Common Access Card (CAC) Release 1.0 Reader Specifications

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Document Version History			
Date	Version	Comments Provided By	Summary of Changes
25 September 2000	Version 1.0	N/A	Final Version
17 August 2007	Version 1.01	DMDC	Changed classification from FOUO to Unclassified
7 April 2025	Version 1.01 Updated	DMDC	Red lined end of life and updated standards

1. Purpose:

The Deputy Secretary of Defense (DEPSECDEF) memorandum of November 10, 1999, regarding the Common Access Card (CAC), discussed Department-wide usage of the CAC for identification, physical access, and as the primary carrier of DoD Public Key Infrastructure (PKI) credentials. The CAC also has additional functionality for Component-specific requirements.

PKI and multiple applications place stringent requirements on smart card readers. As PKI is supported by the overall CAC, the CAC and smart card readers are only a subset of the overall DoD PKI Architecture for Class 3 and future PKI requirements. This document will outline the specifications for initial procurement of smart card readers to support, at a minimum, the DoD PKI Class 3 Architecture.

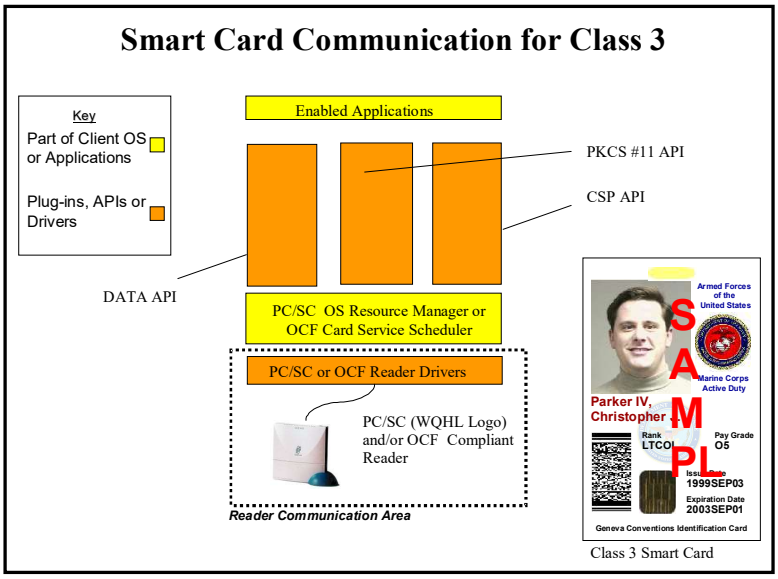
For more detailed discussions and analysis of the smart card reader specification, please refer to "Smart Card Reader Interoperability: Operation in DoD PKI Class 3 and Target Class 4 Architecture version 1.0" white paper prepared by the DoD PKI's Target Token Work Group.

2. DoD CAC for DoD PKI Class 3 Architecture:

The CAC and the respective reader will be two elements of the overall CAC architecture. This section will discuss smart card reader topics associated with the CAC architecture to include all smart card enabled client workstations and RAPIDS workstations. It is anticipated that other devices (e.g. mobile phones, personal digital assistants, etc.) may also interact with the CAC. Those interfaces and interaction are not discussed in this document.

Figure 1.0 illustrates the smart card communication path for the CAC architecture.

Figure 1.0: Illustration of Smart Card Communication for CAC Architecture



2.1. Guiding Principles

For the DoD PKI Class 3 CAC reader specification, the below guiding principles or basic assumptions apply.

- The DoD PKI Target Class 4 architecture will not obsolete the Class 3 Architecture.
- The DoD PKI Target Class 4 smart card requirements will not obsolete Class 3 smart card and/or reader requirements.
- The DoD PKI Class 3 smart card and reader requirements will evolve to the Target Class 4 smart card and reader requirements over time without major infrastructure obsolescence.

2.2. CAC/DoD PKI Class 3 Reader Specifications

Smart card readers will be needed to interact with the smart card in a Microsoft Windows ~~95, 98, NT 4.0~~ 10 or higher; UNIX; LINUX; Macintosh, and JavaOS environments. All smart card readers shall minimally be PC/SC (WHQL logoed) certified. Additionally, all smart card readers destined for UNIX, LINUX, Macintosh, and JavaOS environments shall provide PC/SC (ie M.U.S.C.L.E.) and OCF complaint reader drivers and/or components.

The following are the reader specifications for the potential hardware interfaces (embedded in workstation, RS232 interface, USB 1.0 and 2.0 interface, and PCMCIA interface) to client workstations.

CINCs/Services/Agencies may desire additional features or functions, but ALL CAC readers must minimally comply with the below specifications.

Specifications	***Reader Type***			
	Workstation Embedded	**9 pin RS-232 Serial Interface**	**USB 1.0 and 2.0 Port Interface**	**PCMIA Interface**
General Specifications				
Standards	All shall be PC/SC (WHQL Logo) certified. Additionally, those readers destined for workstations other than Wintel shall provide PC/SC (M.U.S.C.L.E) certified and OCF compliant reader drivers	All shall be PC/SC (WHQL Logo) certified. Additionally, those readers destined for workstations other than Wintel shall provide PC/SC (M.U.S.C.L.E) certified and OCF compliant reader drivers	All shall be PC/SC (WHQL Logo) certified. Additionally, those readers destined for workstations other than Wintel shall provide PC/SC (M.U.S.C.L.E) certified and OCF compliant reader drivers	All shall be PC/SC (WHQL Logo) certified. Additionally, those readers destined for workstations other than Wintel shall provide PC/SC (M.U.S.C.L.E) certified and OCF compliant reader drivers
LED	1, w/dual displaying power-on and read/write	1, w/dual displaying power-on and read/write	1, w/dual displaying power-on and read/write	N/A
Protocol	T=1 and T=0	T=1 and T=0	T=1 and T=0	T=1 and T=0
Frequency	1-5 MHz	1-5 MHz	1-5 MHz	1-5 MHz
Software Updates provided (drivers and protocols)	Yes	Yes	Yes	Yes
Cable	N/A	min. 1-3 meter	min. 1-3 meter	N/A
PCMCIA	N/A	N/A	N/A	Type II Interface
Protocol Management / Communication				
Data Exchange Rate (smart card to reader)	9600 bps to 115,200 bps or greater	9600 bps to 115,200 bps or greater	9600 bps to 115,200 bps or greater	9600 bps to 115,200 bps or greater
Power				
Source	N/A	via PS/2 or DIN5 port	USB 1.0 or 2.0	N/A
Voltage	3V and 5V	3V and 5V	3V and 5V	3V and 5V
Specifications	ISO 7816, EMV(5V,60mA)	ISO 7816, EMV(5V,60mA)	ISO 7816, EMV(5V,60mA)	ISO 7816, EMV(5V,60mA)
Physical				
Insertion Cycles	min. 100,000	min. 100,000	min. 100,000	min. 100,000
Chip Location	ISO 7816	ISO 7816	ISO 7816	ISO 7816
Additonal Desirable but not Required Features				
Casing	N/A	Supports vertical posititioning	Supports vertical posititioning	N/A
Short Circuit Detection	Yes	Yes	Yes	Yes