

# TKE Hardware Support and Migration Information

Version 1.0  
09/01/2017

## Document Owner:

Garry Sullivan  
z/OS Division – Rochester, MN

[garryjs@us.ibm.com](mailto:garryjs@us.ibm.com)

**Abstract:** This document describes the Trusted Key Entry (TKE) Workstation hardware and the Licensed Internal Code (LIC) that runs on it. Also covered are the smart card readers and smart cards that can be used on various levels of TKE.

This document is divided into four sections that describe the support provided by the TKE:

1. Version of TKE workstations (both LIC and hardware) with their associated CEC
2. Smart Card Readers and Smart Cards supported by specific TKEs
3. TKE Workstation upgrade paths
4. Types of Host Modules a TKE can manage

## Version of TKE workstation by CEC

The following table describes what TKE workstation hardware and associated LIC you can order based on the CEC you have.

<b>Table 1: TKE Workstation Hardware and LIC by CEC</b>											
TKE Release (LIC)	Feature codes		Initial Date	CEC Information							
	HW	LIC		z9-109 z9EC and z9BC	z10EC and z10 BC	z196	z114	z12	z12EC and z12 BC	z13 and z13s	z14
TKE 5.3	0859	0854	Oct - 2008	yes	yes						
TKE 6.0	0840	0858	Nov - 2009	yes	yes						
TKE 7.0	0841	0860	Sept - 2010		yes	yes	yes				
TKE 7.1	0841	0867	Sept - 2011		yes	yes	yes				
TKE 7.2	0841	0850	Sept - 2012			yes	yes	yes			
TKE 7.3	0842	0872	Sept - 2013			yes	yes	yes	yes		
TKE 8.0	0847	0877	Mar - 2015					yes	yes	yes	yes
TKE 8.1	0847 or 0097	0878	Mar - 2016					yes	yes	yes	yes
TKE 9.0	0085 or 0086	0879	Sept - 2017							yes	yes

It is important to realize that the TKE is announced along with a CEC. In general, every new CEC from IBM will have an associated, new TKE release. Two different TKE ordering conditions might occur:

1. The new TKE may be orderable with an older CEC. For example, TKE 7.3 was introduced with the zEC12. However TKE 7.3 could be ordered with the older z196 and z114.
2. An older release of TKE may be orderable with a newer CEC. For example, TKE 5.3 was introduced with the z9-109. However TKE 5.3 could be ordered with the newer z10 EC.

## Smart Card Readers and Smart Cards support based on TKE level

The following table shows what smart cards and readers can be ordered for a TKE.

Table 2: Smart Card Readers and Smart Cards by TKE level				
TKE Release	Smart Card Reader information		Smart Card Information	
	Feature Code	Type	Feature Code	Part Number
TKE 5.3	0885	Omniquey/HID	0884	45D3398
TKE 6.0	0885	Omniquey/HID	0884	45D3398
				74Y0551 * #
TKE 7.0	0885	Omniquey/HID	0884	45D3398
				74Y0551 * #
TKE 7.1	0885	Omniquey/HID	0884	45D3398
				74Y0551 *
TKE 7.2	0885	Omniquey/HID	0884	74Y0551 * %
TKE 7.3	0885	Omniquey/HID	0884	74Y0551 * %
TKE 8.0	0885, 0891	Omniquey/HID	0884, 0892	00JA710 %
TKE 8.1	0885, 0891	Omniquey/HID	0884, 0892	00JA710 %
TKE 9.0	0885, 0891	Omniquey/HID	0884, 0892	00JA710 %

### Table Notes:

- \* The 74Y0551 part replaced 45D3398 in the feature 0884.
- # An MCL is required to support the 74Y0551 part on TKE 6.0 and TKE 7.0.
- % You must use smart card part 74Y0551 or 00JA710 when you initialize a smart card as an EP11 smart card.

To identify the type of smart card:

- DATAKEY - They say DATAKEY on them. They have blue and orange art work on them.
- 45D3398 - They are plain white and don't have any part number on them.
- 74Y0551 - These have the part number, 74Y0551, printed on the card
- 00JA710 - These have the part number, 00JA710, printed on the card

DATAKEY smart cards may not be used on TKE 7.0 or later, with two exceptions. A backup CA smart card can be created from an existing DATAKEY CA smart card. Keys and key parts can be copied from an existing DATAKEY TKE smart card to a newer smart card. Refer to the TKE Workstation Users Guide for instructions on how to migrate data to newer smart cards.

## When a TKE Workstation can be upgraded

The following table shows which TKE LIC levels can run on which TKE hardware:

Starting Point			Can TKE be Upgraded to New TKE LIC level?							
TKE Release	Workstation Feature Code	Workstation Crypto Adapter Type	TKE 6.0 (FC# 0858)	TKE 7.0 (FC# 0860)	TKE 7.1 (FC# 0867)	TKE 7.2 (FC# 0850)	TKE 7.3 (FC# 0872)	TKE 8.0 (FC# 0877)	TKE 8.1 (FC# 0878)	TKE 9.0 (FC# 0879)
TKE 5.3	0839	4764	Yes	No	No	No	No	No	No	No
TKE 6.0	0839	4764	Base*	No	No	No	No	No	No	No
	0840									
TKE 7.0	0841	4765		Base*	Yes	Yes	Yes	No	No	No
TKE 7.1	0841	4765			Base*	Yes	Yes	No	No	No
TKE 7.2	0841	4765				Base*	Yes	No	No	No
TKE 7.3	0841	4765					Base*	No	No	No
	0842							Yes #	Yes #	Yes @
TKE 8.0	0847%	4767						Base *	Yes	Yes @
TKE 8.1	0847%, 0097 or 0098	4767							Base *	Yes @
TKE 9.0	0849%, 0080%, 0081%, 0085, or 0086	4768								Base *

### Table Notes:

Base\* : When a new TKE is ordered, it is preloaded with the appropriate TKE LIC.

# : The upgrade requires the purchase of the new 4767 crypto adapter.

@ : The upgrade requires the purchase of a new 4768 crypto adapter.

% : A workstation is assigned a new feature when a new level of TKE local crypto adapter is required. The following table shows the Feature Code Transitions:

Starting Workstation Feature Code	New Workstation Feature Code	TKE LIC Upgrade	TKE Local Crypto Adapter Change
0842	0847	Upgrade from TKE 7.3 to <b>TKE 8.x</b>	4765 to <b>4767</b>
0842	0849	Upgrade from TKE 7.3 or TKE 8.x to <b>TKE 9.0</b>	4765 or 4767 to <b>4768</b>
0847			
0097			
0098	0081		

- Any new TKE 8.0 or TKE 8.1 was shipped with workstation feature code 0847.
- You can only get to feature codes 0849, 0080 and 0081 through the upgrade path. These feature codes do not include the new secure computing features of TKE. You must purchase a new TKE 9.0 workstation to obtain this capability.

If you do move to a new workstation, there is a way to get your user data from one TKE to another. Refer to the 'Migration' chapter of the TKE Workstation Users Guide for more details.

## Types of Host Modules a TKE can manage

Finally, the whole purpose of a TKE is to manage the cryptographic modules on the host, but you must have the appropriate TKE to do that.

The following table describes what type of host cryptographic modules a TKE can manage.

Table 4: Types of Host Modules a TKE Can Manage								
TKE Release	Can TKE manage this type of Host Crypto Module?							
	CEX2C	CEX3C	CEX4C	CEX4P	CEX5C	CEX5P	CEX6C	CEX6P
TKE 5.2	yes							
TKE 5.3	yes	yes						
TKE 6.0	yes	yes	Sometimes*					
TKE 7.0	yes	yes	Sometimes*					
TKE 7.1	yes	yes	Sometimes*					
TKE 7.2	yes	yes	yes	yes <sup>#</sup>				
TKE 7.3	yes	yes	yes	yes <sup>#</sup>				
TKE 8.0	yes	yes	yes	yes <sup>#</sup>	yes <sup>@</sup>	yes <sup>##</sup>		
TKE 8.1	yes	yes	yes	yes <sup>#</sup>	yes <sup>@+</sup>	yes <sup>##</sup>		
TKE 9.0	yes	yes	yes	yes <sup>#</sup>	yes <sup>@+</sup>	yes <sup>##</sup>	yes <sup>@</sup>	Yes <sup>#</sup>

### Table Notes:

- + TKE 8.1 with the TKE Tower Code level of 3 or higher is required to manage a CEX5C at level CCA 5.3. The TKE Tower Code is include in TKE LIC Control Level 004 and beyond.
- \* A Crypto Express4S running in Common Cryptographic Architecture (CCA) mode, as a CEX4C, is only supported when running ICSF HCR7790 or lower with the toleration APAR (OA39075) that allows the CEX4C to report in as a CEX3C. In this case, ICSF will see the module as a CEX3C and manage it as CEX3C.
- # A Crypto Express4S or Crypto Express5S running in IBM Enterprise PKCS #11 (EP11) mode requires smart cards to hold administrator certificates and master key material. The smart card must be part #74Y0551 or newer.
- @ You must be using one of the following levels of ICSF:
  - ICSF HCR77B0
  - ICSF HCR77A1, HCR77A0, HCR7790 or HCR7780 in toleration mode (APAR OA45547) and also have the new function APAR OA44910.
- \$ You must be using one of the following levels of ICSF:
  - ICSF HCR77B0
  - ICSF HCR77A1 in toleration mode (APAR OA45547) and also have the new function APAR OA44910. Minimum levels of ICSF are required to detect the various types of host modules.
- Minimum levels of ICSF and/or CCA are required for some features.
- z13 was the first release to support Host Crypto Modules with more than 16 domains.
- TKE management of host crypto modules does not depend on the CEC type. It depends only on the host crypto module type.