<div align="center">**User's Guide for PIV Data Loader**
**July 13, 2007**</div>

## Installation

1. Download the zip file (piv_data_loader.zip) containing the PIV Data Loader application and click on the file to unzip.
2. Unzip the file to a directory of choice. The directory will contain the following files:
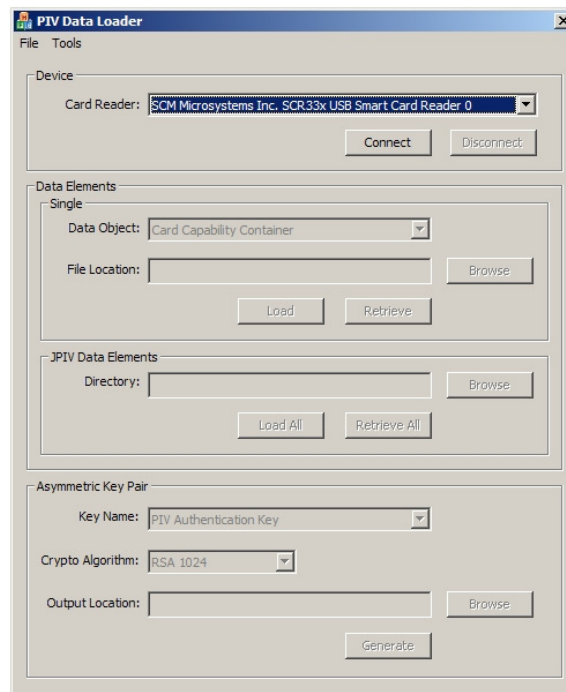
| | |
|---|---|
| PIV Data Loader.exe | Main application executable |
| PIV_Data_Loader_Users_Guide.doc | This document |

3. Download the Crypto++ DLL version 5.2.3 package from http://www.cryptopp.com/ and copy the .\Release\cryptopp.dll file to the PIV Data Loader directory created in step 2.
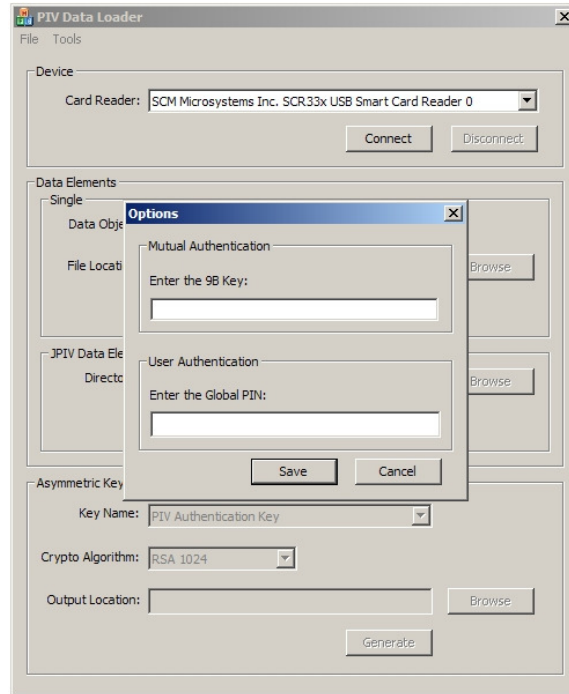
## Configuration

Before data elements can be loaded or retrieved from a PIV card, the PIV Data Loader application must be configured with the correct 9B key and PIN of the card. The following steps can be used to configure the application:

1. Launch the PIV Data Loader application. The main screen is displayed.

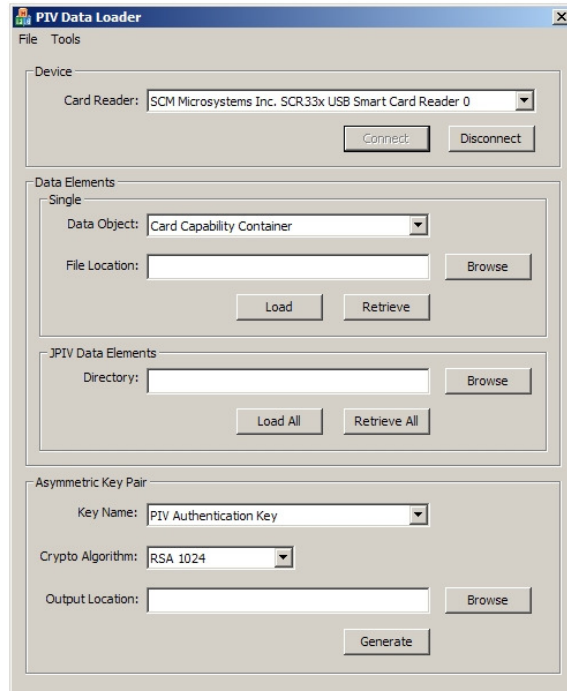2. Click on the **Tools->Options…** menu item to display the Options dialog.



3. Enter the 9B key and PIN of the card and click the **Save** button. The configuration settings are saved to the registry.

## Usage

*Connecting to PIV Card*

1. The PIV Data Loader application detects and displays the list of card readers present on the system. Select a card reader and click on the **Connect** button.
2. Upon successful completion, all controls that were previously disabled will be enabled, as shown below.
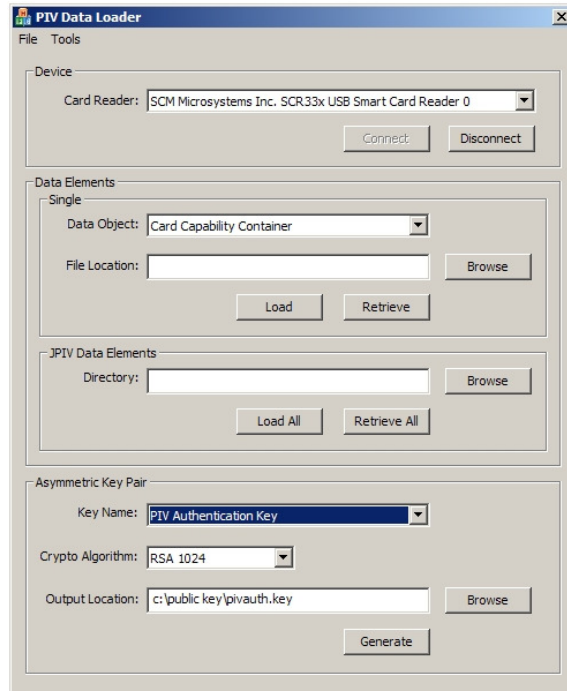
*Disconnecting from the PIV Card*

1. Click on the Disconnect button to disconnect from the PIV Card.

*Generating Asymmetric Key Pair*

The PIV Data Loader application may be used to generate an asymmetric key pair on the PIV Card.  The application will save the public key information returned from the card in a file that can be read by the JPIV Test Data Generator tool to create a certificate.  The private key remains on the card.  To generate an asymmetric key pair:

1. Select the key name from the list.
2. Select the cryptographic algorithm to use.
3. Enter the name of the file to save the public key information to in the Output Location edit box.  This file can be used by the JPIV Test Data Generator tool to create a certificate.
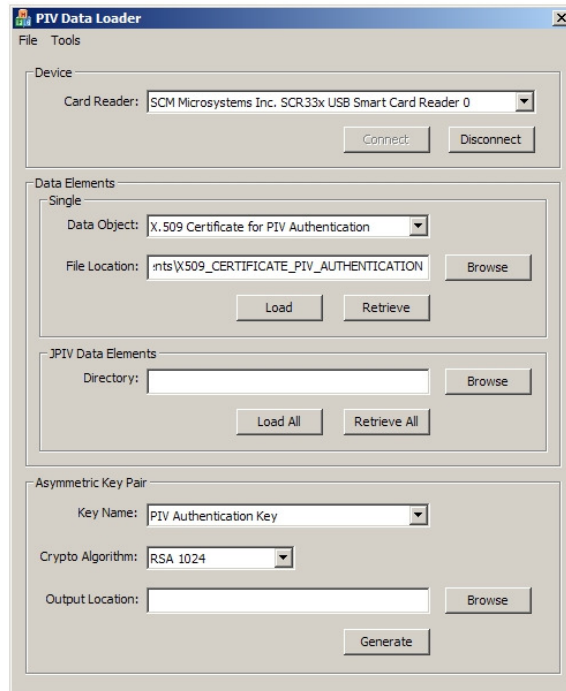
4. Click on the **Generate** button.
5. The application displays the status of the operation (i.e., status or failure).

The Key Generation and Data Loading are two separate functions. After the key generation, one must use the JPIV Test Data Generator tool to create the certificates which are then loaded on to the card. The Data Loading function does not check / ensure if the same card (card holding the corresponding private keys) is used in both functions.

*Data Loading/Retrieving a Single Data Element*

Data elements can be loaded or retrieved from a PIV Card one at a time. To do so:

1. Select the data element to load or retrieve from the list.
2. When loading a data element, enter the name of the file that contains the data element to load in the File Location edit box. When retrieving a data element, enter the name of the file to save the retrieved data element to in the File Location edit box.

3. Click on the **Load** button to load the data element onto the PIV Card or click on the **Retrieve** button to retrieve the data element from the PIV Card.
4. The application displays the status of the operation (i.e., status or failure).

*Loading/Retrieving All Data Elements*

All data elements can be loaded or retrieved from a PIV Card at the same time. This is particularly useful when working with data elements generated by the JPIV Test Data Generator tool. Consequently, the PIV Data Loader application expects the data element filenames to be in the same form as that used by the JPIV Test Data Generator tool. The following table summarizes the expected filenames for each data element:

| Data Element | Expected Filename |
|---|---|
| Card Capability Container | CARD_CAPABILITY_CONTAINER |
| Card Holder Unique Identifier | CHUID |
| X.509 Certificate for PIV Authentication | X509_CERTIFICATE_PIV_AUTHENTICATION |
| Card Holder Fingerprint I | CARD_HOLDER_FINGERPRINTS |
| Printed Information | PRINTED_INFORMATION |
| Card Holder Facial Image | CARD_HOLDER_FACIAL_IMAGE |
| X.509 Certificate for Digital Signature | X509_CERTIFICATE_DIGITAL_SIGNATURE |
| X.509 Certificate for Key Management | X509_CERTIFICATE_KEY_MANAGEMENT |
| X.509 Certificate for Card Authentication | X509_CERTIFICATE_CARD_AUTHENTICATION |
| Security Object | SECURITY_OBJECT |

To load or retrieve all data elements, do the following:

1. When loading data elements, enter the name of the directory that contains the data element files in the Directory edit box. When retrieving data elements, enter the name of the directory to save retrieved data elements to in the Directory edit box.



2. Click on the **Load All** button to load all data elements onto the PIV Card or click on the **Retrieve All** button to retrieve all data elements from the PIV Card.
3. The application displays the status of the operation (i.e., status or failure).