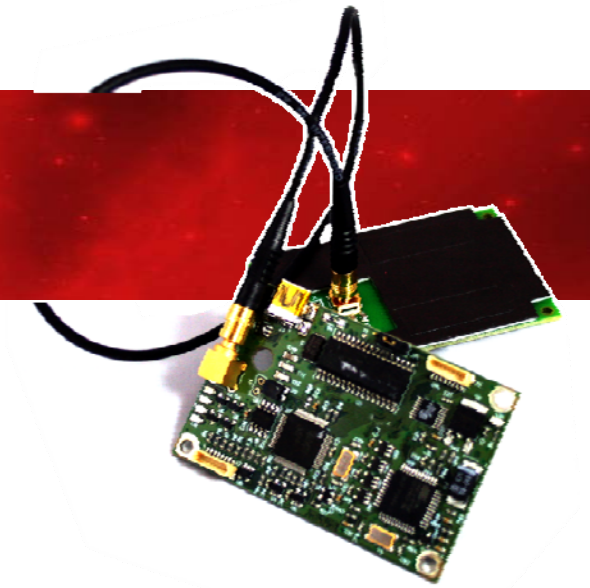
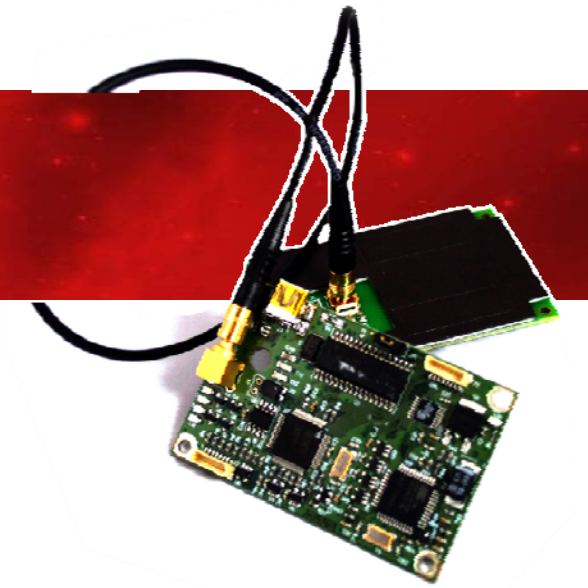


SpringCard

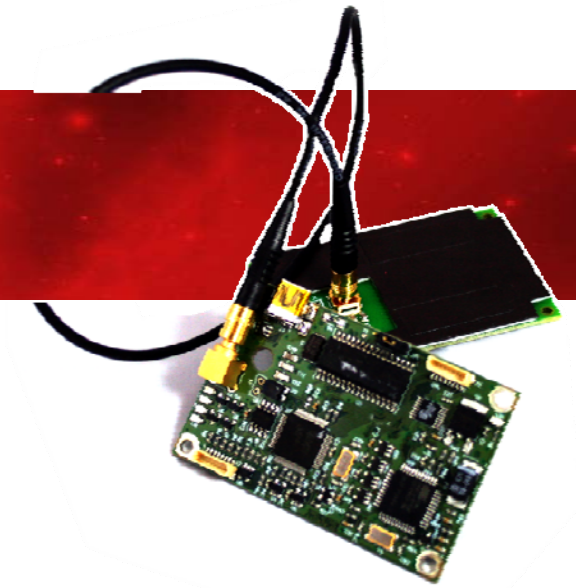
CrazyWriter

ISO 14443 (A&B) & ISO 15693
and Mifare
contactless reader / writer
+ 2 µSIM / SAM

Agenda



- Product overview
- Demonstration
- Appendix : PC/SC or Legacy?



Product overview

CrazyWriter assets

Fits easily into :

- Card printers : card personalization
- Vending and ticketing machines
- Fare gates or validators
- Transportation networks

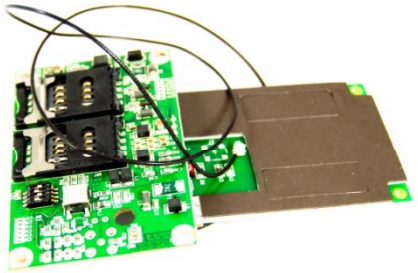
High performance
Full speed **USB 2.0**

CrazyWriter is an OEM
contactless ISO 14443 & ISO 15693 and Mifare reader / writer

CrazyWriter features **2 µSIM / SAM slots** for secure applications

Easy to integrate

- PC/SC compliant
- 100% compliancy with earlier products in Legacy mode
- Supports virtually any ISO/IEC 14443 A or B compliant smartcard

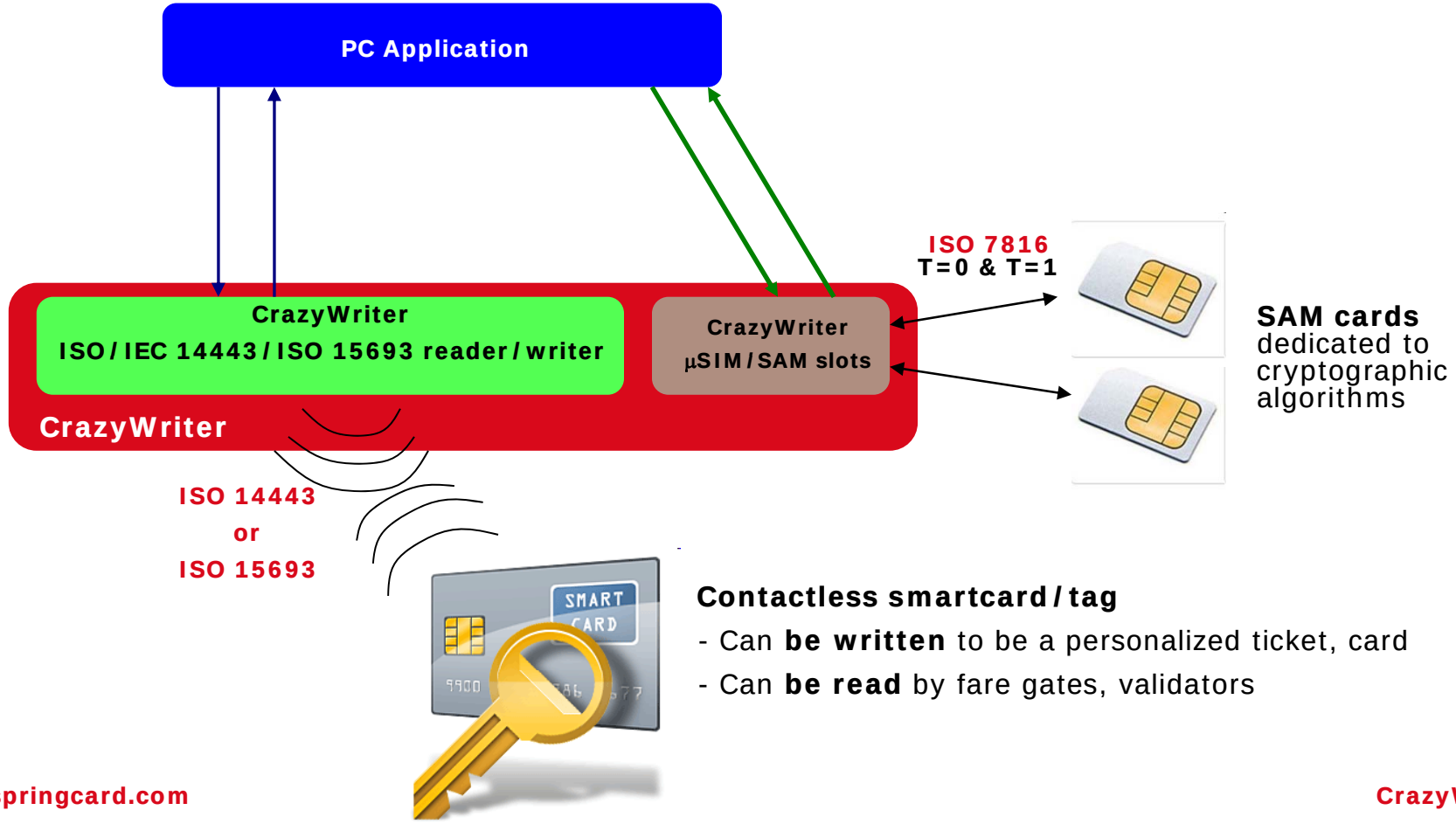


CrazyWriter is detected as 3 different PCSC readers !
(default mode)

Optional board :
RS-232 standard serial interface (DB9 female connector)
+
motherboard power supply

***Documentation and softwares Free Download link :**
http://www.springcard.com/download/crazywriter.html

CrazyWriter functionalities



SAM cards
dedicated to cryptographic algorithms

Contactless smartcard / tag

- Can **be written** to be a personalized ticket, card
- Can **be read** by fare gates, validators

Product scope

CrazyWriter

- Is an **OEM contactless ISO 14443 & ISO 15693** and **Mifare** reader/writer
- Features **2 µSIM/SAM slots** (SAM smartcards for secure applications) handling **card baudrate up to 115 kbps**
- **USB interface :** supports **USB 2.0 full speed** (12Mbps), and **fastest smartcard baud rate** (848kbps)
- **Serial interface JST: BM08B-SRSS-TB(LF)(SN) : handles baud rate up to 38400 bps (RFU)**
- Handles **any ISO 14443 (type A, B and B') and ISO 15693** compliant smartcards

Supported contactless cards

- **NXP** *(formerly Philips Semiconductors)*: **Mifare Classic & UltraLight, Desfire, ProX, SmartMX**
- **Infineon SLE66 family**
- **ST MicroElectronics SR, SRI, SRIX families**
- **ASK CTS256/CTS512**
- **Calypso (CD97, CD21, GTML…)**

And virtually any ISO/IEC 14443 A or B compliant smartcard

Supported RFID tags and labels

- **NXP ICODE1, ICODE-SLI**
- **Texas Instrument TagIT**
- **STMicroelectronics LRI**
- **AND MORE**

PC/SC mode and Legacy mode

PC/SC mode (only with USB interface)

CrazyWriter, compliant with PC/SC* version 2

- Brings immediate contactless card support to existing PC/SC applications (interoperability of applications and readers).
- Is supported by major operating systems (Windows 2000/XP/Vista and Linux).
- Detected as a **USB smartcard reader** by the OS.

***PC/SC :** This standardized smartcard reader API, allows developers to work with contactless cards (including Mifare and other wired-logic chips) as easily as if they were classical T=0 or T=1 contact cards.

The 3 readers are PC/SC and the application is based on the **PC/SC API**

Legacy mode

CrazyWriter in Legacy mode is 100% compliant with earlier **SpringCard contactless couplers**, such as the popular CSB4 Mifare reader/writer.

- Allows a smooth migration without changing anything in existing software.
- Detected as a **virtual serial com. Port**

The 3 readers are Legacy and the application is based on SpringCard proprietary library **SpringProxAPI**

How to start with CrazyWriter?

Setup Procedure

1/ Download* and install the SpringCard **csb6 family PC/SC driver**

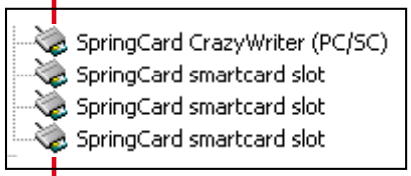
2/ Connect the CrazyWriter to the PC/laptop through a USB cable

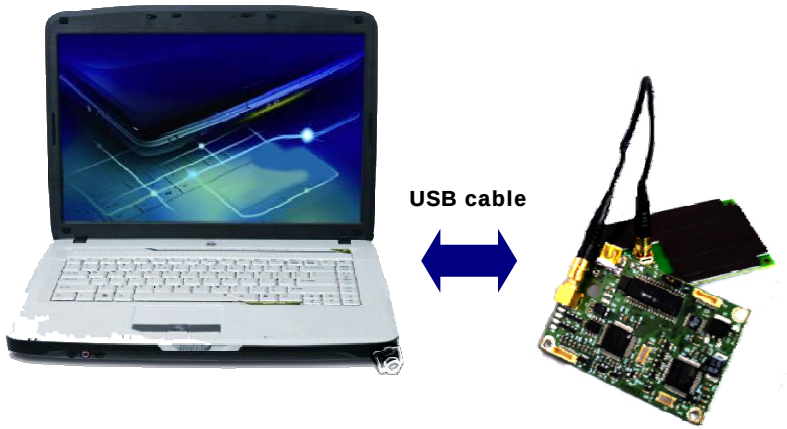
3/ When the hardware detectection wizard pops up, select the manual installation mode and install the **SpringCard CrazyWriter (PC/SC)** driver that is listed

4/ **3 other wizards** will popup for the installation of the **3 slots** : the "virtual" contactless slot and the 2 SIM/SAM slots
For each slot, select the manual installation mode and install the **SpringCard smartcard slot** driver that is listed

5/ Launch your application or an example of application* provided by SpringCard

Your CrazyWriter is ready-to-use.





***Free download link :**
http://www.springcard.com/download/crazywriter.html

How to configure CrazyWriter into Legacy mode?

Procedure Legacy mode

1/ Follow the setup procedure steps 1 to 4

2/ Download* and install the SpringCard **csb6 family Legacy driver**

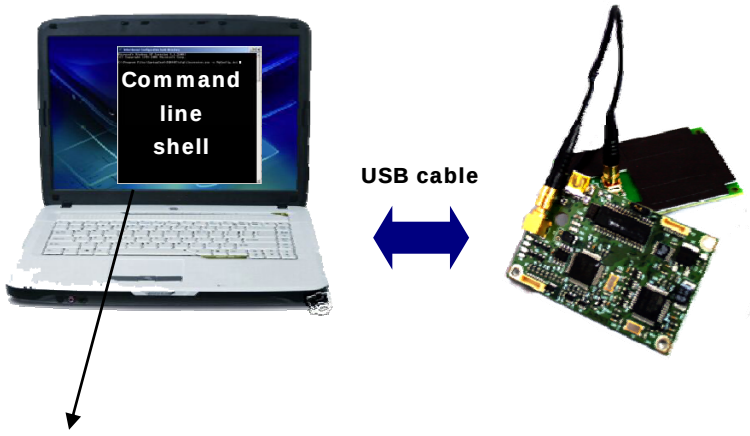
3/ Download* and install (default) the QuickStart for PCSC (it includes the configuration tool to switch to Legacy mode)

3/ Configure your CrazyWriter into Legacy mode by launching a command window and writing the command line :
C:\ProgramFiles\SpringCard\SDD4C0>csb6_go_Legacy.exe

4/ ***Disconnect and reconnect the CrazyWriter***

5/ When the hardware detectection wizard pops up, select the manual installation mode and install the **SpringCard CrazyWriter (Legacy)** driver that is listed

Your CrazyWriter is in Legacy mode !



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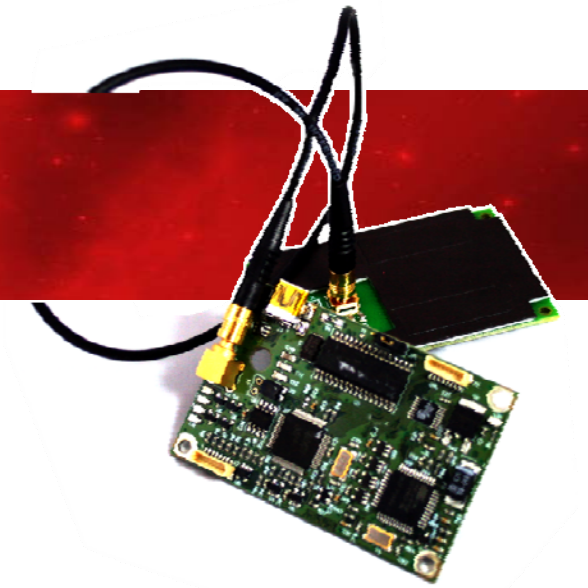
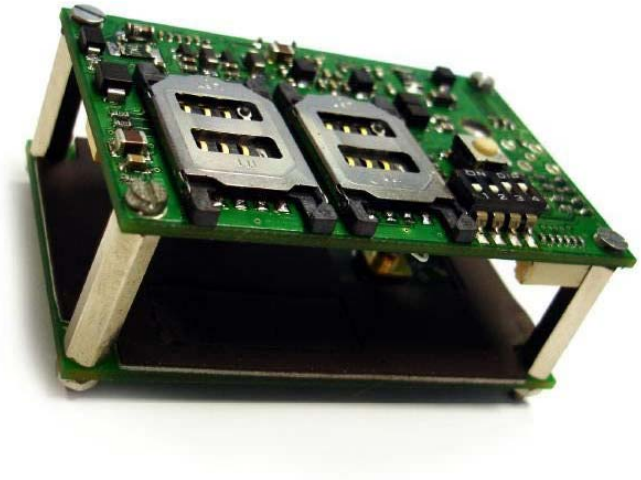
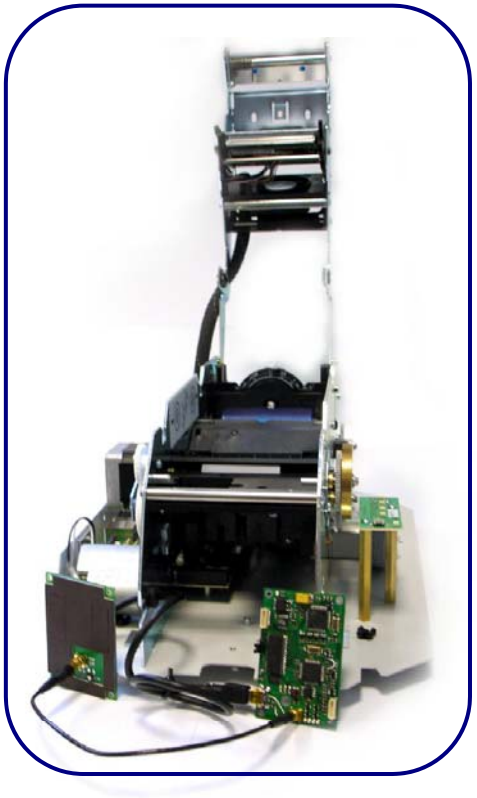


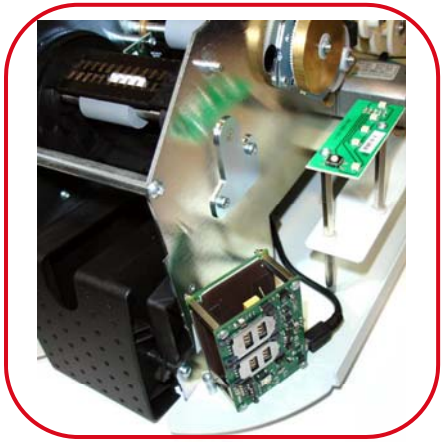
Demo time!

CrazyWriter
Example of implementation



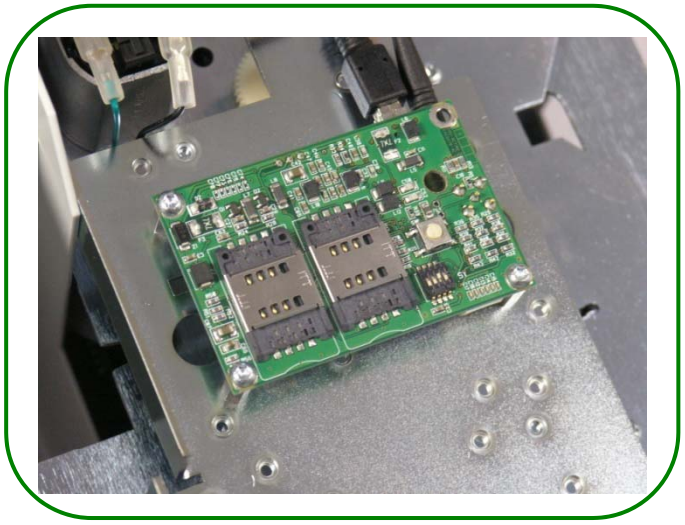
Contactless smartcard printer





CrazyWriter is used in PC/SC mode
=> USB interface

- Card personalization printer
- Vending and ticketing machine



APPENDIX
PC/SC or SpringProxAPI?

What SpringProx API has less than PC/SC

Compared to PC/SC, more features are to be implemented in the application :

	SpringCard PC/SC reader + PC/SC stack	**SpringCard legacy reader** + SpringProx API
Abstraction of protocol	**Reader**	**After T=CL activation only**
Best protocol selection	**Reader**	**Application**
Chaining of TPDU	**Reader**	**Reader**
Retry and smart recovery	**Reader**	**Reader**
Card tracking	**Reader + middleware**	**Application**

What SpringProx API has more than PC/SC

The SpringProx API allows more flexibility than PC/SC, and working with memory cards is easier

	SpringCard PC/SC reader + PC/SC stack	**SpringCard legacy reader** + SpringProx API
Direct control of contactless interface parameters	**No**	**Yes**
Reading/writing Mifare memory cards	**Indirect** (APDU processor in reader with CLA=FF)	**Direct and fast access to read/write primitives**
Working with a currently unsupported memory card	**Firmware upgrade needed**	**Transparent mode does the job**
Exchanging arbitrary frames with the smartcard	**Indirect** (7816-4 format is mandatory in the stack)	**Yes**
Latency of card detection	**500ms typ.** (waiting on SCardGetStatusChange)	**25ms typ.** (busy loop on SPROX_Find)

Portability aspects (1/2)

PC/SC is not available everywhere – SpringProx API runs virtually on any target

	SpringCard PC/SC reader + PC/SC stack	**SpringCard legacy reader** + SpringProx API
Windows	**Yes** SpringCard (or MS) driver	**Yes** DLL or source code
Linux / some UNIX	**Yes** PCSC-Lite driver	**Yes** source code
Windows CE	**Partial** MS driver only	**Yes** DLL or source code
Pocket PC / Windows Mobile	**No**	**Yes** DLL or source code
MCU / Embedded CPU / Other OS	**No**	**Yes** source code or direct access

Portability aspects (2/2)

PC/SC is USB only – SpringProx API architectured for serial (RS) communication

	SpringCard PC/SC reader + PC/SC stack	**SpringCard legacy reader** + SpringProx API
CSB6 family CrazyWriter, Prox'N'Roll, EasyFinger, CSB6U…	**Yes**	**Yes** Virtual comm port (USB CDC-ACM standard profile)
CSB4U or CSB5U	**No**	**Yes** Virtual comm. port (FTDI's USB to serial bridge)
CSB4S or CSB5S K531 (TLL or RS-232)	**No**	**Yes** « Real » comm. Port
SpringProx-CF, CF-UP, RC	**No**	**Yes** Compact Flash comm. port (Elan Digital's CF UART)

Contact us

SpringCard
HEADQUARTERS, EUROPE

13 voie la Cardon
Parc Gutenberg
91120 Palaiseau
France

Phone : +33 (0) 164 53 20 10
Fax : +33 (0) 164 53 20 18

SpringCard
AMERICAS

964 Fifth Avenue
Suite 235
San Diego, CA 92101
USA

Phone : +1 (619) 544 1450
Fax : +1 (619) 573 6867

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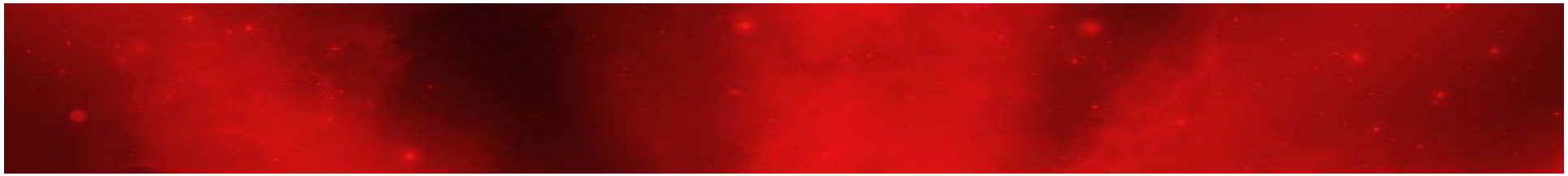

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