AUCTORIZIUM®

National PKD and E-Passport validation Solution

The Business Challenge

E-Passports are the most secure of travel documents. Without proper validation of the contents of the chip in an E-Passport, the advantages of this increased security are not realised. The challenges to proper validation of the chip include:

- Distributing your credentials to others through the ICAO-PKD
- Sourcing of CSCA/DSC/CRL from multiple countries
- Ensuring proper due diligence before using the certificates
- Distribution to all validation points (border control)
- Hiding the complexity of the validation process and results from the border control officer
- Central management of Validation policies

Information Security Management System ISO 27001 Certified

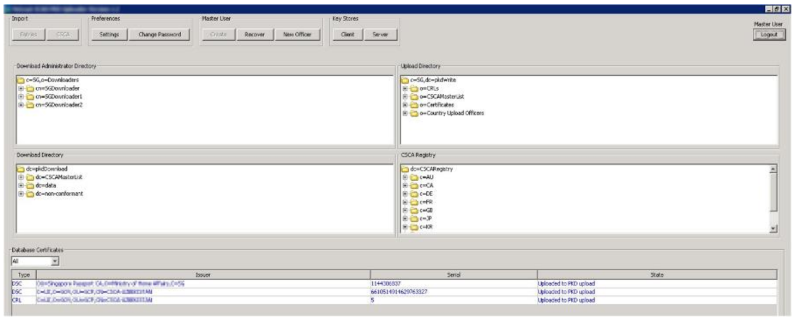
Our Solution

Auctorizium provides a modular solution that overcomes the challenges listed above. These can be integrated as needed, based on the requirements and architecture of the country's own infrastructure.

Distribution through the PKD

The Auctorizium iNtegrate is a comprehensive implementation of PKD interface specifications. It takes away all the complexity involved in interfacing with PKD sites.

- Inbuilt Doc 9303 compliance Check
- Effortless Management of download credentials
- Seamless management of connection credentials
- Unified view of a ICAO PKD upload's lifecycle



Download Administrator Directory
- c=SG,o=Downloaders
  - cn=SGDownloader
  - cn=SGDownloader1
  - cn=SGDownloader2

Upload Directory
- c=SG,dc=pkdwrite
  - o=CRLs
  - o=CSCAMasterList
  - o=Certificates
  - o=Country Upload Officers

Download Directory
- dc=pkdDownload
  - dc=CSCAMasterList
  - dc=data
  - dc=non-conformant

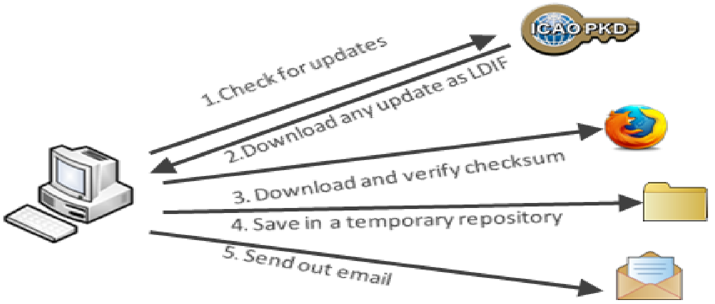
CSCA Registry
- dc=CSCARegistry
  - c=AU
  - c=CA
  - c=DE
  - c=FR
  - c=GB
  - c=JP
  - c=KR

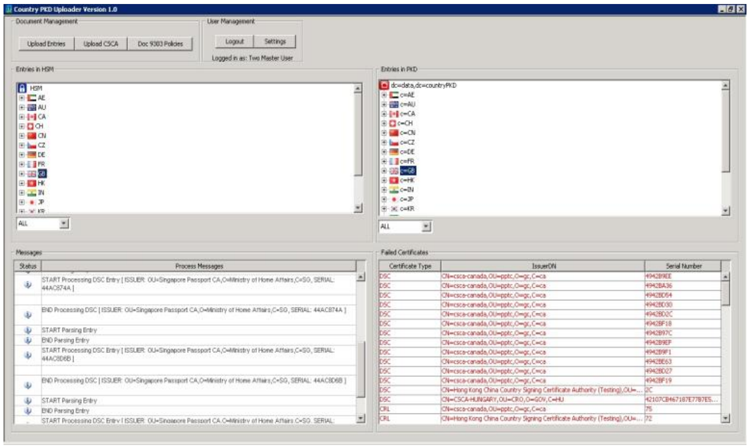
Database Certificates: All

Type	Issuer	Serial	State
DSC	OU=Singapore Passport CA,O=Ministry of Home Affairs,C=SG	1144306837	Uploaded to PKD upload
DSC	C=LT,O=SCR,OU=SCP,CN=CSCA-[illegible]	6610514914629763327	Uploaded to PKD upload
CRL	C=LT,O=SCR,OU=SCP,CN=CSCA-[illegible]	5	Uploaded to PKD upload

ICAO PKD Download module

- Implemented as a service
- Checks ICAO-PKD on a scheduled basis
- Can be configured for automatic download and notification
- Configurable to check Websites/other sources for DSC/CRL of non-Participants


ICAO PKD
1. Check for updates
2. Download any update as LDIF
3. Download and verify checksum
4. Save in a temporary repository
5. Send out email



Logged in as: Two Master User

Entries in HSM
- HSM
  - AE
  - AU
  - CA
  - CH
  - CN
  - CZ
  - DE
  - FR
  - GB
  - HK
  - IN
  - JP
  - KR

ALL

Entries in PKD
- dc=data,dc=countryPKD
  - c=AE
  - c=AU
  - c=CA
  - c=CH
  - c=CN
  - c=CZ
  - c=DE
  - c=FR
  - c=GB
  - c=HK
  - c=IN
  - c=JP
  - c=KR

ALL

Messages

Status	Process Messages
	START Processing DSC Entry [ISSUER: OU=Singapore Passport CA,O=Ministry of Home Affairs,C=SG, SERIAL: 44AC874A]
	END Processing DSC [ISSUER: OU=Singapore Passport CA,O=Ministry of Home Affairs,C=SG, SERIAL: 44AC874A]
	START Parsing Entry
	END Parsing Entry
	START Processing DSC Entry [ISSUER: OU=Singapore Passport CA,O=Ministry of Home Affairs,C=SG, SERIAL: 44AC8D6B]
	END Processing DSC [ISSUER: OU=Singapore Passport CA,O=Ministry of Home Affairs,C=SG, SERIAL: 44AC8D6B]
	START Parsing Entry
	END Parsing Entry
	START Processing DSC Entry [ISSUER: OU=Singapore Passport CA,O=Ministry of Home Affairs,C=SG, SERIAL:

Failed Certificates

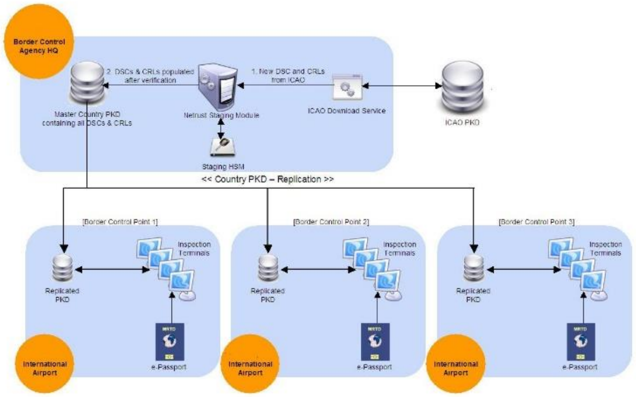
Certificate Type	IssuerDN	Serial Number
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942B9EE
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BA36
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BD54
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BD30
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BD2C
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BF18
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942B97C
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942B9EF
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942B9F1
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BE63
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BD27
DSC	CN=csca-canada,OU=pptc,O=gc,C=ca	4942BF19
DSC	CN=Hong Kong China Country Signing Certificate Authority (Testing),OU=...	2C
DSC	CN=CSCA-HUNGARY,OU=CRO,O=GOV,C=HU	42107CB467187E77B7E5...
CRL	CN=csca-canada,OU=pptc,O=gc,C=ca	75
CRL	CN=Hong Kong China Country Signing Certificate Authority (Testing),OU=...	72

National PKD upload module

- Import of CSCA Certificates Obtained Through Diplomatic Channels
- Import of CSCA Certificates Obtained Through Master Lists
- Import of ICAO PKD LDIFs
- Import of DSCs, CRLs and Master Lists obtained from other channels
- Enforcement of due diligence processes for importing other country credentials

Contact Us:
Website: www.auctorizium.com   Email: info@auctorizium.com
173A Thomson Road, Goldhill Centre, Singapore 307623

AUCTORIZO (medieval Latin)
- to confirm, approve, authenticate.

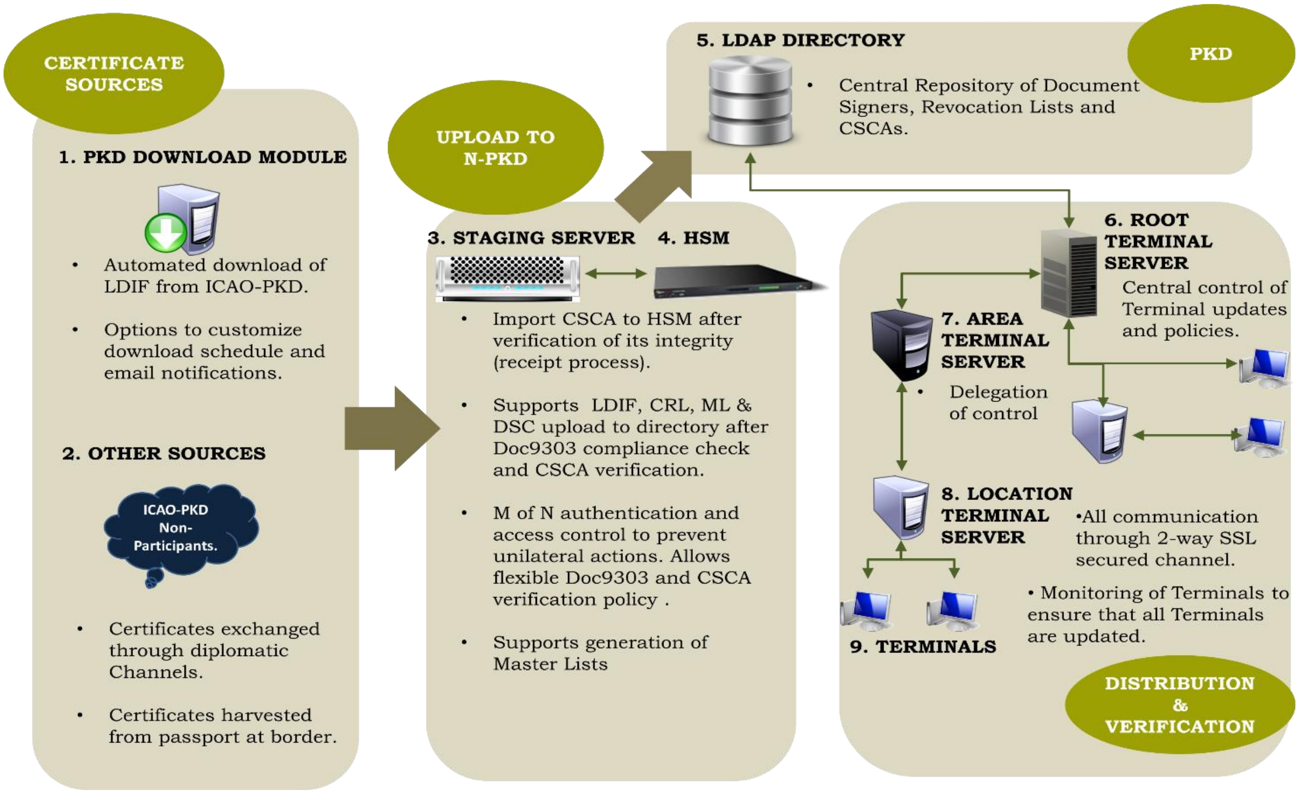


Terminal Server

- Hierarchical distribution model to all terminals
- Allows for centralized policy setting for validation
- Push-Pull interactions with Terminals
- Centralized mapping of Validation results to outcomes (trust levels)
- Policy setting per terminal/per country/per border granularity
- Central view of health of Terminals
- Centralized logging and analysis of validation results

Validation module

- Available as a Java library or a DLL.
- Manages implementation of the centrally defined policy at the Terminal.
- Two simple function calls for integration with other applications.
- The result of this verification process is a verification status and a trust level.
- The verification status refers to a state that is reached whereby no further processing can occur while the trust level indicates how well the passport can be trusted.
- This mapping can be customized centrally and its changes propagated down to individual border control terminals.



CERTIFICATE SOURCES

1. PKD DOWNLOAD MODULE

- Automated download of LDIF from ICAO-PKD.
- Options to customize download schedule and email notifications.

2. OTHER SOURCES

- Certificates exchanged through diplomatic Channels.
- Certificates harvested from passport at border.

UPLOAD TO N-PKD

3. STAGING SERVER 4. HSM

- Import CSCA to HSM after verification of its integrity (receipt process).
- Supports LDIF, CRL, ML & DSC upload to directory after Doc9303 compliance check and CSCA verification.
- M of N authentication and access control to prevent unilateral actions. Allows flexible Doc9303 and CSCA verification policy .
- Supports generation of Master Lists

5. LDAP DIRECTORY

PKD

- Central Repository of Document Signers, Revocation Lists and CSCAs.

6. ROOT TERMINAL SERVER

Central control of Terminal updates and policies.

7. AREA TERMINAL SERVER

- Delegation of control

8. LOCATION TERMINAL SERVER

•All communication through 2-way SSL secured channel.

• Monitoring of Terminals to ensure that all Terminals are updated.

9. TERMINALS

DISTRIBUTION & VERIFICATION

About Auctorizium

Auctorizium is a provider of solutions to validate E-Passports at the borders. This includes the setting up a National PKD, and border control applications that follow best practises in assuring the integrity of E-Passports. Auctorizium is an ISO27001:2013 certified company and has accreditation as SaaS cloud service provider under the Singapore Standard SS 584:2013.

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