THAILAND
PKI Ecosystem
Thailand National Root CA

Thailand NRCA has been operated by Electronic Transactions Development Agency (ETDA) since 2011 to create trust in electronic transactions and shape the landscape for digital identification.

To achieve the goals, Thailand NRCA certifies the public keys of the licensed CAs, which are qualified CAs, to enable users to verify a certificate issued by a licensed CA. The users subsequently can ensure that their transactions are enforceable by law.

Therefore, Thailand NRCA is a critical infrastructure for enabling and sustaining growth in digital transformation through public supervision.
Certification Authorities in Thailand

2 Licensed CAs under Thailand NRCA:
   • Thai Digital ID *(Private Sector CA)*
   • INET CA *(Private Sector CA)*

*Note:* A private company is setting up and preparing to apply to be a licensed CA

2 State-owned Enterprise CAs:
   • CAT CA
   • TOT CA

*Note:* they are preparing to apply to be a licensed CA
PKI Applications

• National Single Window
• E–Tax Invoice
• E–Certificate
National Single Window

32 agencies electronically integrated for the paperless customs procedures and the related logistics process

1. The Thai Customs Department
2. Department of Industrial Works
3. Department of Mineral Resources
4. Department of Disease Control
5. Royal Forest Department
5. The Board of Investment of Thailand
7. Department of Medical Sciences
8. Office of The National Broadcasting and Telecommunications Commission
9. Department of Primary Industries and Mines
10. Department of Mineral Fuels
11. Department of National Parks, Wildlife and Plant Conservation
12. Department of Land Transport
13. Defense Industry Department
14. Rubber Authority of Thailand
15. Port Authority of Thailand
16. Industrial Estate Authority of Thailand
17. Electrical and Electronics Institute
18. Office of The Cane and Sugar Board
19. National Bureau of Agricultural Commodity and Food Standards
20. Department of Internal Trade
21. Excise Department
22. Thai Industrial Standards Institute
23. Food and Drug Administration
24. Office of Atoms for Peace
25. Department of Energy Business
26. Fine Arts Department
27. Department of Fisheries
28. Department of Agriculture
29. Department of Provincial Administration
29. Department of Foreign trade
30. Department of Livestock Development
32. The Thai Chamber of Commerce and Board of Trade of Thailand

Reference: http://www.thainsw.net
Updated: 03 April 2020
National Single Window

- Over 3.8M transactions in May 2020
- Reduce 60M bill of landings (paper)
- Save up to 30M baht of paper cost

Reference: http://www.thainsw.net
Updated: 03 May 2020
**E-tax Invoice**

- Applicable to companies with annual revenue not greater than 30 million THB
- **PKI Time stamping** is applied (do not require a certificate for digital signature)
- Invoices are delivered from sellers to Revenue department and buyers via emails

361 companies registered

- Applicable to every company.
- **PKI digital signature** is applied (require a certificate under Thailand NRCA for signing)
- Invoices are delivered to Revenue department via:
  1) Host to Host via ebMS (ebXML format)
  2) Web uploaders
  3) Service providers

549 companies registered
E-tax Invoice

![Bar chart showing the number of companies using e-tax invoice by email and e-tax invoice and receipt from 2017 to 2020. The chart indicates a steady increase in the number of companies using these services over the years.](image)
Cabinet approves scheme for transforming documents issued by government agencies into electronics documents on 2 April 2019. In the first phase, Office of Public Sector Development Commission (OPDC), Digital Government Development Agency (DGA) and Electronic Transactions Development Agency (ETDA) are cooperating to enable government agencies to issue e-Certificate with 4 characteristics:

1) Human Readability – PDF/A-3 format
2) Exchangeability – attach XML document and Metadata
3) Verifiability – apply digital signature and QR code
4) Security Enhancement – e.g. watermark
E-Certificate

PDF/A-3 Format to support long-term archiving

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Attach XML to exchange information
E-Certificate

Digitally sign & time stamping

QR Code
E-Certificate – System flow

1. Upload document to the server
2. Call time stamping server
3. Digitally Sign document by using mobile
E-Certificate – Signing Process

1. Scan QR Code
2. Confirm transaction
3. Enter PIN
4. Notify the result
THANK YOU