R6

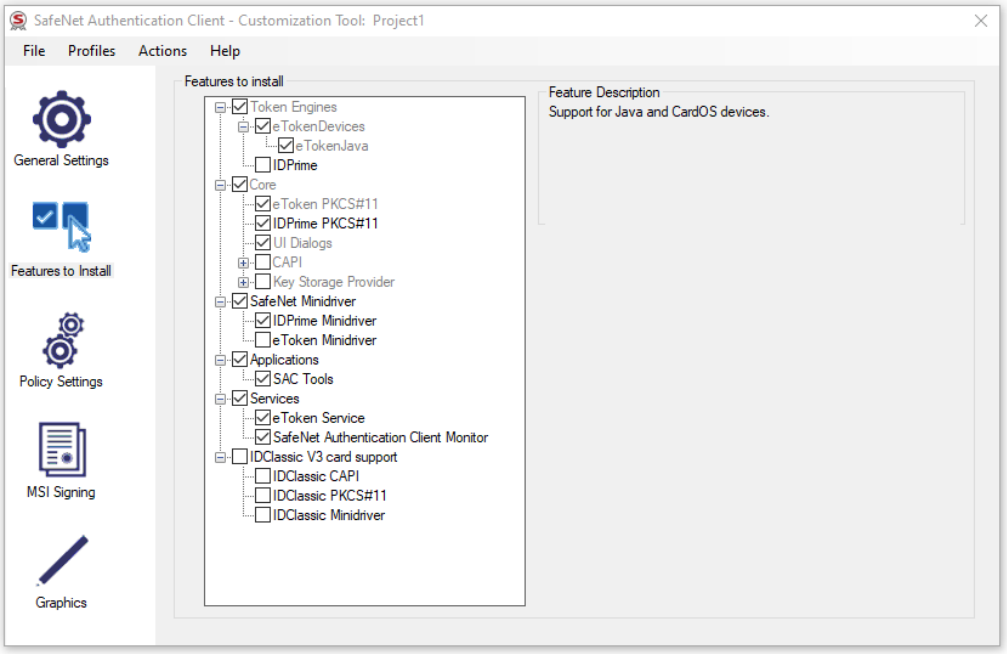
You must configure SafeNet Authentication Client (SAC) 10.8 R6 separately for Minidriver and SafeNet eToken support.

You can configure the SAC 10.8 R6 middleware using the SAC Customization Package, obtained from Thales.

For eToken devices, use the following settings:



For minidriver-based devices, use the following settings:



See also section *2.4*, *Minidriver-based smart cards*.

- **IKB-210 – Issues with SafeNet Authentication Client**

  SafeNet Authentication Client (when configured to support SafeNet eToken devices) may detect IDPrime smart cards if both device types are connected to a MyID client at the same time. This will lead to errors when issuing or managing the smart card – avoid using both card types at the same time with MyID.

  This issue relates to having SafeNet eToken PKCS#11 drivers enabled, as this is the component that may detect IDPrime devices. You are recommended to check the table in section *8*, *Thales authentication devices*, which shows the software required for each device type in the Middleware column. If you require only the SafeNet Minidriver to be deployed, and you are customizing the SAC installation, do not select the PKCS#11 interfaces.

8.4.2 Standard mode

You must install the SafeNet Authentication Client middleware in **Standard** mode (that is, not the BSec-compatible mode). Standard mode is the first option that is presented when you run the middleware installer.

8.4.3 Complexity requirements

When you set up the SafeNet client tools, you must set the complexity requirement option to **None**. This option may be labeled **Must meet complexity requirements** or **Password Complexity**, depending on the version of the middleware you are using.

8.4.4 Initialization keys for eToken 51xx

Initialization of SafeNet eToken 5100, 5110, 5110 FIPS and 5110+ credentials is protected using an initialization key. Unless the customer has requested a diversified factory initialization key, the tokens are shipped from the factory with a default key, which is already

configured in MyID.

To secure the tokens after issuance, use the **Key Manager** workflow to configure a customer initialization key:

1. From the **Configuration** category, select the **Key Manager** workflow.
2. From the **Select Key Type to Manage** drop-down list, select **Initialization Key**.
3. Click **Next**.
4. Click **Add New Key**.
5. Set the following values:
   - **Credential Type**: Aladdin eToken
   - **Key Type**: Customer
   - **Encryption Type**: 2DES

   You can configure the rest of the values as required.
6. Click **Save**.

If the tokens were ordered with a diversified Factory key, use the same procedure, except for the **Key Type**, select Factory instead of Customer.

8.4.5 Password change prompt

When you first issue a smart card, you may be prompted by the SafeNet middleware to change your password. Click **Cancel** to continue without changing the password.

Also, if you select the **Token Password must be changed on first logon** option when performing a challenge/response unlock, when the user logs in to MyID with the unlocked card, they will be prompted to change the PIN. To avoid this, deselect the **Token Password must be changed on first logon** option when unlocking the smart card.

8.4.6 Credential profiles for SafeNet Authentication Client smart cards

You must make sure that you have set the credential profile to use the same settings as the SafeNet Authentication Client installation. Check the SafeNet middleware to ensure that the values you use are correct.

If you do not use the same settings in the credential profile and the SafeNet client installation, you will experience an error similar to the following:

```
Initialize Error
Cause: Invalid PIN
Solution: Please enter a new PIN.
-2147220729 Exception thrown: class CCardException
Error: 0x80040307 : You entered an incorrect pass phrase or PIN
PKCS Error: 0x00000020 Data invalid
```

To set the credential profile properties:

1. From the **Configuration** category, select **Credential Profiles**.
2. Select the credential profile you want to edit, then click **Modify**.
3. Click **PIN Settings**.
4. Set the following options to match the settings used in the SafeNet client installation:

- **Maximum PIN Length** – the default SafeNet client value is 16.
- **Minimum PIN Length** – the default SafeNet client value is 6.
- **Logon Attempts** – the default SafeNet client value is 3.

5. Click **Next** and complete the workflow.

8.4.7 Issuing smart cards that have PIV applets

For information on issuing smart cards that have PIV applets using a non-PIV MyID system, see section *2.12*, *Issuing smart cards that have PIV applets*.

8.4.8 FIDO for Thales authentication devices

For information on FIDO, see the ***FIDO Authenticator Integration Guide***.

8.5 Interoperability for Thales authentication devices

This section contains information about any considerations for using these smart card with other systems.

8.5.1 Unlocking PIV cards

PIV cards include a PIV applet, which means that you can use the MyID Card Utility to carry out a remote challenge/response unlock operation and change the user PIN, and the unlock credential provider to unlock the devices from the Windows logon screen.

See section *2.13*, *Unlocking smart cards that have a PIV applet*.

8.5.2 PIN policy settings

MyID allows you to set various policies for PINs using the settings in the credential profile. MyID enforces these settings for any operations carried out by MyID. For some smart cards, some or all of these settings are applied directly to the card, which means that the settings will also be enforced by third-party tools and utilities.

The following settings are supported for on-card PIN policy settings:

	Smart card	
PIN Setting	**SafeNet eToken 4100**	**SafeNet eToken 5100/5110/5110 FIPS/5110+**
Maximum PIN Length		
Minimum PIN Length	Y	Y
Repeated Characters Allowed		
Sequential Characters Allowed		
Logon Attempts	Y	Y
PIN Inactivity Timer	Y	Y
PIN History		Y
Lowercase PIN Characters		Y
Uppercase PIN Characters		Y

	Smart card	
PIN Setting	**SafeNet eToken 4100**	**SafeNet eToken 5100/5110/5110 FIPS/5110+**
Numeric PIN Characters		Y
Symbol PIN Characters		Y
Lifetime		Y

Key:

- Y – Supported.
- blank – Not supported.

8.5.3 PIN characters for PIV cards

The SP800-73 PIV specification requires that PIV cards use numeric-only PINs. It is possible to configure MyID to use non-numeric PIN characters for PIV cards, although the smart cards will fail to issue.

Make sure you set up the credential profile correctly; in the **PIN Characters** section of the **Credential Profiles** workflow, set number to be **Mandatory**, and uppercase letters, lowercase letters, and symbols to **Not Allowed**.

8.5.4 IDPrime MD840 Rev A and IDPrime MD3840 smart cards and signature only policies

IDPrime MD840 Rev A and IDPrime MD3840 smart cards have Common Criteria features that MyID does not support. Due to this limitation, issuing certificates that require a Signature Only policy is not supported with MyID.

8.5.5 IDPrime PIV card status

IDPrime PIV v2.1 and v3.0 cards are delivered in an ISD Status of `OP_READY`. Set the **Set GlobalPlatform Card Status** option (on the PINs page of the **Security Settings** workflow) to **Yes** to ensure the cards are issued in a ISD `SECURED` state.

8.5.6 Available certificate slots on IDPrime MD cards

IDPrime MD cards are manufactured with a limited number of slots for each key type. It is important that you order cards that can accommodate the certificates you want to use.

For example, your smart cards may be manufactured with a profile that allows only two ECC keys; if you attempt to issue a credential profile that has three ECC certificates to the card, it will fail with an error similar to:

```
There has been an error generating a certificate request
Solutions:
Please contact your administrator.
Error Number: -2147220715
```

8.5.7 Additional identities for IDPrime PIV cards

If you want to issue additional identities to devices with PIV applets, you must have a Windows minidriver installed to make the certificates available for uses such as Windows logon. MyID has not yet been tested with a minidriver that provides this feature for IDPrime PIV cards.

For more information, see the *Additional identities on devices with PIV applets* section in the ***Administration Guide***.

8.5.8 Problems with Windows logon

If you have problems logging on to Windows, remove the Calais and SAC cache and then reboot.

The SAC cache is:

```
C:\Windows\temp\etoken.cache
```

The Calais cache is in the registry:

```
HKLM\Software\Microsoft\Cryptography\Calais\Cache
```

8.5.9 SafeNet eToken 5300 tokens with Touch Sensor

You can also obtain SafeNet eToken 5300 devices with a Touch capability enabled – you must touch the token sensor to carry out a transaction such as signing. These devices operate with MyID, but you will encounter problems when a signing operation is required, but the token is not touched. Frequently, MyID carries out signing operations in the background using the logged-on state of the token to sign the transaction. If the token requires the user to authenticate, the SafeNet Authentication Client generates a Windows notification; however, this notification may be hidden by Windows, or may not be noticed by the user.

Examples of issues that may be seen when the user does not respond to a touch token notification are:

- Logging on to MyID clients may freeze.
- Token issuance fails and does not complete.
- Operation failure when using MyID clients to submit data to the MyID server (for example, completing a workflow or submitting a request), showing errors such as:
  - Internal consistency check failed.
  - Unable to sign data with smart card.

For the reasons above, these versions of the token are not currently supported with MyID. The problem may occur when using one of the following token configurations:

- SafeNet eToken 5300 FIPS (Mini) – Part Numbers: 909-000077-001, 909-000078-001, 909-000079-001
- SafeNet eToken 5300 (Micro) – Part Numbers: 909-000081-001, 909-000082-001, 909-000083-001
- SafeNet eToken 5300 (USB-C) – Part Number: 909-000138-001

Versions of 5300 tokens that do *not* have a touch sensor are not affected by this issue.

9 Thales Trusted Cyber Technologies smart cards

MyID has been tested with the following Thales Trusted Cyber Technologies smart cards:

Smart card	Type	Middleware	Support
SafeNet SC650 V4.1 (90M)	Smart card/Chip	90Meter minidriver v3.1.1.49 (package version 1.4.35 SRC12)	Supported
SC650 – CoolKey	Smart card/Chip	CoolKey applet v1.4	Supported

The CoolKey applet is currently supported on SafeNet SC650 V4.0 and V4.2 smart cards. Support for the CoolKey applet on these cards requires an additional software update.

For information about acquiring the CoolKey update, contact customer support quoting reference SUP-323.

Important: If you are using SC650 V4.0 or V4.2 smart cards with the CoolKey applet, you cannot use SafeNet SC650 V4.1 (90M) smart cards as listed in the table above – the cards have the same identifier and cannot be distinguished within MyID. If you install the configuration update for CoolKey support, the cards are identified as "SC650 – CoolKey". In addition, the SC650 V4.0 and V4.2 smart cards appear as the same device type, but have different GlobalPlatform key requirements. You cannot mix types of SC650 smart card on your system.

Note: Thales Trusted Cyber Technologies cards were previously known as SafeNet Assured Technologies smart cards.

9.1 Keys for Thales Trusted Cyber Technologies smart cards

This section provides information you need when setting up keys for Thales Trusted Cyber Technologies smart cards.

9.1.1 Secure Channel Protocol

The Secure Channel Protocol (SCP) is used in the **Manage GlobalPlatform Keys** workflow.

When configuring your GlobalPlatform keys, use the following Secure Channel Protocol:

Smart card	SCP
SafeNet SC650 V4.1 (90M)	SCP02
SC650 – CoolKey	For V4.0 cards: SCP01 For V4.2 cards: SCP03

9.1.2 Cryptographic keys for SC650 smart cards

When you configure the cryptographic keys, use the following details:

	SafeNet SC650 V4.1 (90M)	SC650 – CoolKey v4.0	SC650 – CoolKey v4.2
Credential Type in MyID	SafeNet SC650 (90M)	SC650 – CoolKey	SC650 – CoolKey
GlobalPlatform Secure Channel	SCP02	SCP01	SCP03
Factory GlobalPlatform Key Type	2DES	2DES	AES128
Factory GlobalPlatform Key Diversification Algorithm	Diverse1		

9.2 Platforms for Thales Trusted Cyber Technologies smart cards

These smart cards have been tested on:

	Operating System		
Smart card	Windows 8.1	Windows 10	Windows 11
SafeNet SC650 V4.1 (90M)	Y	Y	
SC650 – CoolKey	Y	Y	

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

9.3 Supported features for Thales Trusted Cyber Technologies smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

9.3.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with Thales Trusted Cyber Technologies smart cards.

	Features									
Smart card	MyID	PIN	GP	Applet	RSA	ECC	PIV	OPACITY	Print	Client OS
SafeNet SC650 V4.1 (90M)	Y	P	Y		P				Y	Y
SC650 – CoolKey	Y	P	Y		P				Y	Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

9.3.1.1 PIN management

The following Thales Trusted Cyber Technologies cards support a limited range of PIN management features:

	Smart card	
Feature	**SafeNet SC650 V4.1 (90M)**	**SC650 – CoolKey**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	
Replace the SOPIN with the factory SOPIN at cancellation.	Y	
Unlock the PIN using the SOPIN.	Y	
Provide a remote unlock code.		
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.		

Key:

- Y – Fully supported.
- blank – Not supported.

9.3.1.2 PKI – RSA

The following Thales smart card supports a limited range of PKI – RSA features:

	Smart card	
Feature	**SafeNet SC650 V4.1 (90M)**	**SC650 – CoolKey**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		

Feature	Smart card	
	SafeNet SC650 V4.1 (90M)	SC650 – CoolKey
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.	Y	Y

Key:

- Y – Fully supported.
- blank – Not supported.

9.4 Installation and configuration for Thales Trusted Cyber Technologies smart cards

This section provides any information required when installing the middleware for the smart cards or configuring the smart cards through either their middleware or through MyID.

9.4.1 CoolKey configuration

Information about configuring MyID to issue CoolKey cards is included in the document supplement provided with the additional software update that is required for support for the CoolKey applet on these cards.

For information about acquiring this update, contact customer support quoting reference SUP-323.

9.5 Interoperability for Thales Trusted Cyber Technologies smart cards

This section contains information about any considerations for using these smart card with other systems.

9.5.1 90Meter minidriver

You must install the 90Meter minidriver on client PCs that are using SafeNet SC650 V4.1 smart cards only. The minidriver may attempt to replace the driver used by other types of smart card.

Previously, you could use SafeNet AT High Assurance Client with SafeNet SC650 V4.1 smart cards; this is no longer supported. You must use the 90Meter minidriver for these smart cards instead. Note, however, that you cannot use the 90Meter minidriver to upgrade or reissue smart cards that were issued with the SafeNet AT High Assurance Client.

9.5.2 Omnikey card reader drivers for SC650 cards

When using an Omnikey smart card reader for SC650 cards, you must use the HID X-CHIP driver, and *not* the HID CCID driver. You are recommended to use the following driver:

- HID® OMNIKEY® X-CHIP WINDOWS BU & RU DRIVER V.1.2.29.156 (X64 AND X86)

This driver is available from the drivers page of the HID Global website.

9.5.3 CoolKey applets

You can issue SC650 V4.0 or V4.2 smart cards that have the CoolKey applet. These smart cards are displayed within MyID with a device type of "SC650 – CoolKey".

Support for the CoolKey applet on these cards requires an additional software update – for information about acquiring this update, contact customer support quoting reference SUP-323.

Note: You may experience problems if you attempt to use GemPC Twin smart card readers with smart cards that have the CoolKey applet loaded. You are recommended to use a different card reader.

9.5.4 SC650 cards

If you are using SC650 cards, and MyID cannot detect the cards on the logon screen while the SafeNet middleware *can* detect the cards, you may have to adjust the settings for your card reader. You may also experience a problem with collecting SC650 cards that displays an error similar to the following:

```
Error : -2147023779 - Error: 0x8007045d : The request could not be
performed because of an I/O device error.
```

This is a known issue with SC650 cards and Omnikey readers. To set up an Omnikey card reader to use 3 volts as the startup state, and therefore be able to detect the SC650 cards properly, set the following in the registry on the client PC:

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\CardMan]
"MHzRequired"=dword:00000037
"PowerUpOrder"=dword:00000003
"TPDU_T1Mode"=dword:00000001
```

9.5.5 Card issuance error if logged on with an SC650 operator card

If there are two SC650 cards connected to the MyID client, and one of the cards is used to log on to MyID, an error may occur during card issuance operations.

This issue has been reported to SafeNet and is waiting for resolution.

9.5.6 Card issuance error if using a single card reader

If you have logged on to MyID using an SC650 operator card on a PC with a single smart card reader, and attempt to issue another smart card, an error may occur when signing the certificates to be written to the card.

This error does not occur if you have two smart card readers – one for the operator card, and the other for the card you are issuing.

9.5.7 Slow card detection with SC650 cards

When an SC650 is inserted to the card reader, detection of the card in MyID may take longer than expected; allow approximately 10 seconds for the card to be detected.

This issue has been reported to SafeNet and is waiting for resolution.

9.5.8 Known issues

- **IKB-157 – Compatibility issues with SC650 and Oberthur ID-One PIV cards**

  If you connect an Oberthur ID-One PIV card to MyID at the same time as a SafeNet SC650 card, the Oberthur card will be incorrectly identified and will not be usable by MyID. Remove one of the cards to continue.

10 Yubico smart cards

MyID has been tested with the following Yubico smart cards:

Smart card	Yubico product name	Firmware version	Type	Middleware	Support
YubiKey 4	YubiKey 4	4.x	Smart card/USB	n/a	Supported
YubiKey 5	YubiKey 5 Series	5.1	Smart card/USB	n/a	Supported
YubiKey FIPS	YubiKey FIPS	4.4.2	Smart card/USB	n/a	Supported
YubiKey SC	YubiKey 5 Series	5.3 or later	Smart card/USB	n/a	Supported
YubiKey SC FIPS	YubiKey 5 Series	5.3 or later†	Smart card/USB	n/a	Supported
YubiKey v57*	YubiKey 5 Series	5.7.x	Smart card/USB	n/a	Supported
YubiKey v57 FIPS*	YubiKey 5 Series	5.7.x†	Smart card/USB	n/a	Supported

Note: MyID integrates with YubiKey devices as a PIV Compatible smart card. The cards support PIV features but are not PIV compliant, due to their form factor. You cannot use Windows PIN unblock functionality for these tokens; instead, you can use the MyID Card Utility to unblock the PIN; see the *Remote PIN Management utility for PIV cards* section in the ***Operator's Guide*** for details. MyID supports the use of YubiKey FIPS devices, but treats them in the same way as other YubiKey devices.

Note: MyID does not require middleware or a minidriver to work with Yubico smart cards. However, if you want to use your Yubico smart card with other applications, (for example, certificates for Windows logon) you may need to install a minidriver such as the Windows Inbox Smart Card Minidriver. For more information, see section *10.5.2*, *Minidrivers*.

* Due to limitations in naming with non-alphanumeric characters, the YubiKey 5.7 and YubiKey 5.7 FIPS devices are known as "YubiKey v57" and "YubiKey v57 FIPS" within MyID.

† FIPS devices are recognized by interrogating the high bit of the form factor byte of the token's Device Information when it is connected to MyID. For more information, see section *10.6.8*, *Identification of YubiKey 4 and YubiKey FIPS* and section *10.6.9*, *Identification of YubiKey 5, YubiKey SC, and YubiKey 5.7 devices*.

10.1 Yubico form factors

Yubico devices are available in a variety of form factors. MyID groups these individual devices and treats them as the same credential type – this means that the same level of functionality is applied by MyID when issuing, personalizing, or managing the smart card.

Form Factor	Credential Type in MyID
YubiKey 4	YubiKey 4
YubiKey 4C	YubiKey 4
YubiKey 4 Nano	YubiKey 4
YubiKey 4C Nano	YubiKey 4
YubiKey 5 NFC	YubiKey 5
YubiKey 5 Nano	YubiKey 5
YubiKey 5C	YubiKey 5
YubiKey 5Ci	YubiKey 5
YubiKey 5C Nano	YubiKey 5
YubiKey FIPS	YubiKey FIPS
YubiKey Nano FIPS	YubiKey FIPS
YubiKey C FIPS	YubiKey FIPS
YubiKey C Nano FIPS	YubiKey FIPS
YubiKey 5.4	YubiKey SC
YubiKey 5 FIPS	YubiKey SC FIPS
YubiKey 5.7	YubiKey v57
YubiKey 5.7 FIPS	YubiKey v57 FIPS

Note: MyID does not currently modify or work with the NFC element of Yubico devices.

10.2 Keys for Yubico smart cards

This section provides information you need when setting up keys for Yubico cards.

Note: Information about default keys for YubiKey 5 cards is available from the YubiKey 5 Series Technical Manual

10.2.1 Cryptographic keys for Yubico cards

When you configure the cryptographic keys, use the following details:

	YubiKey 4	YubiKey 5	YubiKey FIPS
Credential Type in MyID	YubiKey 4	YubiKey 5	YubiKey FIPS
GlobalPlatform Secure Channel	n/a	n/a	n/a
Factory GlobalPlatform Key Type	n/a	n/a	n/a
Factory GlobalPlatform Key Diversification Algorithm	n/a	n/a	n/a
Factory PIV 9B Key Encryption Type	3DES	3DES	3DES
PIV 9B Factory Key Diversity	Static	Static	Static
Recommended PIV 9B Customer Key Diversity	Diverse2	Diverse2	Diverse2

	YubiKey SC		YubiKey SC FIPS	
	Static Factory	Diverse Factory	Static Factory	Diverse Factory
Credential Type in MyID	YubiKey SC	YubiKey SC	YubiKey SC FIPS	YubiKey SC FIPS
GlobalPlatform Secure Channel	SCP03	SCP03	SCP03	SCP03
Factory GlobalPlatform Key Type	AES128	AES128	AES128	AES128
Factory GlobalPlatform Key Diversification Algorithm	Static	DiverseYB108	Static	DiverseYB108
Factory PIV 9B Key Encryption Type	3DES	AES256	3DES	AES256
PIV 9B Factory Key Diversity	Static	DiverseYB108	Static	DiverseYB108
Recommended PIV 9B Customer Key Diversity	DiverseYB108	DiverseYB108	DiverseYB108	DiverseYB108

YubiKey SC and YubiKey SC FIPS devices may be provided in two different configurations, one with static factory keys, and the other with diverse factory keys.

	YubiKey v57	YubiKey v57 FIPS
Credential Type in MyID	YubiKey v57	YubiKey v57 FIPS
GlobalPlatform Secure Channel	SCP03	SCP03
Factory GlobalPlatform Key Type	AES128	AES128
Factory GlobalPlatform Key Diversification Algorithm	Static	Static
Factory PIV 9B Key Encryption Type	AES192	AES192
PIV 9B Factory Key Diversity	Static	Static
Recommended PIV 9B Customer Key Diversity	DiverseYB108	DiverseYB108

YubiKey SC, YubiKey SC FIPS, YubiKey v57 and YubiKey v57 FIPS also support the following keys:

- **PIV PUK**

  See section *10.2.2*, *Setting up the PIV PUK key*.

- **Configuration Lock Code**

  See section *10.2.3*, *Setting up the Configuration Lock Code*.

10.2.2 Setting up the PIV PUK key

The PIV PUK diversifies the PUK / SOPIN. If the devices are provided to you with factory keys that are diversified, you can configure the keys in the **Key Manager** workflow.

Important: Check with your device supplier whether the devices have factory values for the PIV PUK key. You can configure the PIV PUK by configuring customer keys, but do not configure factory keys unless Yubico have set them in the factory.

If no factory keys are configured, MyID uses the default PUK `12345678`.

To configure a factory PIV PUK key:

1. From the **Configuration** category, select the **Key Manager** workflow.
2. From the **Select Key Type to Manage** drop-down list, select **PIV PUK**.
3. Click **Next**.
4. Click **Add New Key**.
5. Set the following values:
   - **Credential Type**: one of the following:
     - YubiKey SC
     - YubiKey SC FIPS
     - YubiKey v57
     - YubiKey v57 FIPS
   - **Key Type**: Factory
   - **Key Diversity:** DiverseYB108
   - **Encryption Type**: AES256
6. Enter the **Encryption Key**.

   If required, you can use a key ceremony; select **Use Key Ceremony**, click **Enter Keys**, and provide the key in multiple parts. Alternatively, click **Import Keys** and select a file containing the key ceremony data; see the *Entering keys using a key ceremony* section in the ***Administration Guide*** for details.
7. Click **Save**.

If required, you can also configure customer keys in the **Key Manager** workflow. If no customer keys are configured, MyID applies the **Security Officer PIN Type** configuration (on the **Device Security** page of the **Security Settings** workflow) which can be **Factory** or **Random**.

To configure a customer PIV PUK key:

1. From the **Configuration** category, select the **Key Manager** workflow.
2. From the **Select Key Type to Manage** drop-down list, select **PIV PUK**.
3. Click **Next**.
4. Click **Add New Key**.
5. Set the following values:
   - **Credential Type**: one of the following:
     - YubiKey SC
     - YubiKey SC FIPS
     - YubiKey v57
     - YubiKey v57 FIPS
   - **Key Type**: Customer
   - **Key Diversity:** DiverseYB108
   - **Encryption Type**: AES256
6. Select one of the following options:
   - **Automatically Generate Encryption Key in Software and Store on Database** – the key is automatically generated and stored in the database.
   - **Encryption Key** – type the key into the box. Optionally, you can include the **KeyChecksum Value**.
   - **Automatically Generate Encryption Key on HSM and Store on HSM** – this option generates a key on the HSM.

     Note: The HSM options appear only if your system is configured to use an HSM.
   - **Existing HSM Key Label** – if you have an existing key on your HSM that you want to use, type its label.
   - **Use Key Ceremony** – click **Enter Keys** and provide the key in multiple parts. Alternatively, click **Import Keys** and select a file containing the key ceremony data; see the *Entering keys using a key ceremony* section in the ***Administration Guide*** for details.
7. Click **Save**.

10.2.3 Setting up the Configuration Lock Code

The Configuration Lock Code locks the configuration of the supported interfaces. If the devices are provided to you with factory keys that are diversified, you can configure the keys in the **Key Manager** workflow.

Important: Check with your device supplier whether the devices have factory values for the Configuration Lock Code. You can configure the Configuration Lock Code by configuring customer keys, but do not configure factory keys unless Yubico have set them in the factory.

If no factory keys are configured, MyID will assume the interfaces are not secured out of the factory.

To configure a factory Configuration Lock Code key:

1. From the **Configuration** category, select the **Key Manager** workflow.
2. From the **Select Key Type to Manage** drop-down list, select **Configuration Lock Code**.
3. Click **Next**.
4. Click **Add New Key**.
5. Set the following values:
   - **Credential Type**: one of the following:
     - YubiKey SC
     - YubiKey SC FIPS
     - YubiKey v57
     - YubiKey v57 FIPS
   - **Key Type**: Factory
   - **Key Diversity:** DiverseYB108
   - **Encryption Type**: AES256
6. Enter the **Encryption Key**.

   If required, you can use a key ceremony; select **Use Key Ceremony**, click **Enter Keys**, and provide the key in multiple parts. Alternatively, click **Import Keys** and select a file containing the key ceremony data; see the *Entering keys using a key ceremony* section in the ***Administration Guide*** for details.
7. Click **Save**.

If required, you can also configure customer keys in the **Key Manager** workflow. If no customer keys are configured, MyID will not change the factory key (if configured) or will not secure the interface configuration (if no factory key is configured).

To configure a customer PIV PUK key:

1. From the **Configuration** category, select the **Key Manager** workflow.
2. From the **Select Key Type to Manage** drop-down list, select **Configuration Lock Code**.
3. Click **Next**.
4. Click **Add New Key**.
5. Set the following values:
   - **Credential Type**: one of the following:
     - YubiKey SC
     - YubiKey SC FIPS
     - YubiKey v57
     - YubiKey v57 FIPS
   - **Key Type**: Customer
   - **Key Diversity:** DiverseYB108
   - **Encryption Type**: AES256
6. Select one of the following options:
   - **Automatically Generate Encryption Key in Software and Store on Database** – the key is automatically generated and stored in the database.
   - **Encryption Key** – type the key into the box. Optionally, you can include the **KeyChecksum Value**.
   - **Automatically Generate Encryption Key on HSM and Store on HSM** – this option generates a key on the HSM.

     Note: The HSM options appear only if your system is configured to use an HSM.
   - **Existing HSM Key Label** – if you have an existing key on your HSM that you want to use, type its label.
   - **Use Key Ceremony** – click **Enter Keys** and provide the key in multiple parts. Alternatively, click **Import Keys** and select a file containing the key ceremony data; see the *Entering keys using a key ceremony* section in the ***Administration Guide*** for details.
7. Click **Save**.

10.3 Platforms for Yubico smart cards

These smart cards have been tested on:

	Operating System		
Smart card	**Windows 8.1**	**Windows 10**	**Windows 11**
YubiKey 4	Y	Y	Y
YubiKey 5	Y	Y	Y
YubiKey FIPS	Y	Y	Y
YubiKey SC		Y	Y
YubiKey SC FIPS		Y	Y
YubiKey v57		Y	Y
YubiKey v57 FIPS		Y	Y

Note: Windows 8.1 is no longer supported on any Intercede software. Information about smart cards and their supported platforms is provided for legacy information only. See the *Windows 8.1 end of support* section in the ***Release Notes*** for details.

Key:

- Y – Fully supported.
- blank – Not supported.

10.4 Supported features for Yubico smart cards

See section *2.1*, *Supported features* for a description of the features supported by smart cards.

10.4.1 Features

The following MyID features are smart card or middleware specific. The table below indicates which smart card-dependent features are available in MyID with Yubico smart cards.

	Features									
Smart card	**MyID**	**PIN**	**GP**	**Applet**	**RSA**	**ECC**	**PIV**	**OPACITY**	**Print**	**Client OS**
YubiKey 4	Y	P			P	P				Y
YubiKey 5	Y	P			P	P				Y
YubiKey FIPS	Y	P			P	P				Y
YubiKey SC	Y	P	Y		P	P				Y
YubiKey SC FIPS	Y	P	Y		P	P				Y
YubiKey v57	Y	P	Y		P	P				Y
YubiKey v57 FIPS	Y	P	Y		P	P				Y

Key:

- Y – Fully supported.
- P – Partially supported. See below for details.
- blank – Not supported.

10.4.1.1 PIN management

The following Yubico cards support a limited range of PIN management features:

	Smart card	
Feature	**YubiKey 4**	**YubiKey 5**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.	P	P

	Smart card		
Feature	**YubiKey FIPS**	**YubiKey SC**	**YubiKey SC FIPS**
Lock the PIN after issuance.	Y	Y	Y
Identify when the PIN is locked.	Y	Y	Y
Replace the SOPIN with a randomized value.	Y	Y	Y
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y	Y
Unlock the PIN using the SOPIN.	Y	Y	Y
Provide a remote unlock code.	Y	Y	Y
Reset the PIN at cancellation.	Y	Y	Y
Configure on-card PIN policy.	P	P	P

	Smart card	
Feature	**YubiKey v57**	**YubiKey v57 FIPS**
Lock the PIN after issuance.	Y	Y
Identify when the PIN is locked.	Y	Y
Replace the SOPIN with a randomized value.	Y	Y

Feature	Smart card	
	YubiKey v57	YubiKey v57 FIPS
Replace the SOPIN with the factory SOPIN at cancellation.	Y	Y
Unlock the PIN using the SOPIN.	Y	Y
Provide a remote unlock code.	Y	Y
Reset the PIN at cancellation.	Y	Y
Configure on-card PIN policy.	P	P

Key:

- Y – Fully supported.
- blank – Not supported.
- P – Partially supported. For details of supported on-card PIN policy features, see section *10.6.2*, *PIN policy settings*.

10.4.1.2 PKI – RSA

The following Yubico smart cards support a limited range of PKI – RSA features:

Feature	Smart card	
	YubiKey 4	YubiKey 5
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.	Y	Y
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.		
Write 4096 bit certificates.		
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.		

Feature	Smart card		
	YubiKey FIPS	YubiKey SC	YubiKey SC FIPS
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Cryptographically sign or encrypt data.	Y	Y	Y

Feature	Smart card		
	YubiKey FIPS	YubiKey SC	YubiKey SC FIPS
Specify the default certificate for Windows logon.	Y	Y	Y
Write 1024 bit certificates.			
Write 2048 bit certificates.	Y	Y	Y
Write 3072 bit certificates.			
Write 4096 bit certificates.			
Remove certificates.	Y	Y	Y
Inject a private key for certificate recovery.	Y	Y	Y
Enumerate certificates on the card.			

Feature	Smart card	
	YubiKey v57	YubiKey v57 FIPS
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Cryptographically sign or encrypt data.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
Write 1024 bit certificates.		
Write 2048 bit certificates.	Y	Y
Write 3072 bit certificates.	Y	Y
Write 4096 bit certificates.	Y	Y
Remove certificates.	Y	Y
Inject a private key for certificate recovery.	Y	Y
Enumerate certificates on the card.		

Key:

- Y – Fully supported.
- blank – Not supported.

10.4.1.3 PKI – ECC

The following Yubico smart cards support a limited range of PKI – ECC features:

Feature	Smart card	
	YubiKey 4	YubiKey 5
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y

	Smart card	
Feature	**YubiKey 4**	**YubiKey 5**
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.		

	Smart card		
Feature	**YubiKey FIPS**	**YubiKey SC**	**YubiKey SC FIPS**
Generate a private key for a certificate request.	Y	Y	Y
Write a certificate to the smart card.	Y	Y	Y
Specify the default certificate for Windows logon.	Y	Y	Y
ECC NIST P256 Curve	Y	Y	Y
ECC NIST P384 Curve	Y	Y	Y
ECC NIST P521 Curve			
Remove certificates.	Y	Y	Y
Archive certificates.			
Enumerate certificates on the card.			

	Smart card	
Feature	**YubiKey v57**	**YubiKey v57 FIPS**
Generate a private key for a certificate request.	Y	Y
Write a certificate to the smart card.	Y	Y
Specify the default certificate for Windows logon.	Y	Y
ECC NIST P256 Curve	Y	Y
ECC NIST P384 Curve	Y	Y
ECC NIST P521 Curve		
Remove certificates.	Y	Y
Archive certificates.		
Enumerate certificates on the card.		

Key:

- Y – Fully supported.
- blank – Not supported.

10.5 Installation and configuration for Yubico smart cards

This section provides any information required when installing the middleware for the smart cards or configuring the smart cards through either their middleware or through MyID.

10.5.1 Yubico management key

You must configure MyID to use the management key for your Yubico smart cards. In MyID, this key is known as the PIV 9B key. To configure this key, you must use the **Key Manager** workflow within MyID to add a factory **PIV 9B Card Administration Key** to the system.

YubiKey devices may also be produced with factory diversified values of the following keys:

- PIV PUK
- Configuration Lock Code

If so, you must configure the keys using the Key Manager workflow; see section *10.2.2*, *Setting up the PIV PUK key* and section *10.2.3*, *Setting up the Configuration Lock Code* for details.

10.5.2 Minidrivers

Yubico provides a Windows minidriver that can enable extended usage of certificates on the smart card, beyond the capabilities provided by the Windows Inbox Smart Card Minidriver. To use YubiKey devices with the minidriver, the minimum version of the minidriver is v4.1.0.172; additionally, you must issue the devices with a *customer* PIV 9B key.

10.5.3 Card format

Yubico smart cards have PIV features, but are not fully PIV-compliant. In the **Device Profiles** section of the **Credential Profiles** workflow, you must select one of the following from the **Card Format** drop-down list:

- `CivCertificatesOnly.xml` – This card format is used by MyID to personalize the PIV applet and set the default values on elements required by the smart card's PIV applet.
- `CivCertificatesOnlyCompressed.xml` – As `CivCertificatesOnly.xml`, but using compressed data.
- `Yubikey.xml` – This card format contains the PIV applet settings from `CivCertificatesOnly.xml`, and also sets up on-device PIN policy settings. See section *10.6.2*, *PIN policy settings* for details. You can also configure device capabilities using this file; see section *10.6.12*, *Enabling and disabling device capabilities* for details.
- `YubikeyNoOTP.xml` – This card format is the same as `Yubikey.xml`, but disables the Touch OTP feature. See section *10.6.2*, *PIN policy settings* for details.
- `YubiKeyFIPS.xml` – This card format is the same as `YubiKey.xml`, but is restricted to being issued to YubiKey FIPS devices only.

This card format is used by MyID to personalize the PIV applet and set the default values on elements required by the smart card's PIV applet.

10.5.4 Issuing smart cards that have PIV applets

For information on issuing smart cards that have PIV applets using a non-PIV MyID system, see section *2.12*, *Issuing smart cards that have PIV applets*.

10.5.5 FIDO for Yubico devices

For information on FIDO, see the ***FIDO Authenticator Integration Guide***.

10.5.6 Issuing YubiKey v57 FIPS devices

When issuing YubiKey v57 FIPS devices, the token does not create credentials unless the PIN, PUK, and 9B key have been changed. Therefore you must set the set the **Security Officer PIN Type** option to **Random** and configure customer 9B keys.

10.6 Interoperability for Yubico smart cards

This section contains information about any considerations for using these smart card with other systems.

10.6.1 Unlocking YubiKey tokens

YubiKey tokens include a PIV applet, which means that you can use the MyID Card Utility to carry out a remote challenge/response unlock operation and change the user PIN, and the unlock credential provider to unlock the devices from the Windows logon screen.

See section *2.13*, *Unlocking smart cards that have a PIV applet*.

10.6.2 PIN policy settings

MyID allows you to set various policies for PINs using the settings in the credential profile. MyID enforces these settings for any operations carried out by MyID. For some smart cards, some or all of these settings are applied directly to the card, which means that the settings will also be enforced by third-party tools and utilities.

The following settings are supported for on-card PIN policy settings:

	Smart card	
PIN Setting	**YubiKey 4**	**YubiKey 5**
Maximum PIN Length		
Minimum PIN Length		
Repeated Characters Allowed		
Sequential Characters Allowed		
Logon Attempts	Y	Y
PIN Inactivity Timer		
PIN History		
Lowercase PIN Characters		
Uppercase PIN Characters		
Numeric PIN Characters		
Symbol PIN Characters		
Lifetime		

	Smart card		
PIN Setting	**YubiKey FIPS**	**YubiKey SC**	**YubiKey SC FIPS**
Maximum PIN Length			
Minimum PIN Length			
Repeated Characters Allowed			
Sequential Characters Allowed			
Logon Attempts	Y	Y	Y
PIN Inactivity Timer			
PIN History			
Lowercase PIN Characters			
Uppercase PIN Characters			
Numeric PIN Characters			
Symbol PIN Characters			
Lifetime			

	Smart card	
PIN Setting	**YubiKey v57**	**YubiKey v57 FIPS**
Maximum PIN Length		
Minimum PIN Length		
Repeated Characters Allowed		
Sequential Characters Allowed		
Logon Attempts	Y	Y
PIN Inactivity Timer		
PIN History		
Lowercase PIN Characters		
Uppercase PIN Characters		
Numeric PIN Characters		
Symbol PIN Characters		
Lifetime		

Key:

- Y – Supported.
- blank – Not supported.

MyID also supports the following YubiKey-specific settings by creating a customized card data model file:

- PUK Retries
- Per Container PIN Policy
- Per Container Touch-to-Sign Policy
- Touch OTP

The following settings are supported:

	Smart card	
PIN Setting	**YubiKey 4**	**YubiKey 5**
PUK Retries	Y	Y
Per Container PIN Policy	Y	Y
Per Container Touch-to-Sign Policy	Y	Y
Touch OTP	Y	Always on; cannot configure.

	Smart card		
PIN Setting	**YubiKey FIPS**	**YubiKey SC**	**YubiKey SC FIPS**
PUK Retries	Y	Y	Y
Per Container PIN Policy	Cannot set to "never"	Y	Y
Per Container Touch-to-Sign Policy	Y	Y	Y
Touch OTP	Y	Y	Y

	Smart card	
PIN Setting	**YubiKey v57**	**YubiKey v57 FIPS**
PUK Retries'	Y	Y
Per Container PIN Policy	Y	Y
Per Container Touch-to-Sign Policy	Y	Y
Touch OTP	Y	Y

You can configure the on-device settings by editing the card format file; these settings are applied when you issue, reprovision, or update the YubiKey token.

The `Yubikey.xml` card format file is located on the MyID application server in the following default folder:

```
C:\Program Files\Intercede\MyID\Components\CardServer\CardFormats\
```

Important: Do not edit the base `Yubikey.xml` file, as it may be overwritten by subsequent MyID updates – instead, make a copy of the file in the same folder and give it a name that you can use to identify its purpose; for example, if you create a file to change the number of PUK retries to 5, you may want to name the copied file `Yubikey_5_PUK_retries.xml`.

Note: You must back up your custom data model files before carrying out an upgrade. See the *Upgrading systems with customized card data models* section in the ***Installation and Configuration Guide***.

To select the card format file, in the **Credential Profiles** workflow, in the **Device Profiles** section, from the **Card Format** drop down list select the copy of the `Yubikey.xml` file you created; for example, **Yubikey_5_PUK_retries.xml**.

You can configure the YubiKey on-device settings as follows:

- PUK Retries

  In the data model file, set the `CardDataModel/PukRetries` node to the number of retries.

  The default is 10.

- Per Container PIN Policy

  In the data model file, set the `Container/PinPolicy` node to one of the following:

  - `01` – the PIN is never needed.
  - `02` – The PIN is needed once per session. (Default, except for Digital Sign Container.)
  - `03` – The PIN is needed for every use. (Default for Digital Sign Container.)

  Important: Do not set the Per Container PIN Policy for the authentication container (`5FC105`) to `03` (always) – this causes problems when collecting updates. Any signing operation fails if the card is already in an authenticated state, which can occur as a result of authenticating with MyID or Windows. If this occurs, you can collect the updates through the Self-Service App by reinserting the token and retrying the update. However, to prevent this problem from occurring, you are recommended to leave this option at `02` (once) for the authentication container.

  Note: If you set the Per Container PIN Policy to values `02` or `03` for the Card Authentication Certificate container (`5FC101`), you cannot perform a PIN reset without entering the PIN first. This is in alignment with PIV standards. To prevent this from occurring, leave the `Container/PinPolicy` value at the default value of `01` for the `5FC101` container.

- Per Container Touch-to-Sign Policy

  In the data model file, set the `Container/TouchPolicy` node to one of the following:

  - `01` – never (default)
  - `02` – always
  - `03` – cached

  Note: If you set the Per Container Touch-to-Sign Policy to a value other than `01` (never) there is no on-screen indication when you need to touch the token to proceed; when the token displays a slow steady flashing light, touch the token. If you set this option to always, you must touch the token for each certificate operation; if you set this option to cached, the token caches the authentication for approximately 15 seconds.

- Touch OTP

  You can enable or disable the Touch OTP feature of Yubico devices at issuance (including reprovision) or as a post-issuance device update.

  In the data model file, set the `CardDataModel/OTP` node to one of the following:

  - `<OTP>` – if this node is not present, the Touch OTP feature is enabled on issuance or update (according to existing behavior).
  - `<OTP>0</OTP>` – the Touch OTP feature is disabled on issuance or update.
  - `<OTP>1</OTP>` – the Touch OTP feature is enabled on issuance or update.

The `Yubikey.xml` data model file does not contain the OTP node, which means that the touch OTP feature is enabled by default. An additional card data model, `YubikeyNoOTP.xml`, is provided that has the Touch OTP feature disabled, with the OTP node set to 0.

Warning: Do not amend any other parts of the card format file. Incorrect configuration may lead to failure to issue a token.

10.6.2.1 Updating existing YubiKey tokens

You can update existing issued YubiKey tokens to use the on-device settings; you can request a card update through MyID, or you can use the Lifecycle API.

When deciding whether to update your existing YubiKey tokens, consider the following:

- If you *update* the YubiKey token, MyID determines whether any additional certificates need to be added; revoked certificates replaced, and so on; these may require certificates to be added or removed. For any new certificates written to the device, the container that protects the certificate keys will be set to use the Per Container PIN Policy and Per Container Touch-to-Sign Policy as configured in the card format file. No other certificates, and no other on-device policies are affected. The user does not need to set a new PIN for their token.
- If you *reprovision* the YubiKey token, all content is rewritten to the device, including all certificates, and all on-device settings as configured in the card format file are applied to the device. The user must set a new PIN for their token.

To update an existing YubiKey:

1. Use the **Request Card Update** workflow to request an update.

   For more details about using this workflow and how it affects your credentials, see the *Requesting a card update* section in the ***Operator's Guide***.
2. Select one of the following options:
   - **Request a resync of the card to the same version of the current profile** – select this option if you have made no changes to the credential profile used to issue the token.
   - **Request an upgrade of the card to the latest version of the current profile** – select this option if you have made changes to the credential profile used to issue the token.
   - **Request an upgrade of the card to the latest version of the following profile** – select this option if you have created a new credential profile to use for the on-device PIN policy settings.
3. Select the appropriate reason.
   - To carry out a reprovision, replacing all of the certificates on the token, select the **There is a problem with the device** reason.
   - To carry out an update, which affects only the Per Container PIN Policy or Per Container Touch-to-Sign Policy, and only for certificates that are required to be added because of the update, select the **New certificates need to be added to the**

device reason.

4. Collect the update using the Self-Service App.

For systems with a large user population, you may prefer to create update requests using the Lifecycle API. The relevant section of the submission for generating a card update request is shown below.

For carrying out a full reprovision using the CMSCardRequest schema:

```
<Card>
 <CardProfile>Yubikey NoOTP</CardProfile>
 <CardRequestedBy>System</CardRequestedBy>
 <OriginalSerialNumber>8115516</OriginalSerialNumber>
 <OriginalDeviceType>YubiKey 4</OriginalDeviceType>
 <StatusMapping>84</StatusMapping>
 <Reprovision>1</Reprovision>
</Card>
```

For carrying out an update:

```
<Card>
 <CardProfile>Yubikey NoOTP</CardProfile>
 <CardRequestedBy>System</CardRequestedBy>
 <Update>
  <OriginalSerialNumber>8115516</OriginalSerialNumber>
  <OriginalDeviceType>YubiKey 4</OriginalDeviceType>
  <StatusMapping>86</StatusMapping>
 </Update>
</Card>
```

Replace the values of the nodes in the example above with values corresponding to the user population in your system.

For more information on the Lifecycle API, see the ***Lifecycle API*** guide.

10.6.2.2 Using YubiKey tokens for Windows logon

If you want to use your YubiKey tokens for Windows logon, you must set the Per Container Touch-to-Sign Policy to `03` (cached) and Per Contain PIN Policy to `02` (once).

10.6.2.3 PIN policy considerations for YubiKey v57 FIPS devices

You can set the PIN and PUK retries for YubiKey v57 FIPS devices only if the PIN and PUK have their default values. This means that the PIN and PUK retries are not reset during the **Update Card** operation.

Note also that the YubiKey v57 FIPS tokens have a strict on-device PIN policy. If you attempt to issue with a user PIN that is considered insecure by the token, this results in the following error:

```
Attempt to enter an invalid passphrase or PIN.
Solutions:
Please contact your administrator.
Error Number: -2147220685
```

10.6.3 Unlocking

MyID typically sets a randomized personal unlocking key (PUK) when it issues a Yubico smart card. This PUK is not available to any system other than MyID. If you want to unlock a Yubico smart card, you must use MyID (for example, the Self-Service App, MyID Desktop, or the MyID Card Utility).

For information on the MyID Card Utility, see the *Remote PIN Management utility for PIV cards* section in the ***Operator's Guide***.

10.6.4 PIN attempts

The number of attempts to enter a PIN for a Yubico device is set by the manufacturer, but MyID can override this using the **Logon Attempts** option on the credential profile.

10.6.5 PIN characters

The SP800-73 PIV specification requires that PIV cards use numeric-only PINs; however, although YubiKey tokens use PIV technology, it is possible to configure MyID to use non-numeric PIN characters for YubiKey tokens. YubiKey tokens support numeric, upper case, lower case, and symbol characters.

Note: YubiKey v57 FIPS devices have different PIN policy limitations already set and enforced on the device; MyID has no control over these. For more information, see:

docs.yubico.com/hardware/yubikey/yk-tech-manual/5.7-firmware-specifics.html#pin-complexity

You are recommended to set up a credential profile in MyID that matches the policy that will be enforced on the device; this prevents attempts to set PINs that would be rejected by the device. You can configure these settings using the PIN settings and the **Enforce Banned Words** option in the credential profile.

10.6.6 PIN length

YubiKey devices have fixed minimum and maximum PIN lengths of 6 and 8 characters respectively. Make sure you set up the credential profile to have a **Minimum PIN Length** of 6 and a **Maximum PIN Length** of 8.

Note: YubiKey v57 FIPS devices have a minimum user PIN length of 8 digits.

10.6.7 Additional identities for YubiKey tokens

The Retired Key Management container slots can be used to store Additional Identity certificates on YubiKey tokens. YubiKey 4 and 5 devices have a total of 20 Retired Key Management containers.

Retired Certificates are written first, followed by AI certs. The combined total of Retired Certificates and Additional Identity certificates must be a maximum of 20 certificates, or the token will run out of available containers.

This functionality requires the YubiKey Smart Card Minidriver installed, which you can obtain from the Yubico website.

For more information on additional identities, see the *Additional identities* sections in the ***Administration Guide***.

10.6.8 Identification of YubiKey 4 and YubiKey FIPS

YubiKey 4 and YubiKey FIPS devices share an ATR value, and can be differentiated only by their firmware version.

If a YubiKey device has the following ATR:

- `3BF81300008131FE15597562696B657934D4`

MyID identifies the device based on the firmware as follows:

- the device has firmware version 4.4.*x* – YubiKey FIPS.
- the device has any other firmware – YubiKey 4.

10.6.9 Identification of YubiKey 5, YubiKey SC, and YubiKey 5.7 devices

YubiKey 5, YubiKey SC, and YubiKey 5.7 devices share an ATR value, and can be differentiated only by their firmware version.

If a YubiKey device has the following ATR:

- `3BFD1300008131FE158073C021C057597562694B657940`

MyID identifies the device based on the firmware as follows:

- the device has a firmware version of 5.7 – YubiKey v57 or, if the high bit of the form factor byte of the token's Device Information is set, YubiKey v57 FIPS.
- the device has a firmware version of 5.3 or greater but less than 5.7 – YubiKey SC or, if the high bit of the form factor byte of the token's Device Information is set, YubiKey SC FIPS.
- the device has any other firmware – YubiKey 5.

Note: A firmware version of, for example, 5.8 translates to a device type of YubiKey v58, but currently you can manage only devices with firmware versions up to 5.7 in MyID.

10.6.10 Displaying YubiKey firmware versions

The **Identify Card** workflow displays the firmware version of your YubiKey devices in the **Device Version** field.

This value is stored in the MyID database at the point of device personalization from MyID 11.5 onwards – this means that you cannot view the firmware version of YubiKey devices that were issued in previous versions of MyID.

10.6.11 Updating YubiKey devices with incorrect 9B keys

If you are attempting to use MyID Desktop to update a YubiKey device using the **Collect My Updates** workflow, but the 9B key is incorrect (which may be caused by an issue with earlier versions of the Yubico minidriver, prior to v4.0.4, setting the factory 9B key to a value not known to MyID) you are automatically directed to the **Reprovision My Card** workflow instead, which recovers your card into a usable state. This process is seamless; note, however, that you must have a role that has access to both the **Collect My Updates** and **Reprovision My Card** workflows.

10.6.12 Enabling and disabling device capabilities

MyID can enable or disable the capabilities supported by YubiKey SC and YubiKey SC FIPS tokens.

You can secure the supported configurations using the Configuration Lock Code; see section *10.2.3, Setting up the Configuration Lock Code*.

You can enable or disable the following capabilities on the USB or NFC interfaces:

- OTP
- U2F
- OpenPGP
- OATH
- CTAP2

Important: The configuration file also contains PIV in the list of supported capabilities, but you must never disable this capability for the USB interface, as this would prevent MyID from managing the device.

Note: MyID can only enable or disable these capabilities; it cannot manage them.

If you attempt to enable a capability on a device that does not support that capability, the device personalization continues without an error or failure. The device is issued without the capability enabled.

To configure the supported capabilities, edit the `YubiKey.xml`, `YubiKeyNoOTP.xml`, and `YubikeyFIPS.xml` card format files.

By default, these files are installed to the following location on the MyID application server:

`C:\Program Files\Intercede\MyID\Components\CardServer\CardFormats\`

Note: You are recommended to take a copy of the existing file, rename it, and make your changes in the renamed file to ensure that your changes are not overwritten when updating or upgrading your MyID system.

The `CardDataModel\USBCapabilities` node is used to configure the capabilities of the USB interface; the `CardDataModel\NFCCapabilities` node is used to configure the NFC capabilities. Set the value to `1` to enable the capability, or `0` to disable it.

For example:

```
<USBCapabilities>
<!-- 1 = enabled, 0 = disabled -->
  <OTP>0</OTP>
  <U2F>0</U2F>
  <OpenPGP>0</OpenPGP>
  <PIV>1</PIV>    <!-- Note that PIV cannot be disabled or MyID will not be able to manage
the token -->
  <OATH>0</OATH>
  <CTAP2>0</CTAP2>
</USBCapabilities>
<NFCCapabilities>
<!-- 1 = enabled, 0 = disabled -->
  <OTP>0</OTP>
  <U2F>0</U2F>
```

```
  <OpenPGP>0</OpenPGP>
  <PIV>1</PIV>
  <OATH>0</OATH>
  <CTAP2>0</CTAP2>
</NFCCapabilities>
```

Important: Enabling and disabling communication to specific functions requires a power cycle of the YubiKey hardware; for these changes to take effect, you must remove the token and re-insert it.

10.6.13 Factory resetting YubiKey tokens

A factory reset on a YubiKey token with diversified factory keys will return the keys to the default values, and not the diversified factory values. In this case, MyID would no longer be able to issue the tokens.

10.6.14 Configuring YubiKey devices for remote servers

If you are using YubiKey devices when working with remote servers, where you cannot physically insert the device, you must deploy the minidriver with the `INSTALL_LEGACY_NODE=1` option set.

To do this, run the minidriver installation using the following command:

```
msiexec /i YubiKey-Minidriver-4.1.1.210-x64.msi INSTALL_LEGACY_NODE=1 /quiet
```

Substitute the filename for your own installation .msi file.

When you install the minidriver .msi with the legacy node option enabled, this prevents the failures when attempting to use smart card logon over RDP; the failure message displayed is similar to:

```
Requested Key Container is not Available
```