TECHNICAL DOCUMENT

Letter of
Sentinel HL Memory Volatility

This document outlines all pertinent information needed by a vendor to certify the level of Volatility of the memory utilized in Sentinel HL USB keys produced by Gemalto.

Manufacturer: Gemalto

Product Name(s): Sentinel HL Keys

Model(s):
HASP configuration: Basic, Pro, Max, Net, Time, NetTime, MaxMicro, ExpressCard.
Driverless configuration: Basic, Pro, Max, Net, Time, NetTime, MaxMicro, ExpressCard, Chip, Board, SuperDog.
SuperPro configuration: SuperPro, SuperPro Net
Hardlock configuration: Hardlock, Hardlock Server.

Type of memory: Non-Volatile memory used. There is no volatile memory in all models.

Type of Non-Volatile Memory: EEPROM

Some Frequently Asked Questions

I. **Accessibility of Non-Volatile Memory**
1) **Can the memory be accessed by accidental/intentional keystroke, or software malfunction?**
Yes, the non-volatile memory can be accessed by software malfunction.
2) **What are the locations of non-volatile memory along with accessibility and purpose of memory?**
- User area of the memory – is accessible to customers of Gemalto products for Read / Write
- System area of the memory – this area of memory is not accessible and it is being used by Gemalto for Read Only purposes.

II. **Required memory**
Is the device needed for normal operation, i.e. required for this processing period?
Yes, the Sentinel HL key is need for normal operation of software.

III. **Device removal consequences**
If device memory chip is erased, what impact will this have on operation and normal function of the device?
If the System area of memory is erased, the device will not be accessible at all. If the User area of the memory is erased then the device is 'alive' but it delivers wrong data to the application – in this case the behavior depends on Gemalto's customer implementation of the Sentinel HL product.

IV.   **Method of memory access**
      How is the memory accessed? Is non-volatile memory location theoretically accessible with any system code, not just via the operating system or low level booting firmware?
      The memory is accessed only via Gemalto's Software (Firmware, API and drivers)

V.   **Warranty**
      Does chip removal or EEPROM erasure void the warranty?
      Yes.

VI.   **Memory Size**
      How much memory is contained in the key?
      Up to 36KB – depends on the model.

VII. **Memory Spacing:**
      Is the memory fully utilized or does it have available memory space for additional information to be placed?
      There is unused space but it can only be used by Gemalto for future purposes.

VIII. **Data Remanence**
      Can this non-volatile memory be addressed to ensure that only authorized information is resident? If yes, then how?
      The Sentinel HL system is ensuring that the System memory area only contains authorized information. The information in the User memory area can be verified by Gemalto's customer.

Additional Notice from Gemalto
Gemalto reserves the right to modify the product without prior notification.

This evaluation and summary of Sentinel HL Keys memory volatility information was completed by:
Tzvika Zaiffer | Senior Product Management, Software Monetization, Gemalto
Tzvika.Zaiffer@gemalto.com