CLAIMS

1. A method of updating time at a transaction device in a transaction with an offline terminal of a transaction system, comprising:

initiating a transaction with the offline terminal;

providing a stored trusted time value and receiving an obtained trusted time value, each trusted time value having been affirmed by a trusted time provider, wherein each trusted time value is affirmed by signature by a private key of an asymmetric key pair;

decrypting the obtained signed trusted time value to determine the obtained trusted time value and to confirm that the obtained trusted time value was validly affirmed by the trusted time provider;

comparing the obtained trusted time value with the stored trusted time value; and

replacing the stored trusted time value with the obtained trusted time value if the obtained trusted time value is more recent than the stored trusted time value.

2. A method as claimed in claim 1, wherein the transaction device is a payment card.

3. A method as claimed in claim 1 or claim 2, wherein the transaction is performed according to EMV protocols.

4. A method as claimed in claim 3, wherein the transaction device requests a terminal stored trusted time value using CDOL1.

5. A method as claimed in any preceding claim, wherein the transaction device holds a stored date for a risk related action, wherein after replacing the stored trusted time value the transaction device takes a risk management action if the updated stored trusted time value is later than the stored date by a predetermined period of time.

6. A method of updating time at a terminal of a transaction system in a transaction device, comprising, if the terminal is offline:

commencing a transaction with the transaction device;

providing a stored trusted time value and receiving an obtained trusted time value, each trusted value having been affirmed by a trusted time provider, wherein each

trusted time value is affirmed by signature by a private key of an asymmetric key pair;

decrypting the obtained signed trusted time value to determine the obtained trusted time value and to confirm that the obtained trusted time value was validly affirmed by the tursted time provider;

comparing the obtained trusted time value with the stored trusted time value; and

replacing the stored trusted time value with the obtained trusted time value if the obtained trusted time value is more recent than the stored trusted time value.

7. A method as claimed in claim 6, wherein the terminal is one of a point of sale terminal and an automated teller machine.

8. A method as claimed in claim 7, wherein the terminal requests a transaction device trusted time value with a GET DATA command.

9. A method as claimed in claim 7 or 8, wherein the terminal provides a terminal trusted time value with a PUT DATA command.

10. A method as claimed in claim 7, wherein the terminal requests a transaction device trusted time value or provides a terminal trusted time value with a GENERATE AC command.

11. A method as claimed in any of claims 6 to 10, wherein the terminal is online and connected to an acquiring bank, the acquiring bank provides a trusted time value to the terminal and to the transaction device.

12. A trusted time provider for a transaction system, comprising:

a clock providing time values;

a public/private key pair, comprising a public key for dissemination throughout the transaction system and a private key for signing time values to provide trusted time values; and

a module adapted continually to sample time values from the clock, to sign the sampled time values with the private key to form trusted time values, and to disseminate trusted time values throughout the transaction system.

13. A transaction device comprising a memory and a processor, wherein the memory is adapted to store trusted time values, and wherein the processor is programmed to initiate a transaction between the transaction device and an offline

terminal; provide a stored trusted time value and receive an obtained trusted time value, each trusted time value having been affirmed by a trusted time provider and wherein each trusted time value is affirmed by signature by a private key of an asymmetric key pair; decrypt the obtained signed trusted time value to determine the obtained trusted time value and to confirm that the obtained trusted time value was validly affirmed by the trusted time provider; compare the obtained trusted time value with the stored trusted time value; and replace the stored trusted time value with the obtained trusted time value if the obtained trusted time value is more recent than the stored trusted time value.

14. A transaction device as claimed in claim 13, wherein the transaction device is a payment card.