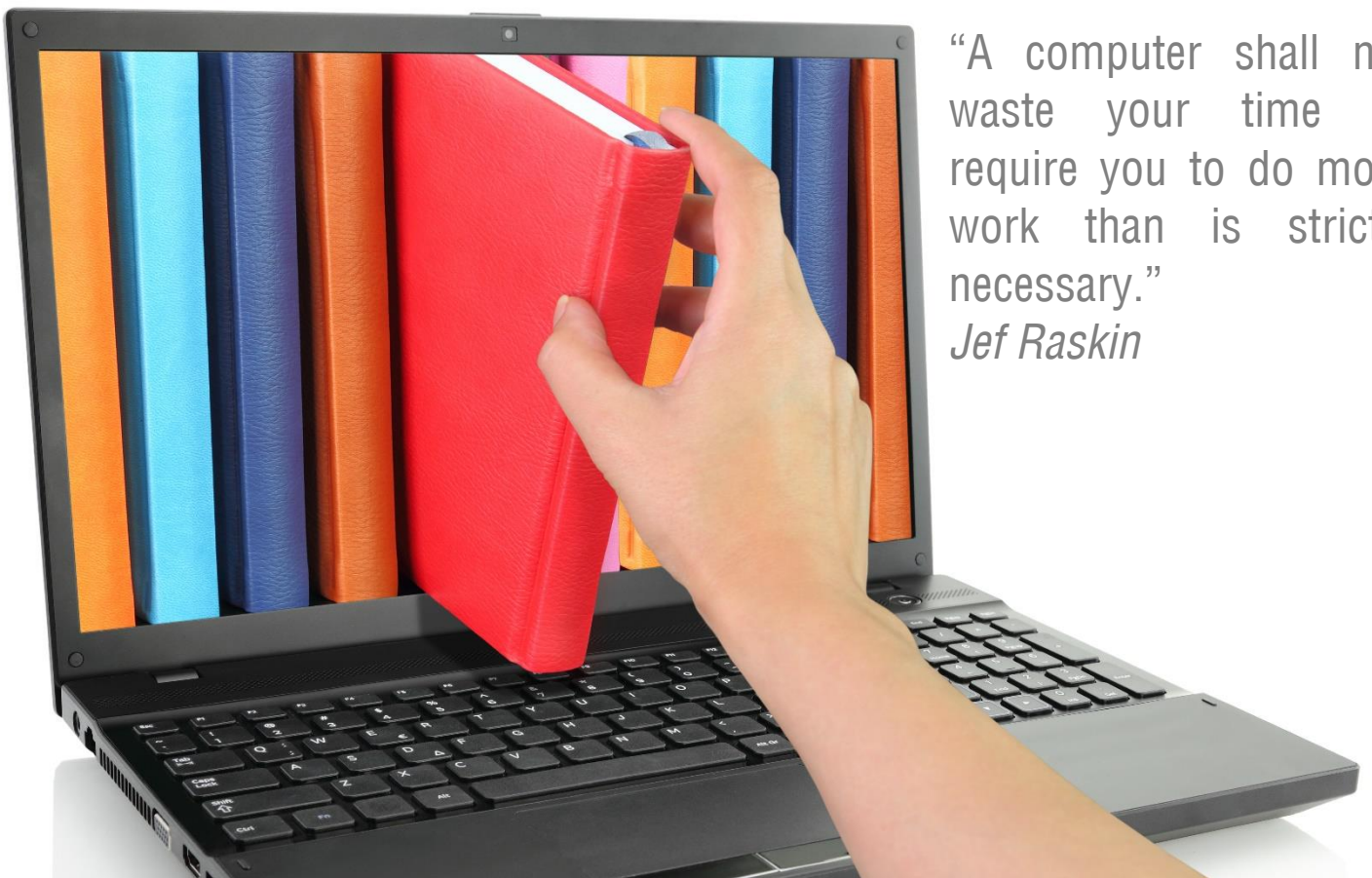Sharper Software Guides

Sharper Integration Evaluation Guide

"A computer shall not waste your time or require you to do more work than is strictly necessary."
Jef Raskin

Prepared by:
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INTRODUCTION

Sharper Integration for Kuwait Smart Civil ID enables third-party solutions to utilize the Smart Civil ID for data capture and data quality efforts.

Used in conjunction with an ISO-7816 compatible smart card reader device it allows end users to efficiently capture card holder data, minimizing the time as well as the human error associated with manual data entry.

Sharper Integration has the capability to integrate with multiple systems out of the box. Furthermore, Sharper Software is committed to extending the capabilities of the platform to extend integration to other systems as the clients' needs dictate.

TARGET AUDIENCE

This document is intended for solution architects who need to evaluate the most suitable method to integrate the Smart Civil ID with new or existing systems. Guidance is given on how to integrate Smart Civil ID data, as well as a pros-and-cons analysis for each integration method.

PLATFORM REQUIREMENTS

Sharper Integration client components have the following minimum requirements:

1. Windows 7 or later.
2. .net Framework 4.5 or later.

DATA AVAILABLE FOR CAPTURE

The Kuwait Smart Card Civil ID has the following information available for capture, after enhancement by the Sharper Integration platform:

Field	Notes
Civil ID Number	12-digit number representing a unique Civil ID number for each citizen or expat.
Arabic Name	Consists of 4 parts: 1. Title or prefix 2. First name 3. Middle name 4. Family name
English Name or Latin Name	Consists of 3 parts: 1. First name 2. Middle name 3. Family name
Sex	• Code: M/F • Arabic and English text
Birth Date	In the format dd/MM/yyyy Note: Some older card holders only have year of birth defined.

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Nationality	• ISO 3116-1 country codes
	    ○ Alpha-3
	    ○ Alpha-2
	    ○ Numeric
	• Arabic and English text

Blood Type	
Address	Consists of 8 parts: 1. Address Unique Key (Address Civil ID) 2. Governorate (Arabic/English) 3. Area (Arabic text, English "Best Match") 4. Block number 5. Street number or name in Arabic 6. Building number 7. Unit number 8. Unit type (Flat, etc.) (Arabic only) 9. Floor number
Civil ID Number of legal guardian	For dependent citizens or residents.
Card information	Consists of 3 parts unique to each card: 1. Card serial number 2. Date issued 3. Date of expiry
Residence Information (Only for Expats)	Consists of the following Arabic text: 1. Sponsor Name (Person or Company) 2. Residence Article
Contact information	Consists of 3 parts: 1. First telephone number 2. Second telephone number 3. Email address Additionally, a best guess match is attempted to differentiate mobile phone numbers from landlines.
Photo	As printed on card. Supported formats: › BMP › JPEG › JPEG2000 › PNG › GIF

INTEGRATION POINTS

Sharper Integration has the capability to integrate with multiple systems, as well capturing data in multiple formats to suit the solution being integrated with.

It is recommended to choose the integration point based on the following criteria:

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1. **Robustness**: Certain integration approaches are prone to breaking if the environment changes even slightly. For example: keyboard emulation integration is prone to break when the current focus of the cursor is not exactly on the first input control.
2. **User Effort**: Whether the user has to interact with the system at all beyond inserting the card into the reader device.
3. **Target System Customization**: Can the target system be integrated with as-is? Otherwise it may require some customization to support the integration.

Note: Integration are not necessarily mutually exclusive. Several targets may be integrated with simultaneously.

Integration Point	Robustness	User Effort	Customization
SOAP or HTTP Web Services	High	None	Minimal to none
Direct to Database	High	None	Depends on target system
HTML Direct (IE only)	Medium	Minimal	Minimal to none
Local shared memory	High	None	High
Local Web Sockets	High	None	High
Local File	High	Medium (User required to initiate read)	High
Screen Scraping / Keyboard Emulation	Low	Minimal (User required to cease interaction during integration)	Depends on target system

Automated Publishing to Backend Servers
Sharper Integration can publish captured Civil ID data directly to backend servers and systems.

SOAP or HTTP Web Services
Sharper Integration can publish capture Civil ID data to SOAP Web Services or HTTP Web Services. Should these web services already exist in the target system then the customization effort expected from the target system are minimal to none.

Direct to Database
Sharper Integration can also publish the data directly to a database. Supported methods include:

1. Write to database table.
2. Invoke stored procedure.

Frontend Integration

Direct HTML Manipulation
Sharper Integration can integrate with the HTML of web based apps directly. The platform can manipulate input controls as well as other DOM objects directly. Multi-page workflows have limited support.

Note: this approach restricts the usage of the target web app to Internet Explorer only. Supported versions are from IE 8 up to IE 10.

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Local Shared Memory and Local Web Sockets

The platform can expose the captured card data over a shared memory endpoint or a local Web Sockets endpoint. Applications running locally can listen for events on local shared memory and obtain the card data directly. Web apps can establish a Web Sockets connection to a specific endpoint to obtain similar results.

Note that this approach usually requires heavy customization of the target application.

Local File

Sharper Integration can log captured card data to a pre-agreed location on disk. Target applications can parse the data in this file to obtain card data. The format of the file is customizable and can be tailored to suit the requirements of the target application.

Example formats include:

- Extensible Markup Language (XML)
- JavaScript Object Notation (JSON)
- Comma Separated Values (CSV); other separators are also supported.
- Text file with a single piece of data on each line.

Screen Scraping and Keyboard Emulation

Sharper Integration can use screen scraping and keyboard emulation techniques to send the data to a target application. This usually minimizes customization requirements on the target applications; however, it makes the integration very prone to breaking.

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