



**Advanced Card Systems Ltd.**  
Card & Reader Technologies



## ACOS7 MOC Combi-Card

**A Product Presentation**



# Rundown

1. Product Overview
2. Product Features
3. Product Applications
4. Comparison Chart
5. Order Information
6. Q & A





# Product Overview

# Product Overview

## ACOS7 (8KB EEPROM) MOC Combi-Card



**Combi interface Full-size card**



**Contactless Full-size card**







# Product Features

# What are the Key Specifications of ACOS7

Compliance with Ministry of Construction (MoC) Standard

PBOC e-Deposit and e-Purse Payment Application Support

Compliance with ISO 7816 Parts 1, 2, 3, 4

Compliance with ISO 14443 Parts 1, 2, 3, 4

ISO 7816 Part 4 File Structure Support: Transparent, Linear Fixed, Linear Variable, and Cyclic

Strong Cryptographic Capabilities: DES + 3DES + MAC + Secure Messaging



For contact interface, the switchable baud rate from 9600 to 115200 bps is supported

For contactless interface, it has data transfer support for: 106 kbps, 212 kbps, 424 kbps and 848 kbps

Hardware based random number generator compliant to FIPS 140-2

Multi-level secured access hierarchy

Anti-tearing function support

Configurable ATR + Mutual Authentication with Session Key Generation

# 7 Types of Transactions

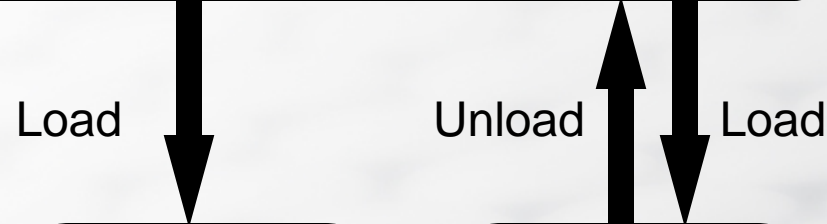
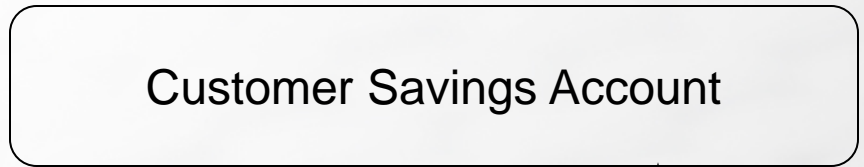


	<b>Online/Offline</b>	<b>PIN verification</b>
<b>Load</b>	<i>Online</i>	<i>Yes</i>
<b>Unload</b>	<i>Online</i>	<i>Yes</i>
<b>Cash withdraw</b>	<i>Offline</i>	<i>Yes</i>
<b>Purchase</b>	<i>Offline</i>	<i>No</i>
<b>Update Overdraw Limit</b>	<i>Online</i>	<i>Yes</i>
<b>CAPP Purchase</b>	<i>Offline</i>	<i>No</i>
<b>Grey Lock</b>	<i>Offline</i>	<i>No</i>
<b>Grey Unlock</b>	<i>Online</i>	<i>No</i>

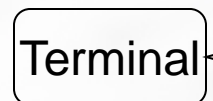
# 7 Types of Transactions



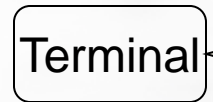
## Financial Institution (Bank)



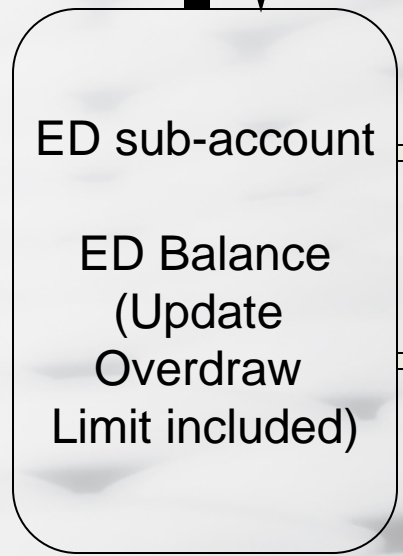
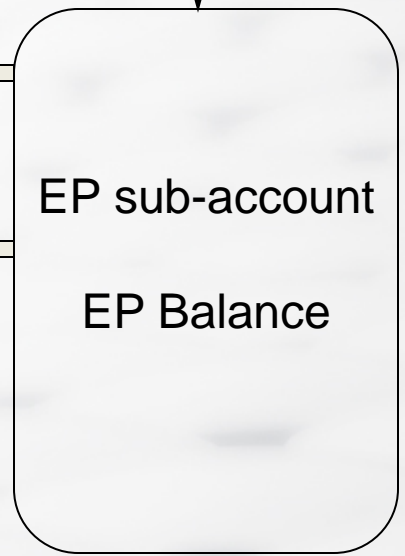
### Purchase



CAPP Purchase



Grey Lock/  
Grey Unlock



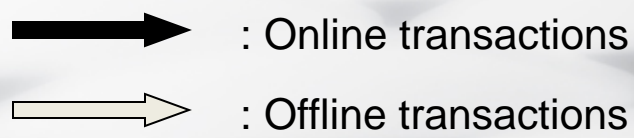
### Purchase



Purchase



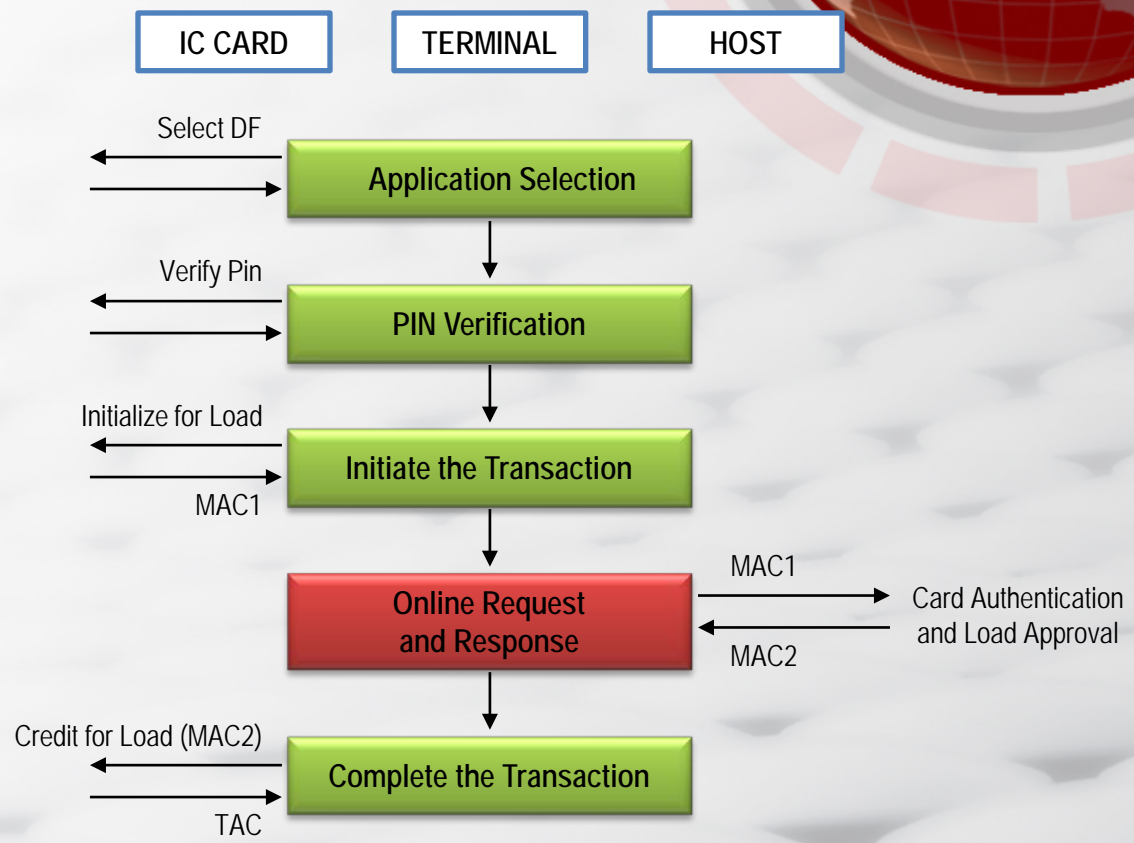
Cash withdraw





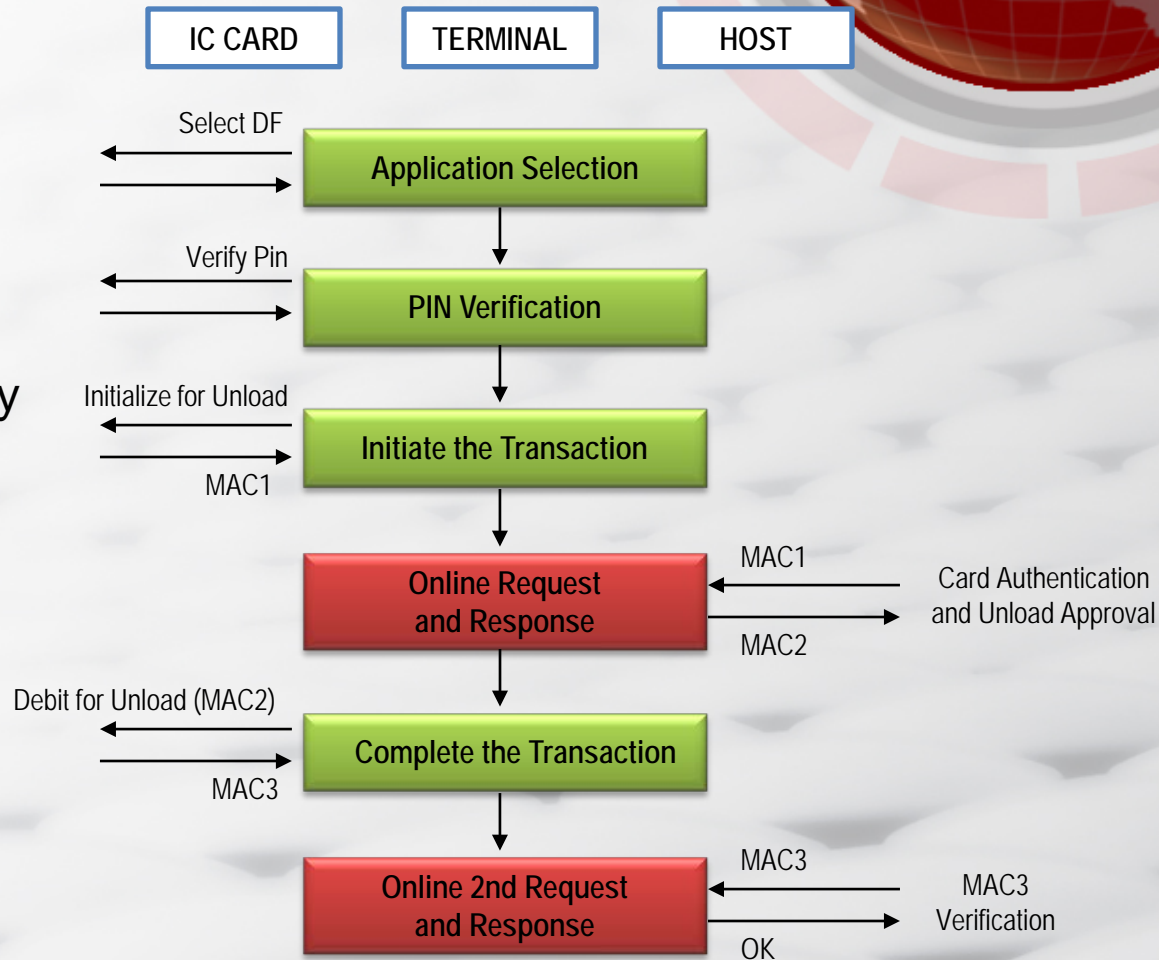
# Load Transaction (ED/EP)

The **Load Transaction** is used to credit the EP or ED balance saved in the card with an authorized amount from a bank account. This transaction is always PIN protected.



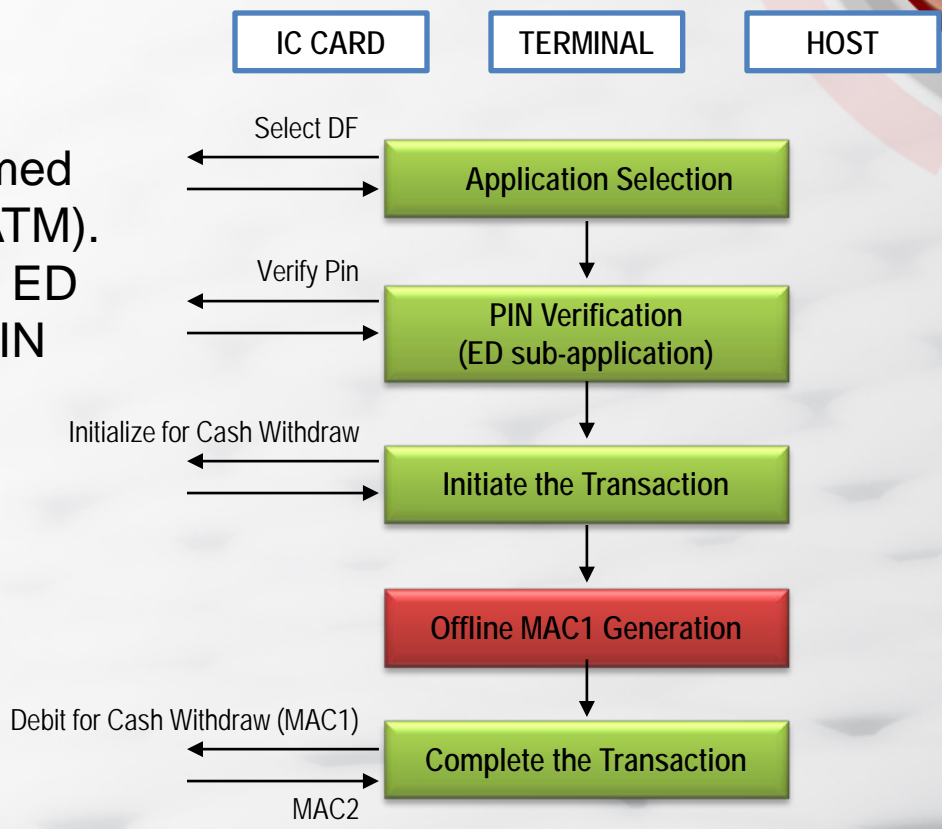
# Unload Transaction (ED)

The **Unload Transaction** is used to debit the ED balance saved in the card with an authorized amount, which is transferred to a bank account. This transaction is always PIN protected and supported only by an ED sub-application.



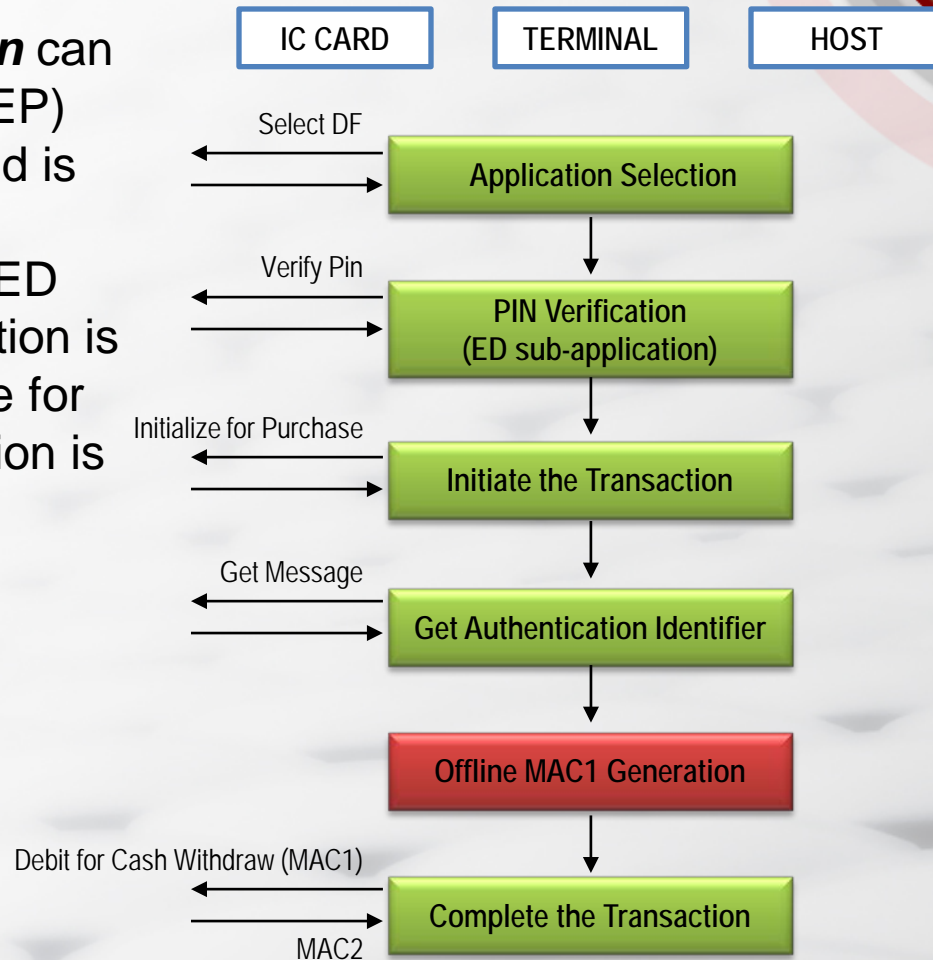
# Cash Withdraw Transaction (ED)

The **Cash Withdraw Transaction** is only for e-Deposit Files and is performed offline at a bank terminal (ATM). Note that the transaction of ED sub-application is always PIN protected.



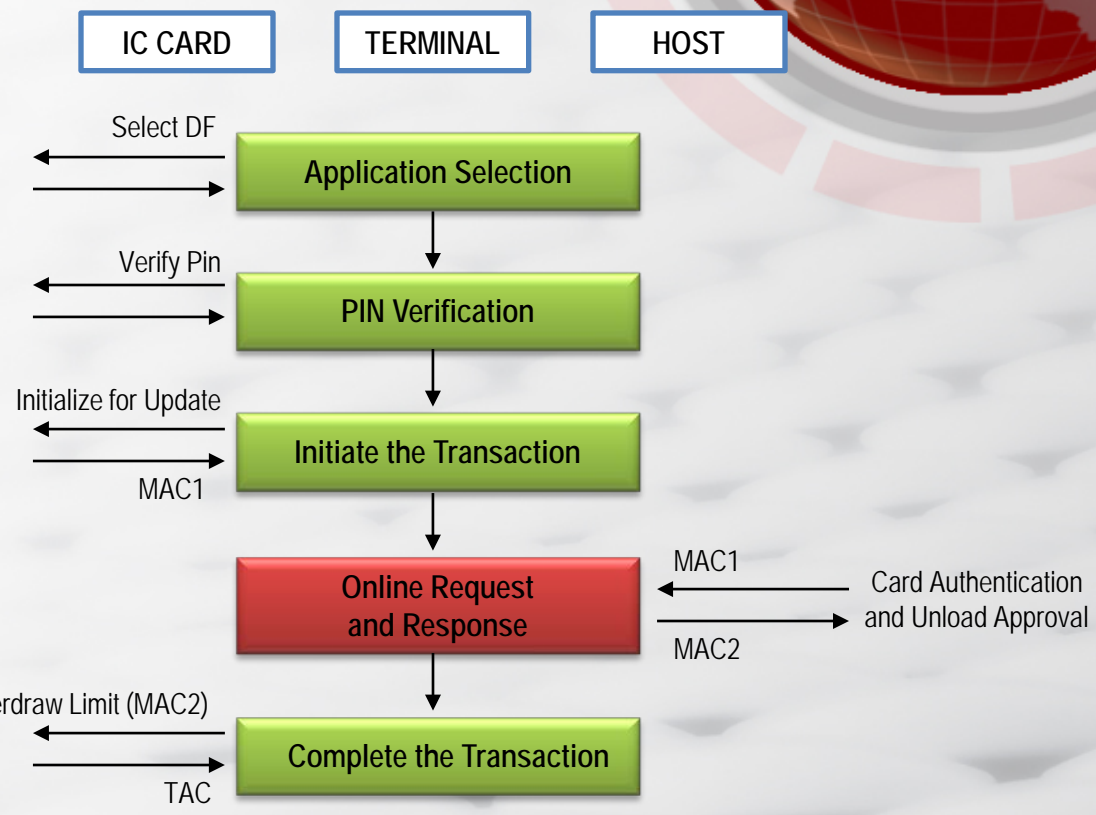
# Purchase Transaction (ED/EP)

The **Purchase Transaction** can be done for both e-Purse (EP) and e-Deposit (ED) files and is performed offline at POS terminals. Note that for an ED file, the Purchase Transaction is always PIN protected, while for an EP file, no PIN submission is needed.



# Update Overdraw Limit Transaction (ED)

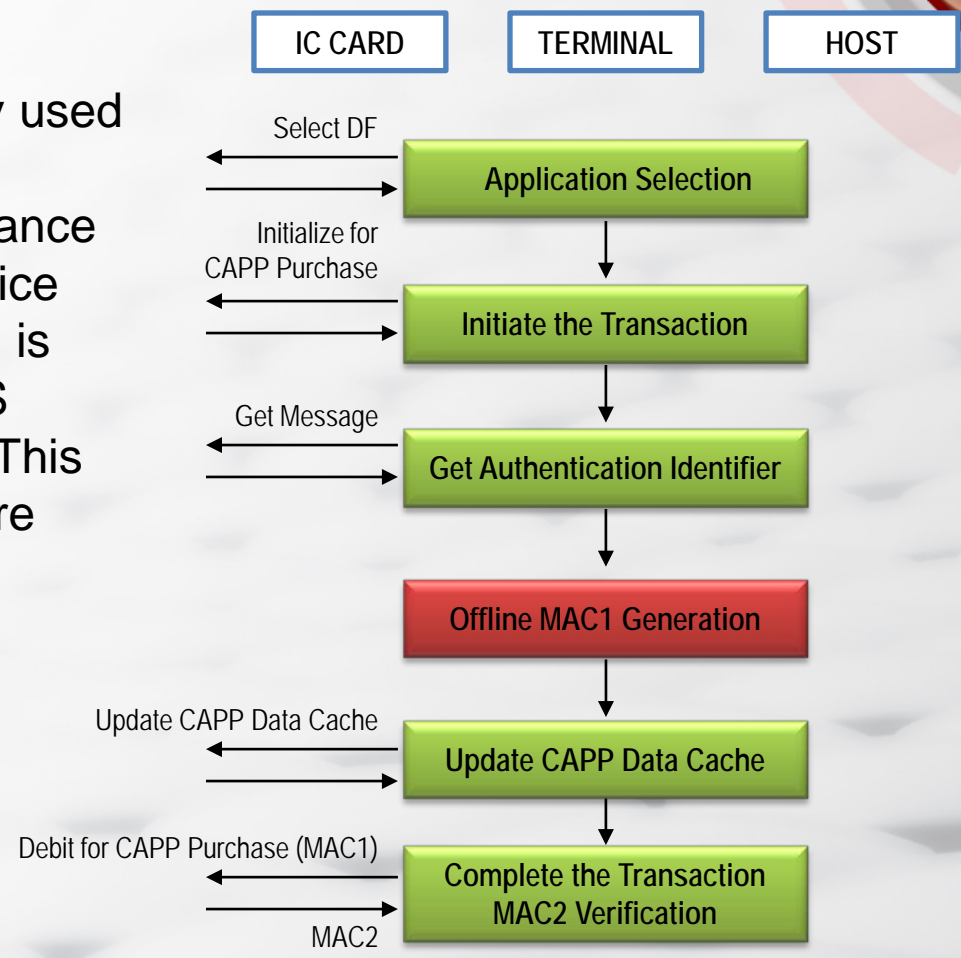
The **Update Overdraw Limit Transaction** is used to change the value of the Overdraw Limit authorized by the issuing bank. The Overdraw Limit is the value that allows the user to use his e-Deposit Card from purchasing goods and services with value greater than the amount he/she loaded in the e-Deposit card. This transaction is PIN-protected and performed online at a bank terminal.





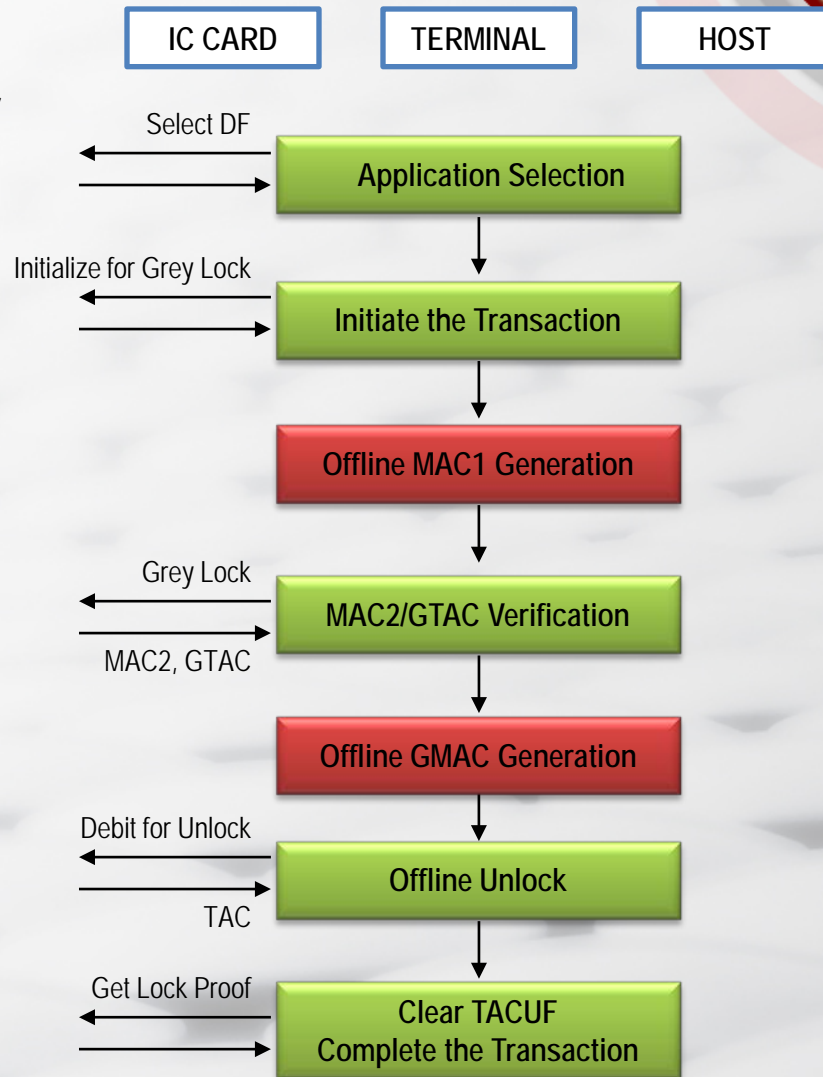
# CAPP Purchase Transaction (EP)

The **CAPP Purchase Transaction** is specifically used for the EP file. This allows cardholders to use the balance of EP for purchase or service availment. The transaction is performed offline at a POS terminal or other readers. This transaction does not require submission of a PIN.



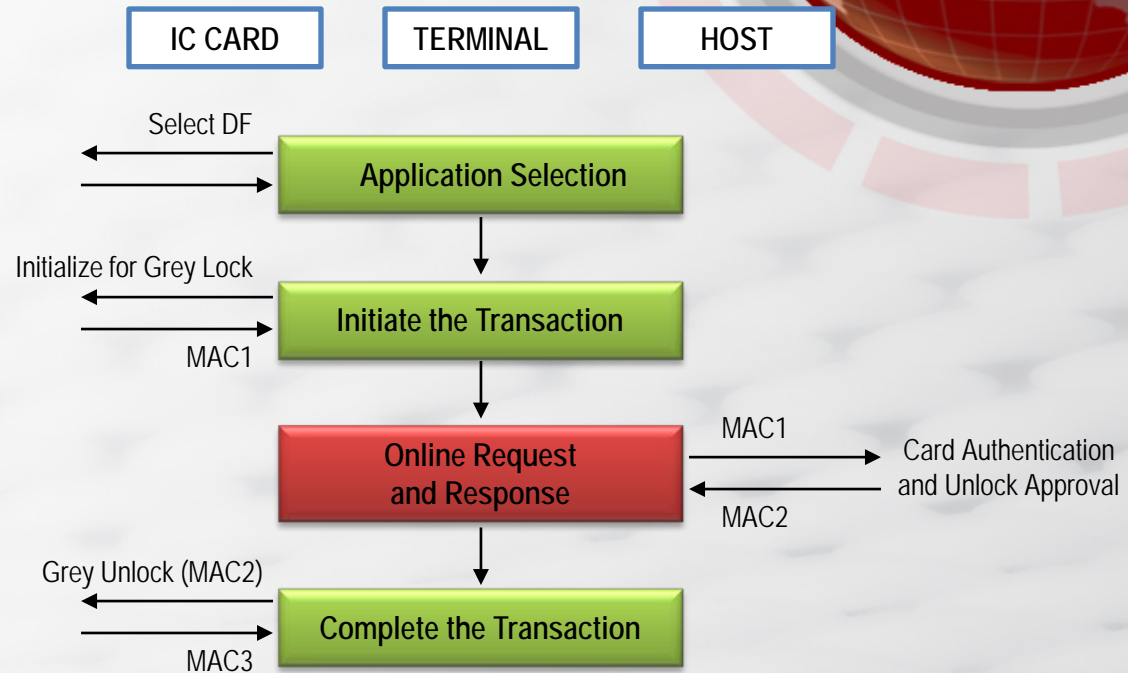
# Grey Lock Transaction (EP)

The **Grey Lock Transaction** allows cardholders to use EP for Grey Purchase. Grey Purchase refers to a two-step transaction, which can be performed by executing a Grey Lock Transaction followed by a Debit for Unlock Transaction.



# Grey Unlock Transaction (EP)

The **Grey Unlock Transaction** allows the EP sub-application to be unblocked. This allows deduction of a certain transaction amount from the EP balance, and is performed online.





# Product Application

# In what areas can we apply ACOS7?



- Banking and Payment**
  - e-Deposit and e-Purse card
  - Credit and Debit Payment

- Government**
  - National ID
  - e-Passport
  - Government Services

- Others**
  - Healthcare
  - Loyalty System



**Multi-application  
in one card**

- Transportation**
  - Automated Fare Collection
  - e-Ticketing
  - Car Parking Card

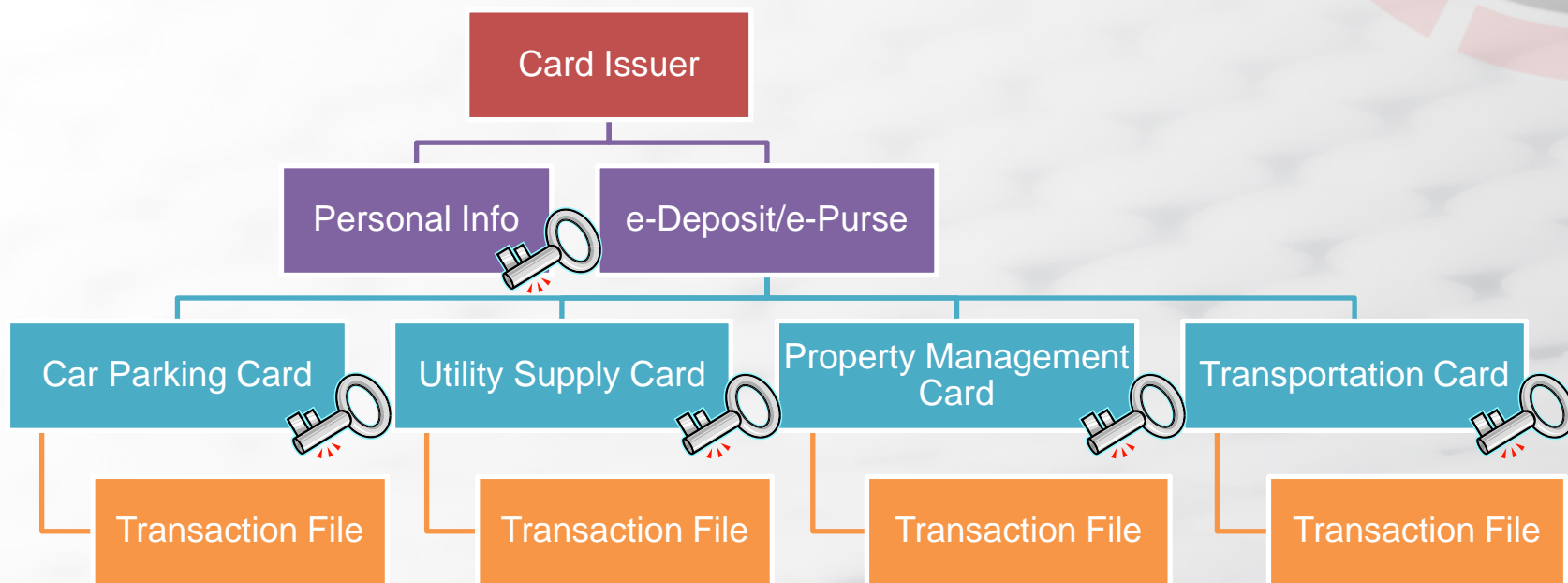
- Access Control**
  - Physical Access
  - Logical Access
  - Secure ID System
  - Campus ID





# ACOS7 Application Sample

\* Multiple applications in one card





# Comparison Chart



# Comparison between ACOS7 and ACOS10

Category	ACOS7	ACOS10	
Product Code	ACOS7-G1K	ACOS10-G1K	ACOS10-B1A
Interface	Combi*	Combi*	Contact
Size Available			
Module			✓
Full-Sized Card	✓	✓	✓
SIM-Sized Card			✓
Modules			
ISO 7816 Compliant 8-contact Module	✓	✓	✓
Communication Speed			
Contact Interface: 9,600 bps /14,400 bps/28,800 bps/ 115,200 bps/ 223,200 bps	✓	✓	✓
Contactless Interface: 106kbps/ 212kbps/ 424kbps/848kbps	✓	✓	✓
EEPROM			
User Memory (byte)	8K	8K	32K

Remark: ACOS7 Contactless card has the same contactless features as ACOS7 Combi card  
 ACOS10 Contactless card has the same contactless features as ACOS10 Combi card



# Comparison between ACOS7 and ACOS10

Category	ACOS7	ACOS10	
Product Code	ACOS7-G1K	ACOS10-G1K	ACOS10-B1A
Interface	Combi*	Combi*	Contact
Protocol			
T = 0 (Contact)	✓	✓	✓
T = CL (Contactless)	✓	✓	
Standard			
ISO 7816 -1/2/3/4	✓	✓	✓
ISO 14443 – 1/2/3/4	✓	✓	
ISO 14443 Type A	✓	✓	
PBOC 2.0 E-Purse/ E-Deposit (China)		✓	✓
Ministry of Construction (China)	✓		

Remark: ACOS7 Contactless card has the same contactless features as ACOS7 Combi card  
 ACOS10 Contactless card has the same contactless features as ACOS10 Combi card



# Comparison between ACOS7 and ACOS10

Category	ACOS7	ACOS10	
Product Code	ACOS7-G1K	ACOS10-G1K	ACOS10-B1A
Interface	Combi*	Combi*	Contact
File Systems			
Directory File	✓	✓	✓
Transparent (Binary) File	✓	✓	✓
Linear Fixed Record	✓	✓	✓
Linear Variable Record	✓	✓	✓
Cyclic File	✓	✓	✓
Security Keys			
DES/3DES	✓	✓	✓
MAC	✓	✓	✓
User, Admin & Application Specified PIN Support	✓	✓	✓
Customizable PIN & Key Codes	✓	✓	✓

Remark: ACOS7 Contactless card has the same contactless features as ACOS7 Combi card  
 ACOS10 Contactless card has the same contactless features as ACOS10 Combi card





# Comparison between ACOS7 and ACOS10

Category	ACOS7	ACOS10	
Product Code	ACOS7-G1K	ACOS10-G1K	ACOS10-B1A
Interface	Combi*	Combi*	Contact
Cryptographic Capabilities			
DES/3DES	✓	✓	✓
Secure Messaging	✓	✓	✓
FIPS140-2 compliant Random Number Generator	✓	✓	✓
Authentication (MAC)	✓	✓	✓
EEPROM Endurance			
100,000 Write/Erase Cycles			✓
500,000 Write/Erase Cycles	✓	✓	



Remark: ACOS7 Contactless card has the same contactless features as ACOS7 Combi card  
 ACOS10 Contactless card has the same contactless features as ACOS10 Combi card

# Comparison between ACOS7 and ACOS10

Category	ACOS7	ACOS10	
Product Code	ACOS7-G1K	ACOS10-G1K	ACOS10-B1A
Interface	Combi*	Combi*	Contact
Applications			
Payment Card - E-deposit/E-purse Card - Retail Card - Utility supply Card	✓	✓	✓
Transportation Card - Petrol Card - Car Parking Payment Card	✓	✓	✓
Banking Card - Insurance Card - Micropayment Card		✓	✓
Loyalty Card	✓		

Remark: ACOS7 Contactless card has the same contactless features as ACOS7 Combi card  
 ACOS10 Contactless card has the same contactless features as ACOS10 Combi card





# Ordering Information



# Ordering Information



Products	Description
<b>ACOS7-G1KACSA1020</b>	<i>MOC Combi interface Card with 8KB EEPROM, glossy, PVC</i>
<b>ACOS7-G1LACSA1020</b>	<i>MOC Contactless interface Card with 8KB EEPROM, glossy, PVC</i>

# Thank You!!!

*More information on:*

***<http://www.acs.com.hk/index.php?pid=product&id=ACOS7>***

