

Summary of vendor-specific extensions used for KMIP interoperability demonstration at RSA conference 2011

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This document summarizes the vendor-specific extensions used for the KMIP interoperability demonstration at the OASIS booth at RSA conference 2011. It details the use case, along with example messages and their TTLV-encodings, showing how the vendor-specific extension and/or custom attribute was used.


```

Tag: RESPONSE_MESSAGE (0x42007B), Type: Structure (0x01), Data:
  Tag: RESPONSE_HEADER (0x42007A), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: TIME_STAMP (0x420092), Type: Date-Time (0x09), Data: 0x000000004D483911 (Tue
Feb 01 17:47:13 CET 2011)
    Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000003 (3)
  Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000008 (Locate)
    Tag: UNIQUE_BATCH_ITEM_ID (0x420093), Type: Octet String (0x08), Data: 01
    Tag: RESULT_STATUS (0x42007F), Type: Enumeration (0x05), Data: 0x00000000 (Success)
    Tag: RESPONSE_PAYLOAD (0x42007C), Type: Structure (0x01), Data:
      Tag: UNIQUE_IDENTIFIER (0x420094), Type: Text String (0x07), Data: c2c359f3-4bd6-
45bd-b663-31d0bf0e7192
    Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
      Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000A (Get)
      Tag: UNIQUE_BATCH_ITEM_ID (0x420093), Type: Octet String (0x08), Data: 02
      Tag: RESULT_STATUS (0x42007F), Type: Enumeration (0x05), Data: 0x00000000 (Success)
      Tag: RESPONSE_PAYLOAD (0x42007C), Type: Structure (0x01), Data:
        Tag: OBJECT_TYPE (0x420057), Type: Enumeration (0x05), Data: 0x00000002 (Symmetric
Key)
        Tag: UNIQUE_IDENTIFIER (0x420094), Type: Text String (0x07), Data: c2c359f3-4bd6-
45bd-b663-31d0bf0e7192
        Tag: SYMMETRIC_KEY (0x42008F), Type: Structure (0x01), Data:
          Tag: KEY_BLOCK (0x420040), Type: Structure (0x01), Data:
            Tag: KEY_FORMAT_TYPE (0x420042), Type: Enumeration (0x05), Data: 0x00000001
(Raw)
            Tag: KEY_VALUE (0x420045), Type: Structure (0x01), Data:
              Tag: KEY_MATERIAL (0x420043), Type: Octet String (0x08), Data:
1234567812345678CCF7B5C7589CCA13B6BB584529DE092C5F01E2DA224F2B7D
              Tag: CRYPTOGRAPHIC_ALGORITHM (0x420028), Type: Enumeration (0x05), Data:
0x00000003 (AES)
              Tag: CRYPTOGRAPHIC_LENGTH (0x42002A), Type: Integer (0x02), Data: 0x00000100
(256)
            Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
              Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000B (Get
Attributes)
              Tag: UNIQUE_BATCH_ITEM_ID (0x420093), Type: Octet String (0x08), Data: 03
              Tag: RESULT_STATUS (0x42007F), Type: Enumeration (0x05), Data: 0x00000000 (Success)
              Tag: RESPONSE_PAYLOAD (0x42007C), Type: Structure (0x01), Data:
                Tag: UNIQUE_IDENTIFIER (0x420094), Type: Text String (0x07), Data: c2c359f3-4bd6-
45bd-b663-31d0bf0e7192
                Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
                  Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: Name
                  Tag: ATTRIBUTE_VALUE (0x42000B), Type: Structure (0x01), Data:
                    Tag: NAME_VALUE (0x420055), Type: Text String (0x07), Data: 7CD6E142C927A57F
                    Tag: NAME_TYPE (0x420054), Type: Enumeration (0x05), Data: 0x00000001
(Uninterpreted text string)

42007B010000026842007A0100000048420069010000002042006A02000000040000000100000000
42006B0200000004000000000000000000004200920900000008000000004D48391142000D0200000004
000000030000000042000F010000006842005C050000000400000008000000004200930800000001
010000000000000042007F050000000400000000000000000042007C01000000304200940700000024
6332633353966332D346264362D343562642D623636332D33316430626630653731393200000000
42000F01000000E842005C05000000040000000A0000000042009308000000010200000000000000
42007F0500000004000000000000000042007C01000000B042005705000000040000000200000000
42009407000000246332633353966332D346264362D343562642D623636332D3331643062663065
373139320000000042008F0100000068420040010000006042004205000000040000000100000000
420045010000002842004308000000201234567812345678CCF7B5C7589CCA13B6BB584529DE092C
5F01E2DA224F2B7D4200280500000004000000030000000042002A02000000040000010000000000
42000F01000000B042005C05000000040000000B0000000042009308000000010300000000000000
42007F0500000004000000000000000042007C010000007842009407000000024633263335396633
2D346264362D343562642D623636332D333164306266306537313932000000004200080100000040
42000A07000000044E616D650000000042000B0100000028420055070000000103743443645313432
433932374135374642005405000000040000000100000000

```

Message 1: KMIP request and response messages with IBM vendor-specific extensions

1.1 Device information in Credential structure in message header

The KMIP request message in Message 1 shows an IBM vendor-specific extension being used in the Credential field of the message header. The Credential is a TTLV-encoded KMIP structure, stored as an Octet String. Decoded it looks as shown in Message 2.

```
Tag: DEVICE_METADATA (0x540001), Type: Structure (0x01), Data:
  Tag: SERIAL_NUMBER (0x540003), Type: Text String (0x07), Data:
10D000EB5300010300000000000001
  Tag: MACHINE_ID (0x540006), Type: Text String (0x07), Data: "0019b9bf9f29
0019b9bf9f27"
  Tag: DEVICE_GROUP (0x540004), Type: Text String (0x07), Data: ONESECURE

54000101000000068540003070000001C3130443030304542353330303031303330303030303030
3030303100000000540006070000001B223030313962396266396632392030303139623962663966
323722000000000054000407000000094F4E4553454355524500000000000000
```

Message 2: Decoded IBM Credential-field vendor-specific extension

The device metadata is used to identify the device and can also be used for access control decisions. Some additional tags not shown here may also be used for fields inside the (TTLV-encoded) IBM vendor-specific credential structure (see Table 1).

Tag Value	Tag Name
0x540002	VERSION
0x540005	DEVICE_TEXT
0x540007	MEDIA_ID
0x540008	WORLD_WIDE_NAME
0x540009	MACHINE_TEXT

Table 1: Additional IBM tags

1.2 Passing of group information in Locate

Custom attributes are used to pass information that is used to provide functionality for provisioning keys from groups. In Message 1, the custom attribute name “y-Defaults” is passed, indicating that the client is looking for a key from the default key group. Other key group names may also be passed. Whether a Unique Identifier is returned or not depends on the server implementation and configuration and whether or not the client has access to the key(s). In this example, the Unique Identifier of a key is returned. Standardizing this functionality is the goal of Krishna Yellepeddy's Group proposal.

2 HDD vendor-specific extensions

HDD extensions are shown in Message 3 and Message 4.

2.1 Creation of key with extra attributes stored in custom attributes

The first message shows the creation of a key with some HDD vendor-specific custom attributes, one of them which has an attribute value that is a structure. The fields in the custom attribute structure uses vendor-specific tag values. The HDD client does not expect the server to be able to interpret any of the attribute values.

```
Tag: REQUEST_MESSAGE (0x420078), Type: Structure (0x01), Data:
  Tag: REQUEST_HEADER (0x420077), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000001 (1)
    Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
      Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000001 (Create)
      Tag: REQUEST_PAYLOAD (0x420079), Type: Structure (0x01), Data:
        Tag: OBJECT_TYPE (0x420057), Type: Enumeration (0x05), Data: 0x00000002 (Symmetric
Key)
      Tag: TEMPLATE-ATTRIBUTE (0x420091), Type: Structure (0x01), Data:
        Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
          Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: Cryptographic
Algorithm
          Tag: ATTRIBUTE_VALUE (0x42000B), Type: Enumeration (0x05), Data: 0x00000003
(AES)
          Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
            Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: Cryptographic
Usage Mask
            Tag: ATTRIBUTE_VALUE (0x42000B), Type: Integer (0x02), Data: 0x0000000C
(Encrypt, Decrypt)
            Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
              Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: Cryptographic
Length
              Tag: ATTRIBUTE_VALUE (0x42000B), Type: Integer (0x02), Data: 0x00000100 (256)
              Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
                Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: x-hiddnTokenId
                Tag: ATTRIBUTE_VALUE (0x42000B), Type: Integer (0x02), Data: 0x00000001 (1)
              Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
                Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: x-hiddnKeyId
                Tag: ATTRIBUTE_VALUE (0x42000B), Type: Integer (0x02), Data: 0x00000005 (5)
              Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
                Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: x-
HDD_ENCRYPTION_KEY
                Tag: ATTRIBUTE_VALUE (0x42000B), Type: Structure (0x01), Data:
                  Tag: HDD_DEVICE (0x542002), Type: Integer (0x02), Data: 0x00000000 (0)
                  Tag: HDD_DRIVE_INFO (0x542003), Type: Integer (0x02), Data: 0x00000000 (0)
                  Tag: HDD_MODULE_INFO (0x542004), Type: Integer (0x02), Data: 0xFFFFFFFFB0 (-
80)
                  Tag: HDD_LIFETIME (0x542005), Type: Integer (0x02), Data: 0x00000000 (0)
                  Tag: HDD_TEST_VECTOR_1 (0x542007), Type: Octet String (0x08), Data: 00000000
                  Tag: HDD_TEST_VECTOR_2 (0x542008), Type: Octet String (0x08), Data: 00000000
                  Tag: HDD_KEY_CONTROL (0x542009), Type: Integer (0x02), Data: 0x0000000B (11)
```

```
42007801000002204200770100000038420069010000002042006A02000000040000000100000000
42006B02000000040000000000000000042000D0200000004000000010000000042000F01000001D8
42005C050000000400000001000000042007901000001C042005705000000040000000200000000
42009101000001A8420008010000003042000A070000001743727970746F6772617068696320416C
676F726974686D0042000B05000000040000000300000000420008010000003042000A0700000018
43727970746F67726170686963205573616765204D61736B42000B02000000040000000C00000000
420008010000003042000A070000001443727970746F67726170686963204C656E67746800000000
42000B020000000400000100000000000420008010000002842000A070000000E782D686964646E54
6F6B656E4964000042000B0200000004000000010000000420008010000002842000A070000000C
782D686964646E4B6579496400000042000B020000000400000005000000004200080100000098
42000A0700000014782D4844445F454E4352595054494F4E5F4B45590000000042000B0100000070
54200202000000040000000000000005420030200000004000000000000000542004020000004
FFFFFFB000000005420050200000004000000000000000542007080000000400000000000000
542008080000000400000000000000054200902000000040000000B00000000
```

```
Tag: RESPONSE_MESSAGE (0x42007B), Type: Structure (0x01), Data:
  Tag: RESPONSE_HEADER (0x42007A), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: TIME_STAMP (0x420092), Type: Date-Time (0x09), Data: 0x000000004D80B366 (Wed
Mar 16 13:56:06 CET 2011)
    Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000001 (1)
  Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000001 (Create)
    Tag: RESULT_STATUS (0x42007F), Type: Enumeration (0x05), Data: 0x00000000 (Success)
    Tag: RESPONSE_PAYLOAD (0x42007C), Type: Structure (0x01), Data:
      Tag: OBJECT_TYPE (0x420057), Type: Enumeration (0x05), Data: 0x00000002 (Symmetric
Key)
      Tag: UNIQUE_IDENTIFIER (0x420094), Type: Text String (0x07), Data: eef44d77-69df-
47e8-8802-f3886efd6759
```

```
42007B010000000C042007A0100000048420069010000002042006A02000000040000000100000000
42006B02000000040000000000000004200920900000008000000004D80B36642000D0200000004
000000010000000042000F010000006842005C0500000004000000010000000042007F0500000004
000000000000000042007C0100000040420057050000000400000002000000004200940700000024
65656634346437372D363964662D343765382D383830322D66333838366566643637353900000000
```

Message 3: Creation of key with HDD vendor-specific attributes

2.2 Locating keys based on multiple custom attributes

Message 4 shows a Locate operation, where a key is located based on two custom attributes. The first attribute is specified fully, and therefore an exact match of the attribute value is required. For the second custom attribute, the value may in some cases be omitted and only the name is specified. In case the attribute value is omitted, the KMIP server must verify that an attribute with this name exists for an object to match the Locate query, but the attribute may have any value. In Message 4, however, the attribute value is specified for both custom attributes. No Locates are performed with the attribute value of the custom attribute having an attribute value that is a structure.

```

Tag: REQUEST_MESSAGE (0x420078), Type: Structure (0x01), Data:
  Tag: REQUEST_HEADER (0x420077), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000001 (1)
  Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000008 (Locate)
  Tag: REQUEST_PAYLOAD (0x420079), Type: Structure (0x01), Data:
    Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
      Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: x-hiddnTokenId
      Tag: ATTRIBUTE_VALUE (0x42000B), Type: Integer (0x02), Data: 0x00000001 (1)
    Tag: ATTRIBUTE (0x420008), Type: Structure (0x01), Data:
      Tag: ATTRIBUTE_NAME (0x42000A), Type: Text String (0x07), Data: x-hiddnKeyId
      Tag: ATTRIBUTE_VALUE (0x42000B), Type: Integer (0x02), Data: 0x00000005 (5)

420078010000000C04200770100000038420069010000002042006A020000000400000000100000000
42006B02000000040000000000000000042000D0200000004000000010000000042000F0100000078
42005C0500000004000000080000000004200790100000060420008010000002842000A070000000E
782D686964646E546F6B656E4964000042000B020000000400000001000000004200080100000028
42000A070000000C782D686964646E4B657949640000000042000B02000000040000000500000000

Tag: RESPONSE_MESSAGE (0x42007B), Type: Structure (0x01), Data:
  Tag: RESPONSE_HEADER (0x42007A), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: TIME_STAMP (0x420092), Type: Date-Time (0x09), Data: 0x000000004D80B367 (Wed
Mar 16 13:56:07 CET 2011)
  Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000001 (1)
  Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000008 (Locate)
    Tag: RESULT_STATUS (0x42007F), Type: Enumeration (0x05), Data: 0x00000000 (Success)
  Tag: RESPONSE_PAYLOAD (0x42007C), Type: Structure (0x01), Data:
    Tag: UNIQUE_IDENTIFIER (0x420094), Type: Text String (0x07), Data: eef44d77-69df-
47e8-8802-f3886efd6759

42007B010000000B042007A0100000048420069010000002042006A020000000400000000100000000
42006B0200000004000000000000000004200920900000008000000004D80B36742000D0200000004
000000010000000042000F010000005842005C0500000004000000080000000042007F0500000004
000000000000000042007C0100000030420094070000002465656634346437372D363964662D3437
65382D383830322D66333838366566643637353900000000

```

Message 4: Locate of key using HDD vendor-specific custom attributes

3 SafeNet vendor-specific extensions

SafeNet vendor-specific extensions are shown in Message 5.

3.1 Providing vendor information in Query response

Information is provided in the Server Information structure when Server Information is queried by a client. The SafeNet Server Information structure contains three fields, each with a new, vendor-specific tag value.

```
Tag: REQUEST_MESSAGE (0x420078), Type: Structure (0x01), Data:
  Tag: REQUEST_HEADER (0x420077), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: MAXIMUM_RESPONSE_SIZE (0x420050), Type: Integer (0x02), Data: 0x00000800 (2048)
    Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000001 (1)
  Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000018 (Query)
    Tag: REQUEST_PAYLOAD (0x420079), Type: Structure (0x01), Data:
      Tag: QUERY_FUNCTION (0x420074), Type: Enumeration (0x05), Data: 0x00000001
(Operations)
      Tag: QUERY_FUNCTION (0x420074), Type: Enumeration (0x05), Data: 0x00000002
(Objects)
      Tag: QUERY_FUNCTION (0x420074), Type: Enumeration (0x05), Data: 0x00000003 (Server
Information)

42007801000000A04200770100000048420069010000002042006A02000000004000000010000000
42006B020000000400000000000000004200500200000004000008000000000042000D0200000004
000000010000000042000F010000004842005C050000000400000018000000004200790100000030
42007405000000040000000100000000420074050000000400000002000000004200740500000004
0000000300000000
```



```

Tag: RESPONSE_MESSAGE (0x42007B), Type: Structure (0x01), Data:
  Tag: RESPONSE_HEADER (0x42007A), Type: Structure (0x01), Data:
    Tag: PROTOCOL_VERSION (0x420069), Type: Structure (0x01), Data:
      Tag: PROTOCOL_VERSION_MAJOR (0x42006A), Type: Integer (0x02), Data: 0x00000001 (1)
      Tag: PROTOCOL_VERSION_MINOR (0x42006B), Type: Integer (0x02), Data: 0x00000000 (0)
    Tag: TIME_STAMP (0x420092), Type: Date-Time (0x09), Data: 0x000000004D7DDF88 (Mon
Mar 14 10:27:36 CET 2011)
    Tag: BATCH_COUNT (0x42000D), Type: Integer (0x02), Data: 0x00000001 (1)
  Tag: BATCH_ITEM (0x42000F), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000018 (Query)
    Tag: RESULT_STATUS (0x42007F), Type: Enumeration (0x05), Data: 0x00000000 (Success)
  Tag: RESPONSE_PAYLOAD (0x42007C), Type: Structure (0x01), Data:
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000001 (Create)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000003 (Register)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000008 (Locate)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000A (Get)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000B (Get
Attributes)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000C (Get
Attribute List)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000D (Add
Attribute)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000E (Modify
Attribute)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x0000000F (Delete
Attribute)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000014 (Destroy)
    Tag: OPERATION (0x42005C), Type: Enumeration (0x05), Data: 0x00000018 (Query)
    Tag: OBJECT_TYPE (0x420057), Type: Enumeration (0x05), Data: 0x00000002 (Symmetric
Key)
    Tag: OBJECT_TYPE (0x420057), Type: Enumeration (0x05), Data: 0x00000006 (Template)
    Tag: OBJECT_TYPE (0x420057), Type: Enumeration (0x05), Data: 0x00000007 (Secret
Data)
  Tag: SERVER_INFORMATION (0x420088), Type: Structure (0x01), Data:
    Tag: UNKNOWN_TAG (0x541000), Type: Text String (0x07), Data: SafeNet VM
    Tag: UNKNOWN_TAG (0x541001), Type: Text String (0x07), Data: LNGC4PFH3F4RM
    Tag: UNKNOWN_TAG (0x541002), Type: Text String (0x07), Data: 5.3.0
  Tag: VENDOR_IDENTIFICATION (0x42009D), Type: Text String (0x07), Data: SafeNet,
Inc.

42007B01000001C042007A0100000048420069010000002042006A02000000040000000100000000
42006B02000000040000000000000000004200920900000008000000004D7DDF8842000D0200000004
000000010000000042000F010000016842005C0500000004000000180000000042007F0500000004
000000000000000042007C010000014042005C0500000004000000010000000042005C0500000004
000000030000000042005C0500000004000000080000000042005C05000000040000000A00000000
42005C05000000040000000B0000000042005C05000000040000000C0000000042005C0500000004
0000000D0000000042005C05000000040000000E0000000042005C05000000040000000F00000000
42005C0500000004000000140000000042005C050000000400000018000000004200570500000004
00000002000000004200570500000004000000060000000042005705000000040000000700000000
4200880100000040541000070000000A536166654E657420564D0000000000054100107000000D
4C4E474334504648334634524D0000005410020700000006352E332E3020000042009D070000000D
536166654E65742C20496E632E000000

```

Message 5: SafeNet vendor-specific information in Query response