KMIP Storage Array with Self-Encrypting Drives Profile Version 1.0

OASIS Standard

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Specification URIs

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http://docs.oasis-open.org/kmip/kmip-sa-sed-profile/v1.0/csprd01/kmip-sa-sed-profile-v1.0-csprd01.html
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Related work:

This specification is related to:

- *Key Management Interoperability Protocol Profiles Version 1.0.* Edited by Robert Griffin and Subhash Sankuratripati. Latest version: http://docs.oasis-open.org/kmip/profiles/v1.0/kmip-profiles-1.0.html.
- *Key Management Interoperability Protocol Profiles Version 1.1*. Edited by Robert Griffin and Subhash Sankuratripati. Latest version: http://docs.oasis-open.org/kmip/profiles/v1.1/kmip-profiles-v1.1.html.
- *Key Management Interoperability Protocol Profiles Version 1.2*. Edited by Tim Hudson and Robert Lockhart. Latest version: http://docs.oasis-open.org/kmip/profiles/v1.2/kmip-profiles-v1.2.html.

- *Key Management Interoperability Protocol Specification Version 1.1*. Edited by Robert Haas and Indra Fitzgerald. Latest version: http://docs.oasis-open.org/kmip/spec/v1.1/kmip-spec-v1.1.html.
- *Key Management Interoperability Protocol Specification Version 1.2*. Edited by Kiran Thota and Kelley Burgin. Latest version: http://docs.oasis-open.org/kmip/spec/v1.2/kmip-spec-v1.2.html.
- *Key Management Interoperability Protocol Test Cases Version 1.2*. Edited by Tim Hudson and Faisal Faruqui. Latest version: http://docs.oasis-open.org/kmip/testcases/v1.2/kmip-testcases-v1.2.html.
- *Key Management Interoperability Protocol Usage Guide Version 1.2*. Edited by Indra Fitzgerald and Judith Furlong. Latest version: http://docs.oasis-open.org/kmip/ug/v1.2/kmip-ug-v1.2.html.

Abstract:

Describes a profile for Storage Arrays with Self-Encrypting Drives as KMIP clients interacting with KMIP servers

Status:

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1 Introduction

For normative definition of the elements of KMIP see the KMIP Specification [KMIP-SPEC] and the KMIP Profiles [KMIP-PROF].

This profile defines the necessary KMIP functionality that a Storage Array with Self-Encrypting Drives operating as a KMIP client SHALL use and a KMIP server conforming to this profile SHALL support in order to interoperate in conformance with this profile.

1.1 Terminology

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in **[RFC2119]**.

Authentication Key	A secret used by self-encrypting drives to verify authenticity of the client before allowing the drive to perform sensitive operations.

1.2 Normative References

[RFC2119] Bradner, S., “Key words for use in RFCs to Indicate Requirement Levels”, BCP 14, RFC 2119, March 1997. http://www.ietf.org/rfc/rfc2119.txt.

[KMIP-ENCODE] *KMIP Additional Message Encodings Version 1.0.* Edited by Tim Hudson. Latest version: http://docs.oasis-open.org/kmip/kmip-addtl-msg-enc/v1.0/kmip-addtl-msg-enc-v1.0.doc.

[KMIP-SPEC] One or more of [KMIP-SPEC-1_0], [KMIP-SPEC-1_1], [KMIP-SPEC-1_2]

[KMIP-SPEC-1_0] *Key Management Interoperability Protocol Specification Version 1.0* http://docs.oasis-open.org/kmip/spec/v1.0/os/kmip-spec-1.0-os.doc OASIS Standard, October 2010.

[KMIP-SPEC-1_1] *Key Management Interoperability Protocol Specification Version 1.1.* http://docs.oasis-open.org/kmip/spec/v1.1/os/kmip-spec-v1.1-os.doc OASIS Standard. 24 January 2013.

[KMIP-SPEC-1_2] *Key Management Interoperability Protocol Specification Version 1.2*. Edited by Kiran Thota and Kelley Burgin. Latest version: http://docs.oasis-open.org/kmip/spec/v1.2/kmip-spec-v1.2.doc.

[KMIP-PROF] One or more of [KMIP-PROF-1_0], [KMIP-PROF-1_1], [KMIP-PROF-1_2]

[KMIP-PROF-1_0] *Key Management Interoperability Protocol Profiles Version 1.0.* http://docs.oasis-open.org/kmip/profiles/v1.0/os/kmip-profiles-1.0-os.doc OASIS Standard. 1 October 2010.

[KMIP-PROF-1_1] *Key Management Interoperability Protocol Profiles Version 1.1* http://docs.oasis-open.org/kmip/profiles/v1.1/os/kmip-profiles-v1.1-os.doc OASIS Standard 01. 24 January 2013.

[KMIP-PROF-1_2] *Key Management Interoperability Protocol Profiles Version 1.2*. Edited by Tim Hudson and Robert Lockhart. Latest version: http://docs.oasis-open.org/kmip/profiles/v1.2/kmip-profiles-v1.2.doc.

2 Storage Array with Self-Encrypting Drives Profile

The Storage Array with Self-Encrypting Drives Profile is a storage array containing self-encrypting drives operating as a KMIP client interacting with a KMIP server.

2.1 Authentication Suite

Implementations conformant to this profile SHALL support at least one of the Authentication Suites defined within [KMIP-PROF]. The establishment of the trust relationship between the KMIP client and the KMIP server is the same as the defined base profiles for the version of the profile supported.

2.2 Storage Array with Self-Encrypting Drives - Client

KMIP clients conformant to this profile under [KMIP-SPEC-1_0]:

1. SHALL conform to the [KMIP-SPEC-1_0]

KMIP clients conformant to this profile under [KMIP-SPEC-1_1]:

2. SHALL conform to the *Baseline Client Clause* (section 5.12) of [KMIP-PROF-1_1]

KMIP clients conformant to this profile under [KMIP-SPEC-1_2]:

3. SHALL conform to the *Baseline Client* (section 5.2) of [KMIP-PROF-1_2]

KMIP clients conformant to this profile:

4. SHOULD NOT use a C*ustom Attribute* [KMIP-SPEC] that duplicates information that is already in standard *Attributes* [KMIP-SPEC]

2.3 Storage Array with Self-Encrypting Drives - Server

KMIP servers conformant to this profile under [KMIP-SPEC-1_0]:

1. SHALL conform to the *Conformance clauses for a KMIP Server* (section 12.1) of [KMIP-SPEC-1_0]

KMIP servers conformant to this profile under [KMIP-SPEC-1_1]:

2. SHALL conform to the *Baseline Server Clause* (section 5.2) of [KMIP-PROF-1_1]

KMIP servers conformant to this profile under [KMIP-SPEC-1_2]:

3. SHALL conform to the *Baseline Server* (section 5.1) of [KMIP-PROF-1_2]

KMIP servers conformant to this profile SHALL:

4. SHALL support the following *Objects* [KMIP-SPEC]
    a. *Template* [KMIP-SPEC]
    b. *Secret Data* [KMIP-SPEC]
5. SHALL support the following *Attributes* [KMIP-SPEC]
    c. *Custom Attribute* [KMIP SPEC]
6. SHALL support the following client-to-server operations:
    d. *Register* [KMIP-SPEC]
7. SHALL support the following *Message Encoding* [KMIP-SPEC]::
    e. *Secret Data Type Enumeration* [KMIP-SPEC] value:
        i. Password
    f. *Object Type Enumeration* [KMIP-SPEC] values:
        i. Secret Data

78 ii. Template
79 g. *Name Type Enumeration* [KMIP-SPEC] value:
80 i. Uninterpreted Text String
81 8. SHALL support C*ustom Attribute* [KMIP-SPEC] with the following data types and properties:
82 h. TextString
83 9. SHALL support a minimum length of 64 characters for C*ustom Attribute* [KMIP-SPEC] and *Name*
84 [KMIP-SPEC] values where the attribute type is of variable length.
85 10. SHALL support a minimum of 10 C*ustom Attribute* [KMIP-SPEC] per managed object
86 11. SHALL support a minimum of 64 characters in C*ustom Attribute* [KMIP-SPEC] names
87 12. MAY support any clause within [KMIP-SPEC] provided it does not conflict with any other clause
88 within this section 2.2
89 13. MAY support extensions outside the scope of this standard (e.g., vendor extensions,
90 conformance clauses) that do not contradict any KMIP requirements.

3 Storage Array with Self-Encrypting Drives Test Cases

The test cases define a number of request-response pairs for KMIP operations. Each test case is provided in the XML format specified in [KMIP-ENCODE] intended to be both human-readable and usable by automated tools. The time sequence (starting from 0) for each request-response pair is noted and line numbers are provided for ease of cross-reference for a given test sequence.

Each test case has a unique label (the section name) which includes indication of mandatory (-M-) or optional (-O-) status and the protocol version major and minor numbers as part of the identifier.

The test cases may depend on a specific configuration of a KMIP client and server being configured in a manner consistent with the test case assumptions.

Where possible the flow of unique identifiers between tests, the date-time values, and other dynamic items are indicated using symbolic identifiers – in actual request and response messages these dynamic values will be filled in with valid values.

Note: the values for the returned items and the custom attributes are illustrative. Actual values from a real client system may vary as specified in section 4.7.

3.1 Mandatory Test Cases KMIP v1.0

3.1.1 SASED-M-1-10 - Configuration

Determine server configuration details including operations supported (only the mandatory operations are listed in the response example), objects supported (only the mandatory objects types are listed in the response example), and optional server information.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="0"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Query"/>
0011      <RequestPayload>
0012        <QueryFunction type="Enumeration" value="QueryOperations"/>
0013        <QueryFunction type="Enumeration" value="QueryObjects"/>
0014        <QueryFunction type="Enumeration"
      value="QueryServerInformation"/>
0015      </RequestPayload>
0016    </BatchItem>
0017  </RequestMessage>
```

```
0018  <ResponseMessage>
0019    <ResponseHeader>
0020      <ProtocolVersion>
0021        <ProtocolVersionMajor type="Integer" value="1"/>
0022        <ProtocolVersionMinor type="Integer" value="0"/>
0023      </ProtocolVersion>
0024      <TimeStamp type="DateTime" value="2013-04-25T16:53:03+00:00"/>
0025      <BatchCount type="Integer" value="1"/>
0026    </ResponseHeader>
```

```
0027    <BatchItem>
0028      <Operation type="Enumeration" value="Query"/>
0029      <ResultStatus type="Enumeration" value="Success"/>
0030      <ResponsePayload>
0031        <Operation type="Enumeration" value="Query"/>
0032        <Operation type="Enumeration" value="Locate"/>
0033        <Operation type="Enumeration" value="Destroy"/>
0034        <Operation type="Enumeration" value="Get"/>
0035        <Operation type="Enumeration" value="Register"/>
0036        <Operation type="Enumeration" value="GetAttributes"/>
0037        <Operation type="Enumeration" value="GetAttributeList"/>
0038        <Operation type="Enumeration" value="AddAttribute"/>
0039        <ObjectType type="Enumeration" value="SecretData"/>
0040        <ObjectType type="Enumeration" value="Template"/>
0041        <VendorIdentification type="TextString" value="server-
        vendor.com"/>
0042        <ServerInformation>
0043        </ServerInformation>
0044      </ResponsePayload>
0045    </BatchItem>
0046  </ResponseMessage>
```

111

112 3.1.2 SASED-M-2-10 - Register the authentication key

113 A template is created and the secret data for the authentication key is then registered. The server must
114 allow the registration of managed objects for Object Groups either by allowed arbitrary values for Object
115 Groups or by pre-configuration of specific Object Groups prior to the storage array registering the
116 authentication key. The authentication key may be a new authentication key or a replacement
117 authentication key.

118

```
        # TIME 0
0001    <RequestMessage>
0002      <RequestHeader>
0003        <ProtocolVersion>
0004          <ProtocolVersionMajor type="Integer" value="1"/>
0005          <ProtocolVersionMinor type="Integer" value="0"/>
0006        </ProtocolVersion>
0007        <BatchCount type="Integer" value="1"/>
0008      </RequestHeader>
0009      <BatchItem>
0010        <Operation type="Enumeration" value="Locate"/>
0011        <RequestPayload>
0012          <Attribute>
0013            <AttributeName type="TextString" value="Name"/>
0014            <AttributeValue>
0015              <NameValue type="TextString" value="SASED-M-2-10-
        template1"/>
0016              <NameType type="Enumeration"
        value="UninterpretedTextString"/>
0017            </AttributeValue>
0018          </Attribute>
0019          <Attribute>
0020            <AttributeName type="TextString" value="Object Type"/>
0021            <AttributeValue type="Enumeration" value="Template"/>
0022          </Attribute>
0023        </RequestPayload>
```

```
0024      </BatchItem>
0025    </RequestMessage>
0026    <ResponseMessage>
0027      <ResponseHeader>
0028        <ProtocolVersion>
0029          <ProtocolVersionMajor type="Integer" value="1"/>
0030          <ProtocolVersionMinor type="Integer" value="0"/>
0031        </ProtocolVersion>
0032        <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0033        <BatchCount type="Integer" value="1"/>
0034      </ResponseHeader>
0035      <BatchItem>
0036        <Operation type="Enumeration" value="Locate"/>
0037        <ResultStatus type="Enumeration" value="Success"/>
0038        <ResponsePayload>
0039        </ResponsePayload>
0040      </BatchItem>
0041    </ResponseMessage>
        # TIME 1
0042    <RequestMessage>
0043      <RequestHeader>
0044        <ProtocolVersion>
0045          <ProtocolVersionMajor type="Integer" value="1"/>
0046          <ProtocolVersionMinor type="Integer" value="0"/>
0047        </ProtocolVersion>
0048        <BatchCount type="Integer" value="1"/>
0049      </RequestHeader>
0050      <BatchItem>
0051        <Operation type="Enumeration" value="Register"/>
0052        <RequestPayload>
0053          <ObjectType type="Enumeration" value="Template"/>
0054          <TemplateAttribute>
0055          </TemplateAttribute>
0056          <Template>
0057            <Attribute>
0058              <AttributeName type="TextString" value="Object Group"/>
0059              <AttributeValue type="TextString" value="SASED-M-2-10-
    group"/>
0060            </Attribute>
0061            <Attribute>
0062              <AttributeName type="TextString" value="x-
    CustomAttribute1"/>
0063              <AttributeValue type="TextString" value="CustomValue1"/>
0064            </Attribute>
0065            <Attribute>
0066              <AttributeName type="TextString" value="x-
    CustomAttribute2"/>
0067              <AttributeValue type="TextString" value="CustomValue2"/>
0068            </Attribute>
0069            <Attribute>
0070              <AttributeName type="TextString" value="Name"/>
0071              <AttributeValue>
0072                <NameValue type="TextString" value="SASED-M-2-10-
    template1"/>
0073                <NameType type="Enumeration"
    value="UninterpretedTextString"/>
0074              </AttributeValue>
0075            </Attribute>
```

```
0076        </Template>
0077      </RequestPayload>
0078    </BatchItem>
0079  </RequestMessage>
0080  <ResponseMessage>
0081    <ResponseHeader>
0082      <ProtocolVersion>
0083        <ProtocolVersionMajor type="Integer" value="1"/>
0084        <ProtocolVersionMinor type="Integer" value="0"/>
0085      </ProtocolVersion>
0086      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0087      <BatchCount type="Integer" value="1"/>
0088    </ResponseHeader>
0089    <BatchItem>
0090      <Operation type="Enumeration" value="Register"/>
0091      <ResultStatus type="Enumeration" value="Success"/>
0092      <ResponsePayload>
0093        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0094      </ResponsePayload>
0095    </BatchItem>
0096  </ResponseMessage>
      # TIME 2
0097  <RequestMessage>
0098    <RequestHeader>
0099      <ProtocolVersion>
0100        <ProtocolVersionMajor type="Integer" value="1"/>
0101        <ProtocolVersionMinor type="Integer" value="0"/>
0102      </ProtocolVersion>
0103      <BatchCount type="Integer" value="1"/>
0104    </RequestHeader>
0105    <BatchItem>
0106      <Operation type="Enumeration" value="Register"/>
0107      <RequestPayload>
0108        <ObjectType type="Enumeration" value="SecretData"/>
0109        <TemplateAttribute>
0110          <Name>
0111            <NameValue type="TextString" value="SASED-M-2-10-
      template1"/>
0112            <NameType type="Enumeration"
      value="UninterpretedTextString"/>
0113          </Name>
0114          <Attribute>
0115            <AttributeName type="TextString" value="x-
      CustomAttribute3"/>
0116            <AttributeValue type="TextString" value="CustomValue3"/>
0117          </Attribute>
0118          <Attribute>
0119            <AttributeName type="TextString" value="x-
      CustomAttribute4"/>
0120            <AttributeValue type="TextString" value="CustomValue4"/>
0121          </Attribute>
0122          <Attribute>
0123            <AttributeName type="TextString" value="Name"/>
0124            <AttributeValue>
0125              <NameValue type="TextString" value="SASED-M-2-10-name"/>
0126              <NameType type="Enumeration"
      value="UninterpretedTextString"/>
```

```
0127            </AttributeValue>
0128          </Attribute>
0129        </TemplateAttribute>
0130        <SecretData>
0131          <SecretDataType type="Enumeration" value="Password"/>
0132          <KeyBlock>
0133            <KeyFormatType type="Enumeration" value="Opaque"/>
0134            <KeyValue>
0135              <KeyMaterial type="ByteString"
      value="2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a
      a2a"/>
0136            </KeyValue>
0137          </KeyBlock>
0138        </SecretData>
0139      </RequestPayload>
0140    </BatchItem>
0141  </RequestMessage>
```

```
0142  <ResponseMessage>
0143    <ResponseHeader>
0144      <ProtocolVersion>
0145        <ProtocolVersionMajor type="Integer" value="1"/>
0146        <ProtocolVersionMinor type="Integer" value="0"/>
0147      </ProtocolVersion>
0148      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0149      <BatchCount type="Integer" value="1"/>
0150    </ResponseHeader>
0151    <BatchItem>
0152      <Operation type="Enumeration" value="Register"/>
0153      <ResultStatus type="Enumeration" value="Success"/>
0154      <ResponsePayload>
0155        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_1"/>
0156      </ResponsePayload>
0157    </BatchItem>
0158  </ResponseMessage>
```

119

120 3.1.3 SASED-M-3-10 - Retrieve Authentication Key

121 Locate and retrieve the previously registered authentication key and finally destroy both the
122 authentication key and the template.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="0"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Locate"/>
0011      <RequestPayload>
0012        <Attribute>
0013          <AttributeName type="TextString" value="Object Group"/>
0014          <AttributeValue type="TextString" value="SASED-M-2-10-
      group"/>
```

```
0015        </Attribute>
0016        <Attribute>
0017          <AttributeName type="TextString" value="Object Type"/>
0018          <AttributeValue type="Enumeration" value="SecretData"/>
0019        </Attribute>
0020      </RequestPayload>
0021    </BatchItem>
0022  </RequestMessage>
```

```
0023  <ResponseMessage>
0024    <ResponseHeader>
0025      <ProtocolVersion>
0026        <ProtocolVersionMajor type="Integer" value="1"/>
0027        <ProtocolVersionMinor type="Integer" value="0"/>
0028      </ProtocolVersion>
0029      <TimeStamp type="DateTime" value="2013-04-25T16:53:13+00:00"/>
0030      <BatchCount type="Integer" value="1"/>
0031    </ResponseHeader>
0032    <BatchItem>
0033      <Operation type="Enumeration" value="Locate"/>
0034      <ResultStatus type="Enumeration" value="Success"/>
0035      <ResponsePayload>
0036        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0037      </ResponsePayload>
0038    </BatchItem>
0039  </ResponseMessage>
```

```
      # TIME 1
0040  <RequestMessage>
0041    <RequestHeader>
0042      <ProtocolVersion>
0043        <ProtocolVersionMajor type="Integer" value="1"/>
0044        <ProtocolVersionMinor type="Integer" value="0"/>
0045      </ProtocolVersion>
0046      <BatchCount type="Integer" value="1"/>
0047    </RequestHeader>
0048    <BatchItem>
0049      <Operation type="Enumeration" value="GetAttributes"/>
0050      <RequestPayload>
0051        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0052        <AttributeName type="TextString" value="x-CustomAttribute4"/>
0053      </RequestPayload>
0054    </BatchItem>
0055  </RequestMessage>
```

```
0056  <ResponseMessage>
0057    <ResponseHeader>
0058      <ProtocolVersion>
0059        <ProtocolVersionMajor type="Integer" value="1"/>
0060        <ProtocolVersionMinor type="Integer" value="0"/>
0061      </ProtocolVersion>
0062      <TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0063      <BatchCount type="Integer" value="1"/>
0064    </ResponseHeader>
0065    <BatchItem>
0066      <Operation type="Enumeration" value="GetAttributes"/>
0067      <ResultStatus type="Enumeration" value="Success"/>
0068      <ResponsePayload>
0069        <UniqueIdentifier type="TextString"
```

```
      value="$UNIQUE_IDENTIFIER_0"/>
0070        <Attribute>
0071          <AttributeName type="TextString" value="x-
      CustomAttribute4"/>
0072          <AttributeValue type="TextString" value="CustomValue4"/>
0073        </Attribute>
0074      </ResponsePayload>
0075    </BatchItem>
0076  </ResponseMessage>
```

```
      # TIME 2
0077  <RequestMessage>
0078    <RequestHeader>
0079      <ProtocolVersion>
0080        <ProtocolVersionMajor type="Integer" value="1"/>
0081        <ProtocolVersionMinor type="Integer" value="0"/>
0082      </ProtocolVersion>
0083      <BatchCount type="Integer" value="1"/>
0084    </RequestHeader>
0085    <BatchItem>
0086      <Operation type="Enumeration" value="GetAttributes"/>
0087      <RequestPayload>
0088        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0089        <AttributeName type="TextString" value="x-CustomAttribute3"/>
0090      </RequestPayload>
0091    </BatchItem>
0092  </RequestMessage>
```

```
0093  <ResponseMessage>
0094    <ResponseHeader>
0095      <ProtocolVersion>
0096        <ProtocolVersionMajor type="Integer" value="1"/>
0097        <ProtocolVersionMinor type="Integer" value="0"/>
0098      </ProtocolVersion>
0099      <TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0100      <BatchCount type="Integer" value="1"/>
0101    </ResponseHeader>
0102    <BatchItem>
0103      <Operation type="Enumeration" value="GetAttributes"/>
0104      <ResultStatus type="Enumeration" value="Success"/>
0105      <ResponsePayload>
0106        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0107        <Attribute>
0108          <AttributeName type="TextString" value="x-
      CustomAttribute3"/>
0109          <AttributeValue type="TextString" value="CustomValue3"/>
0110        </Attribute>
0111      </ResponsePayload>
0112    </BatchItem>
0113  </ResponseMessage>
```

```
      # TIME 3
0114  <RequestMessage>
0115    <RequestHeader>
0116      <ProtocolVersion>
0117        <ProtocolVersionMajor type="Integer" value="1"/>
0118        <ProtocolVersionMinor type="Integer" value="0"/>
0119      </ProtocolVersion>
0120      <BatchCount type="Integer" value="1"/>
```

```
0121      </RequestHeader>
0122      <BatchItem>
0123        <Operation type="Enumeration" value="Get"/>
0124        <RequestPayload>
0125          <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0126        </RequestPayload>
0127      </BatchItem>
0128    </RequestMessage>
0129    <ResponseMessage>
0130      <ResponseHeader>
0131        <ProtocolVersion>
0132          <ProtocolVersionMajor type="Integer" value="1"/>
0133          <ProtocolVersionMinor type="Integer" value="0"/>
0134        </ProtocolVersion>
0135        <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0136        <BatchCount type="Integer" value="1"/>
0137      </ResponseHeader>
0138      <BatchItem>
0139        <Operation type="Enumeration" value="Get"/>
0140        <ResultStatus type="Enumeration" value="Success"/>
0141        <ResponsePayload>
0142          <ObjectType type="Enumeration" value="SecretData"/>
0143          <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0144          <SecretData>
0145            <SecretDataType type="Enumeration" value="Password"/>
0146            <KeyBlock>
0147              <KeyFormatType type="Enumeration" value="Opaque"/>
0148              <KeyValue>
0149                <KeyMaterial type="ByteString"
          value="2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a"/>
0150              </KeyValue>
0151            </KeyBlock>
0152          </SecretData>
0153        </ResponsePayload>
0154      </BatchItem>
0155    </ResponseMessage>
          # TIME 4
0156    <RequestMessage>
0157      <RequestHeader>
0158        <ProtocolVersion>
0159          <ProtocolVersionMajor type="Integer" value="1"/>
0160          <ProtocolVersionMinor type="Integer" value="0"/>
0161        </ProtocolVersion>
0162        <BatchCount type="Integer" value="1"/>
0163      </RequestHeader>
0164      <BatchItem>
0165        <Operation type="Enumeration" value="Destroy"/>
0166        <RequestPayload>
0167          <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0168        </RequestPayload>
0169      </BatchItem>
0170    </RequestMessage>
0171    <ResponseMessage>
0172      <ResponseHeader>
```

```
0173      <ProtocolVersion>
0174        <ProtocolVersionMajor type="Integer" value="1"/>
0175        <ProtocolVersionMinor type="Integer" value="0"/>
0176      </ProtocolVersion>
0177      <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0178      <BatchCount type="Integer" value="1"/>
0179    </ResponseHeader>
0180    <BatchItem>
0181      <Operation type="Enumeration" value="Destroy"/>
0182      <ResultStatus type="Enumeration" value="Success"/>
0183      <ResponsePayload>
0184        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0185      </ResponsePayload>
0186    </BatchItem>
0187  </ResponseMessage>
```

```
      # TIME 5
0188  <RequestMessage>
0189    <RequestHeader>
0190      <ProtocolVersion>
0191        <ProtocolVersionMajor type="Integer" value="1"/>
0192        <ProtocolVersionMinor type="Integer" value="0"/>
0193      </ProtocolVersion>
0194      <BatchCount type="Integer" value="1"/>
0195    </RequestHeader>
0196    <BatchItem>
0197      <Operation type="Enumeration" value="Locate"/>
0198      <RequestPayload>
0199        <Attribute>
0200          <AttributeName type="TextString" value="Name"/>
0201          <AttributeValue>
0202            <NameValue type="TextString" value="SASED-M-2-10-
      template1"/>
0203            <NameType type="Enumeration"
      value="UninterpretedTextString"/>
0204          </AttributeValue>
0205        </Attribute>
0206        <Attribute>
0207          <AttributeName type="TextString" value="Object Type"/>
0208          <AttributeValue type="Enumeration" value="Template"/>
0209        </Attribute>
0210      </RequestPayload>
0211    </BatchItem>
0212  </RequestMessage>
```

```
0213  <ResponseMessage>
0214    <ResponseHeader>
0215      <ProtocolVersion>
0216        <ProtocolVersionMajor type="Integer" value="1"/>
0217        <ProtocolVersionMinor type="Integer" value="0"/>
0218      </ProtocolVersion>
0219      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0220      <BatchCount type="Integer" value="1"/>
0221    </ResponseHeader>
0222    <BatchItem>
0223      <Operation type="Enumeration" value="Locate"/>
0224      <ResultStatus type="Enumeration" value="Success"/>
0225      <ResponsePayload>
0226        <UniqueIdentifier type="TextString"
```

```
      value="$UNIQUE_IDENTIFIER_1"/>
0227      </ResponsePayload>
0228    </BatchItem>
0229  </ResponseMessage>
```

```
      # TIME 6
0230  <RequestMessage>
0231    <RequestHeader>
0232      <ProtocolVersion>
0233        <ProtocolVersionMajor type="Integer" value="1"/>
0234        <ProtocolVersionMinor type="Integer" value="0"/>
0235      </ProtocolVersion>
0236      <BatchCount type="Integer" value="1"/>
0237    </RequestHeader>
0238    <BatchItem>
0239      <Operation type="Enumeration" value="Destroy"/>
0240      <RequestPayload>
0241        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_1"/>
0242      </RequestPayload>
0243    </BatchItem>
0244  </RequestMessage>
```

```
0245  <ResponseMessage>
0246    <ResponseHeader>
0247      <ProtocolVersion>
0248        <ProtocolVersionMajor type="Integer" value="1"/>
0249        <ProtocolVersionMinor type="Integer" value="0"/>
0250      </ProtocolVersion>
0251      <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0252      <BatchCount type="Integer" value="1"/>
0253    </ResponseHeader>
0254    <BatchItem>
0255      <Operation type="Enumeration" value="Destroy"/>
0256      <ResultStatus type="Enumeration" value="Success"/>
0257      <ResponsePayload>
0258        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_1"/>
0259      </ResponsePayload>
0260    </BatchItem>
0261  </ResponseMessage>
```

123

124 3.2 Mandatory Test Cases KMIP v1.1

125 3.2.1 SASED-M-1-11 - Configuration

126 Determine server configuration details including operations supported (only the mandatory operations are
127 listed in the response example), objects supported (only the mandatory objects types are listed in the
128 response example), and optional server information.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="1"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
```

```
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Query"/>
0011      <RequestPayload>
0012        <QueryFunction type="Enumeration" value="QueryOperations"/>
0013        <QueryFunction type="Enumeration" value="QueryObjects"/>
0014        <QueryFunction type="Enumeration"
          value="QueryServerInformation"/>
0015      </RequestPayload>
0016    </BatchItem>
0017  </RequestMessage>
```

```
0018  <ResponseMessage>
0019    <ResponseHeader>
0020      <ProtocolVersion>
0021        <ProtocolVersionMajor type="Integer" value="1"/>
0022        <ProtocolVersionMinor type="Integer" value="1"/>
0023      </ProtocolVersion>
0024      <TimeStamp type="DateTime" value="2013-04-25T16:53:03+00:00"/>
0025      <BatchCount type="Integer" value="1"/>
0026    </ResponseHeader>
0027    <BatchItem>
0028      <Operation type="Enumeration" value="Query"/>
0029      <ResultStatus type="Enumeration" value="Success"/>
0030      <ResponsePayload>
0031        <Operation type="Enumeration" value="Query"/>
0032        <Operation type="Enumeration" value="Locate"/>
0033        <Operation type="Enumeration" value="Destroy"/>
0034        <Operation type="Enumeration" value="Get"/>
0035        <Operation type="Enumeration" value="Register"/>
0036        <Operation type="Enumeration" value="GetAttributes"/>
0037        <Operation type="Enumeration" value="GetAttributeList"/>
0038        <Operation type="Enumeration" value="AddAttribute"/>
0039        <ObjectType type="Enumeration" value="SecretData"/>
0040        <ObjectType type="Enumeration" value="Template"/>
0041        <VendorIdentification type="TextString" value="server-
          vendor.com"/>
0042        <ServerInformation>
0043        </ServerInformation>
0044      </ResponsePayload>
0045    </BatchItem>
0046  </ResponseMessage>
```

129

130 3.2.2 SASED-M-2-11 - Register the authentication key

131 A template is created and the secret data for the authentication key is then registered. The server must
132 allow the registration of managed objects for Object Groups either by allowed arbitrary values for Object
133 Groups or by pre-configuration of specific Object Groups prior to the storage array registering the
134 authentication key. The authentication key may be a new authentication key or a replacement
135 authentication key.

136

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="1"/>
```

```
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Locate"/>
0011      <RequestPayload>
0012        <Attribute>
0013          <AttributeName type="TextString" value="Name"/>
0014          <AttributeValue>
0015            <NameValue type="TextString" value="SASED-M-2-11-
    template1"/>
0016            <NameType type="Enumeration"
    value="UninterpretedTextString"/>
0017          </AttributeValue>
0018        </Attribute>
0019        <Attribute>
0020          <AttributeName type="TextString" value="Object Type"/>
0021          <AttributeValue type="Enumeration" value="Template"/>
0022        </Attribute>
0023      </RequestPayload>
0024    </BatchItem>
0025  </RequestMessage>
```

```
0026  <ResponseMessage>
0027    <ResponseHeader>
0028      <ProtocolVersion>
0029        <ProtocolVersionMajor type="Integer" value="1"/>
0030        <ProtocolVersionMinor type="Integer" value="1"/>
0031      </ProtocolVersion>
0032      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0033      <BatchCount type="Integer" value="1"/>
0034    </ResponseHeader>
0035    <BatchItem>
0036      <Operation type="Enumeration" value="Locate"/>
0037      <ResultStatus type="Enumeration" value="Success"/>
0038      <ResponsePayload>
0039      </ResponsePayload>
0040    </BatchItem>
0041  </ResponseMessage>
```

```
      # TIME 1
0042  <RequestMessage>
0043    <RequestHeader>
0044      <ProtocolVersion>
0045        <ProtocolVersionMajor type="Integer" value="1"/>
0046        <ProtocolVersionMinor type="Integer" value="1"/>
0047      </ProtocolVersion>
0048      <BatchCount type="Integer" value="1"/>
0049    </RequestHeader>
0050    <BatchItem>
0051      <Operation type="Enumeration" value="Register"/>
0052      <RequestPayload>
0053        <ObjectType type="Enumeration" value="Template"/>
0054        <TemplateAttribute>
0055        </TemplateAttribute>
0056        <Template>
0057          <Attribute>
0058            <AttributeName type="TextString" value="Object Group"/>
0059            <AttributeValue type="TextString" value="SASED-M-2-11-
    group"/>
```

```
0060          </Attribute>
0061          <Attribute>
0062            <AttributeName type="TextString" value="x-
      CustomAttribute1"/>
0063            <AttributeValue type="TextString" value="CustomValue1"/>
0064          </Attribute>
0065          <Attribute>
0066            <AttributeName type="TextString" value="x-
      CustomAttribute2"/>
0067            <AttributeValue type="TextString" value="CustomValue2"/>
0068          </Attribute>
0069          <Attribute>
0070            <AttributeName type="TextString" value="Name"/>
0071            <AttributeValue>
0072              <NameValue type="TextString" value="SASED-M-2-11-
      template1"/>
0073              <NameType type="Enumeration"
      value="UninterpretedTextString"/>
0074            </AttributeValue>
0075          </Attribute>
0076        </Template>
0077      </RequestPayload>
0078    </BatchItem>
0079  </RequestMessage>
```

```
0080  <ResponseMessage>
0081    <ResponseHeader>
0082      <ProtocolVersion>
0083        <ProtocolVersionMajor type="Integer" value="1"/>
0084        <ProtocolVersionMinor type="Integer" value="1"/>
0085      </ProtocolVersion>
0086      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0087      <BatchCount type="Integer" value="1"/>
0088    </ResponseHeader>
0089    <BatchItem>
0090      <Operation type="Enumeration" value="Register"/>
0091      <ResultStatus type="Enumeration" value="Success"/>
0092      <ResponsePayload>
0093        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0094      </ResponsePayload>
0095    </BatchItem>
0096  </ResponseMessage>
```

```
      # TIME 2
0097  <RequestMessage>
0098    <RequestHeader>
0099      <ProtocolVersion>
0100        <ProtocolVersionMajor type="Integer" value="1"/>
0101        <ProtocolVersionMinor type="Integer" value="1"/>
0102      </ProtocolVersion>
0103      <BatchCount type="Integer" value="1"/>
0104    </RequestHeader>
0105    <BatchItem>
0106      <Operation type="Enumeration" value="Register"/>
0107      <RequestPayload>
0108        <ObjectType type="Enumeration" value="SecretData"/>
0109        <TemplateAttribute>
0110          <Name>
0111            <NameValue type="TextString" value="SASED-M-2-11-
```

```
template1"/>
0112            <NameType type="Enumeration"
value="UninterpretedTextString"/>
0113          </Name>
0114          <Attribute>
0115            <AttributeName type="TextString" value="x-
CustomAttribute3"/>
0116            <AttributeValue type="TextString" value="CustomValue3"/>
0117          </Attribute>
0118          <Attribute>
0119            <AttributeName type="TextString" value="x-
CustomAttribute4"/>
0120            <AttributeValue type="TextString" value="CustomValue4"/>
0121          </Attribute>
0122          <Attribute>
0123            <AttributeName type="TextString" value="Name"/>
0124            <AttributeValue>
0125              <NameValue type="TextString" value="SASED-M-2-11-name"/>
0126              <NameType type="Enumeration"
value="UninterpretedTextString"/>
0127            </AttributeValue>
0128          </Attribute>
0129        </TemplateAttribute>
0130        <SecretData>
0131          <SecretDataType type="Enumeration" value="Password"/>
0132          <KeyBlock>
0133            <KeyFormatType type="Enumeration" value="Opaque"/>
0134            <KeyValue>
0135              <KeyMaterial type="ByteString"
value="2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a"/>
0136            </KeyValue>
0137          </KeyBlock>
0138        </SecretData>
0139      </RequestPayload>
0140    </BatchItem>
0141  </RequestMessage>
0142  <ResponseMessage>
0143    <ResponseHeader>
0144      <ProtocolVersion>
0145        <ProtocolVersionMajor type="Integer" value="1"/>
0146        <ProtocolVersionMinor type="Integer" value="1"/>
0147      </ProtocolVersion>
0148      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0149      <BatchCount type="Integer" value="1"/>
0150    </ResponseHeader>
0151    <BatchItem>
0152      <Operation type="Enumeration" value="Register"/>
0153      <ResultStatus type="Enumeration" value="Success"/>
0154      <ResponsePayload>
0155        <UniqueIdentifier type="TextString"
value="$UNIQUE_IDENTIFIER_1"/>
0156      </ResponsePayload>
0157    </BatchItem>
0158  </ResponseMessage>
```

137

3.2.3 SASED-M-3-11 - Retrieve Authentication Key

Locate and retrieve the previously registered authentication key and finally destroy both the authentication key and the template.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="1"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Locate"/>
0011      <RequestPayload>
0012        <Attribute>
0013          <AttributeName type="TextString" value="Object Group"/>
0014          <AttributeValue type="TextString" value="SASED-M-2-11-
      group"/>
0015        </Attribute>
0016        <Attribute>
0017          <AttributeName type="TextString" value="Object Type"/>
0018          <AttributeValue type="Enumeration" value="SecretData"/>
0019        </Attribute>
0020      </RequestPayload>
0021    </BatchItem>
0022  </RequestMessage>
0023  <ResponseMessage>
0024    <ResponseHeader>
0025      <ProtocolVersion>
0026        <ProtocolVersionMajor type="Integer" value="1"/>
0027        <ProtocolVersionMinor type="Integer" value="1"/>
0028      </ProtocolVersion>
0029      <TimeStamp type="DateTime" value="2013-04-25T16:53:13+00:00"/>
0030      <BatchCount type="Integer" value="1"/>
0031    </ResponseHeader>
0032    <BatchItem>
0033      <Operation type="Enumeration" value="Locate"/>
0034      <ResultStatus type="Enumeration" value="Success"/>
0035      <ResponsePayload>
0036        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0037      </ResponsePayload>
0038    </BatchItem>
0039  </ResponseMessage>
      # TIME 1
0040  <RequestMessage>
0041    <RequestHeader>
0042      <ProtocolVersion>
0043        <ProtocolVersionMajor type="Integer" value="1"/>
0044        <ProtocolVersionMinor type="Integer" value="1"/>
0045      </ProtocolVersion>
0046      <BatchCount type="Integer" value="1"/>
0047    </RequestHeader>
0048    <BatchItem>
0049      <Operation type="Enumeration" value="GetAttributes"/>
```

```
0050      <RequestPayload>
0051        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0052        <AttributeName type="TextString" value="x-CustomAttribute4"/>
0053      </RequestPayload>
0054    </BatchItem>
0055  </RequestMessage>
```

```
0056  <ResponseMessage>
0057    <ResponseHeader>
0058      <ProtocolVersion>
0059        <ProtocolVersionMajor type="Integer" value="1"/>
0060        <ProtocolVersionMinor type="Integer" value="1"/>
0061      </ProtocolVersion>
0062      <TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0063      <BatchCount type="Integer" value="1"/>
0064    </ResponseHeader>
0065    <BatchItem>
0066      <Operation type="Enumeration" value="GetAttributes"/>
0067      <ResultStatus type="Enumeration" value="Success"/>
0068      <ResponsePayload>
0069        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0070        <Attribute>
0071          <AttributeName type="TextString" value="x-
          CustomAttribute4"/>
0072          <AttributeValue type="TextString" value="CustomValue4"/>
0073        </Attribute>
0074      </ResponsePayload>
0075    </BatchItem>
0076  </ResponseMessage>
```

```
      # TIME 2
0077  <RequestMessage>
0078    <RequestHeader>
0079      <ProtocolVersion>
0080        <ProtocolVersionMajor type="Integer" value="1"/>
0081        <ProtocolVersionMinor type="Integer" value="1"/>
0082      </ProtocolVersion>
0083      <BatchCount type="Integer" value="1"/>
0084    </RequestHeader>
0085    <BatchItem>
0086      <Operation type="Enumeration" value="GetAttributes"/>
0087      <RequestPayload>
0088        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0089        <AttributeName type="TextString" value="x-CustomAttribute3"/>
0090      </RequestPayload>
0091    </BatchItem>
0092  </RequestMessage>
```

```
0093  <ResponseMessage>
0094    <ResponseHeader>
0095      <ProtocolVersion>
0096        <ProtocolVersionMajor type="Integer" value="1"/>
0097        <ProtocolVersionMinor type="Integer" value="1"/>
0098      </ProtocolVersion>
0099      <TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0100      <BatchCount type="Integer" value="1"/>
0101    </ResponseHeader>
0102    <BatchItem>
```

```
0103      <Operation type="Enumeration" value="GetAttributes"/>
0104      <ResultStatus type="Enumeration" value="Success"/>
0105      <ResponsePayload>
0106        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0107        <Attribute>
0108          <AttributeName type="TextString" value="x-
          CustomAttribute3"/>
0109          <AttributeValue type="TextString" value="CustomValue3"/>
0110        </Attribute>
0111      </ResponsePayload>
0112    </BatchItem>
0113  </ResponseMessage>
```

```
          # TIME 3
0114  <RequestMessage>
0115    <RequestHeader>
0116      <ProtocolVersion>
0117        <ProtocolVersionMajor type="Integer" value="1"/>
0118        <ProtocolVersionMinor type="Integer" value="1"/>
0119      </ProtocolVersion>
0120      <BatchCount type="Integer" value="1"/>
0121    </RequestHeader>
0122    <BatchItem>
0123      <Operation type="Enumeration" value="Get"/>
0124      <RequestPayload>
0125        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0126      </RequestPayload>
0127    </BatchItem>
0128  </RequestMessage>
```

```
0129  <ResponseMessage>
0130    <ResponseHeader>
0131      <ProtocolVersion>
0132        <ProtocolVersionMajor type="Integer" value="1"/>
0133        <ProtocolVersionMinor type="Integer" value="1"/>
0134      </ProtocolVersion>
0135      <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0136      <BatchCount type="Integer" value="1"/>
0137    </ResponseHeader>
0138    <BatchItem>
0139      <Operation type="Enumeration" value="Get"/>
0140      <ResultStatus type="Enumeration" value="Success"/>
0141      <ResponsePayload>
0142        <ObjectType type="Enumeration" value="SecretData"/>
0143        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0144        <SecretData>
0145          <SecretDataType type="Enumeration" value="Password"/>
0146          <KeyBlock>
0147            <KeyFormatType type="Enumeration" value="Opaque"/>
0148            <KeyValue>
0149              <KeyMaterial type="ByteString"
          value="2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a"/>
0150            </KeyValue>
0151          </KeyBlock>
0152        </SecretData>
0153      </ResponsePayload>
```

```
0154      </BatchItem>
0155    </ResponseMessage>
        # TIME 4
0156    <RequestMessage>
0157      <RequestHeader>
0158        <ProtocolVersion>
0159          <ProtocolVersionMajor type="Integer" value="1"/>
0160          <ProtocolVersionMinor type="Integer" value="1"/>
0161        </ProtocolVersion>
0162        <BatchCount type="Integer" value="1"/>
0163      </RequestHeader>
0164      <BatchItem>
0165        <Operation type="Enumeration" value="Destroy"/>
0166        <RequestPayload>
0167          <UniqueIdentifier type="TextString"
        value="$UNIQUE_IDENTIFIER_0"/>
0168        </RequestPayload>
0169      </BatchItem>
0170    </RequestMessage>
0171    <ResponseMessage>
0172      <ResponseHeader>
0173        <ProtocolVersion>
0174          <ProtocolVersionMajor type="Integer" value="1"/>
0175          <ProtocolVersionMinor type="Integer" value="1"/>
0176        </ProtocolVersion>
0177        <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0178        <BatchCount type="Integer" value="1"/>
0179      </ResponseHeader>
0180      <BatchItem>
0181        <Operation type="Enumeration" value="Destroy"/>
0182        <ResultStatus type="Enumeration" value="Success"/>
0183        <ResponsePayload>
0184          <UniqueIdentifier type="TextString"
        value="$UNIQUE_IDENTIFIER_0"/>
0185        </ResponsePayload>
0186      </BatchItem>
0187    </ResponseMessage>
        # TIME 5
0188    <RequestMessage>
0189      <RequestHeader>
0190        <ProtocolVersion>
0191          <ProtocolVersionMajor type="Integer" value="1"/>
0192          <ProtocolVersionMinor type="Integer" value="1"/>
0193        </ProtocolVersion>
0194        <BatchCount type="Integer" value="1"/>
0195      </RequestHeader>
0196      <BatchItem>
0197        <Operation type="Enumeration" value="Locate"/>
0198        <RequestPayload>
0199          <Attribute>
0200            <AttributeName type="TextString" value="Name"/>
0201            <AttributeValue>
0202              <NameValue type="TextString" value="SASED-M-2-11-
        template1"/>
0203              <NameType type="Enumeration"
        value="UninterpretedTextString"/>
0204            </AttributeValue>
0205          </Attribute>
```

```
      <Attribute>
        <AttributeName type="TextString" value="Object Type"/>
        <AttributeValue type="Enumeration" value="Template"/>
      </Attribute>
    </RequestPayload>
  </BatchItem>
</RequestMessage>
```

```
<ResponseMessage>
  <ResponseHeader>
    <ProtocolVersion>
      <ProtocolVersionMajor type="Integer" value="1"/>
      <ProtocolVersionMinor type="Integer" value="1"/>
    </ProtocolVersion>
    <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
    <BatchCount type="Integer" value="1"/>
  </ResponseHeader>
  <BatchItem>
    <Operation type="Enumeration" value="Locate"/>
    <ResultStatus type="Enumeration" value="Success"/>
    <ResponsePayload>
      <UniqueIdentifier type="TextString"
value="$UNIQUE_IDENTIFIER_1"/>
    </ResponsePayload>
  </BatchItem>
</ResponseMessage>
```

```
# TIME 6
<RequestMessage>
  <RequestHeader>
    <ProtocolVersion>
      <ProtocolVersionMajor type="Integer" value="1"/>
      <ProtocolVersionMinor type="Integer" value="1"/>
    </ProtocolVersion>
    <BatchCount type="Integer" value="1"/>
  </RequestHeader>
  <BatchItem>
    <Operation type="Enumeration" value="Destroy"/>
    <RequestPayload>
      <UniqueIdentifier type="TextString"
value="$UNIQUE_IDENTIFIER_1"/>
    </RequestPayload>
  </BatchItem>
</RequestMessage>
```

```
<ResponseMessage>
  <ResponseHeader>
    <ProtocolVersion>
      <ProtocolVersionMajor type="Integer" value="1"/>
      <ProtocolVersionMinor type="Integer" value="1"/>
    </ProtocolVersion>
    <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
    <BatchCount type="Integer" value="1"/>
  </ResponseHeader>
  <BatchItem>
    <Operation type="Enumeration" value="Destroy"/>
    <ResultStatus type="Enumeration" value="Success"/>
    <ResponsePayload>
      <UniqueIdentifier type="TextString"
value="$UNIQUE_IDENTIFIER_1"/>
    </ResponsePayload>
```

```
0260      </BatchItem>
0261    </ResponseMessage>
```

141

142 3.3 Mandatory Test Cases KMIP v1.2

143 3.3.1 SASED-M-1-12 - Configuration

144 Determine server configuration details including operations supported (only the mandatory operations are
145 listed in the response example), objects supported (only the mandatory objects types are listed in the
146 response example), and optional server information.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="2"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Query"/>
0011      <RequestPayload>
0012        <QueryFunction type="Enumeration" value="QueryOperations"/>
0013        <QueryFunction type="Enumeration" value="QueryObjects"/>
0014        <QueryFunction type="Enumeration"
      value="QueryServerInformation"/>
0015      </RequestPayload>
0016    </BatchItem>
0017  </RequestMessage>
```

```
0018  <ResponseMessage>
0019    <ResponseHeader>
0020      <ProtocolVersion>
0021        <ProtocolVersionMajor type="Integer" value="1"/>
0022        <ProtocolVersionMinor type="Integer" value="2"/>
0023      </ProtocolVersion>
0024      <TimeStamp type="DateTime" value="2013-04-25T16:53:03+00:00"/>
0025      <BatchCount type="Integer" value="1"/>
0026    </ResponseHeader>
0027    <BatchItem>
0028      <Operation type="Enumeration" value="Query"/>
0029      <ResultStatus type="Enumeration" value="Success"/>
0030      <ResponsePayload>
0031        <Operation type="Enumeration" value="Query"/>
0032        <Operation type="Enumeration" value="Locate"/>
0033        <Operation type="Enumeration" value="Destroy"/>
0034        <Operation type="Enumeration" value="Get"/>
0035        <Operation type="Enumeration" value="Register"/>
0036        <Operation type="Enumeration" value="GetAttributes"/>
0037        <Operation type="Enumeration" value="GetAttributeList"/>
0038        <Operation type="Enumeration" value="AddAttribute"/>
0039        <ObjectType type="Enumeration" value="SecretData"/>
0040        <ObjectType type="Enumeration" value="Template"/>
0041        <VendorIdentification type="TextString" value="server-
      vendor.com"/>
0042        <ServerInformation>
0043        </ServerInformation>
```

```
0044      </ResponsePayload>
0045    </BatchItem>
0046  </ResponseMessage>
```

147

148 3.3.2 SASED-M-2-12 - Register the authentication key

149 A template is created and the secret data for the authentication key is then registered. The server must
150 allow the registration of managed objects for Object Groups either by allowed arbitrary values for Object
151 Groups or by pre-configuration of specific Object Groups prior to the storage array registering the
152 authentication key. The authentication key may be a new authentication key or a replacement
153 authentication key.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="2"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Locate"/>
0011      <RequestPayload>
0012        <Attribute>
0013          <AttributeName type="TextString" value="Name"/>
0014          <AttributeValue>
0015            <NameValue type="TextString" value="SASED-M-2-12-
      template1"/>
0016            <NameType type="Enumeration"
      value="UninterpretedTextString"/>
0017          </AttributeValue>
0018        </Attribute>
0019        <Attribute>
0020          <AttributeName type="TextString" value="Object Type"/>
0021          <AttributeValue type="Enumeration" value="Template"/>
0022        </Attribute>
0023      </RequestPayload>
0024    </BatchItem>
0025  </RequestMessage>
0026  <ResponseMessage>
0027    <ResponseHeader>
0028      <ProtocolVersion>
0029        <ProtocolVersionMajor type="Integer" value="1"/>
0030        <ProtocolVersionMinor type="Integer" value="2"/>
0031      </ProtocolVersion>
0032      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0033      <BatchCount type="Integer" value="1"/>
0034    </ResponseHeader>
0035    <BatchItem>
0036      <Operation type="Enumeration" value="Locate"/>
0037      <ResultStatus type="Enumeration" value="Success"/>
0038      <ResponsePayload>
0039      </ResponsePayload>
0040    </BatchItem>
0041  </ResponseMessage>
      # TIME 1
```

```
0042 <RequestMessage>
0043   <RequestHeader>
0044     <ProtocolVersion>
0045       <ProtocolVersionMajor type="Integer" value="1"/>
0046       <ProtocolVersionMinor type="Integer" value="2"/>
0047     </ProtocolVersion>
0048     <BatchCount type="Integer" value="1"/>
0049   </RequestHeader>
0050   <BatchItem>
0051     <Operation type="Enumeration" value="Register"/>
0052     <RequestPayload>
0053       <ObjectType type="Enumeration" value="Template"/>
0054       <TemplateAttribute>
0055         <Attribute>
0056           <AttributeName type="TextString" value="Name"/>
0057           <AttributeValue>
0058             <NameValue type="TextString" value="SASED-M-2-12-
      template1"/>
0059             <NameType type="Enumeration"
      value="UninterpretedTextString"/>
0060           </AttributeValue>
0061         </Attribute>
0062       </TemplateAttribute>
0063       <Template>
0064         <Attribute>
0065           <AttributeName type="TextString" value="Object Group"/>
0066           <AttributeValue type="TextString" value="SASED-M-2-12-
      group"/>
0067         </Attribute>
0068         <Attribute>
0069           <AttributeName type="TextString" value="x-
      CustomAttribute1"/>
0070           <AttributeValue type="TextString" value="CustomValue1"/>
0071         </Attribute>
0072         <Attribute>
0073           <AttributeName type="TextString" value="x-
      CustomAttribute2"/>
0074           <AttributeValue type="TextString" value="CustomValue2"/>
0075         </Attribute>
0076       </Template>
0077     </RequestPayload>
0078   </BatchItem>
0079 </RequestMessage>
```

```
0080 <ResponseMessage>
0081   <ResponseHeader>
0082     <ProtocolVersion>
0083       <ProtocolVersionMajor type="Integer" value="1"/>
0084       <ProtocolVersionMinor type="Integer" value="2"/>
0085     </ProtocolVersion>
0086     <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0087     <BatchCount type="Integer" value="1"/>
0088   </ResponseHeader>
0089   <BatchItem>
0090     <Operation type="Enumeration" value="Register"/>
0091     <ResultStatus type="Enumeration" value="Success"/>
0092     <ResponsePayload>
0093       <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
```

```
0094        </ResponsePayload>
0095      </BatchItem>
0096    </ResponseMessage>
```

```
        # TIME 2
0097    <RequestMessage>
0098      <RequestHeader>
0099        <ProtocolVersion>
0100          <ProtocolVersionMajor type="Integer" value="1"/>
0101          <ProtocolVersionMinor type="Integer" value="2"/>
0102        </ProtocolVersion>
0103        <BatchCount type="Integer" value="1"/>
0104      </RequestHeader>
0105      <BatchItem>
0106        <Operation type="Enumeration" value="Register"/>
0107        <RequestPayload>
0108          <ObjectType type="Enumeration" value="SecretData"/>
0109          <TemplateAttribute>
0110            <Name>
0111              <NameValue type="TextString" value="SASED-M-2-12-
            template1"/>
0112              <NameType type="Enumeration"
            value="UninterpretedTextString"/>
0113            </Name>
0114            <Attribute>
0115              <AttributeName type="TextString" value="x-
            CustomAttribute3"/>
0116              <AttributeValue type="TextString" value="CustomValue3"/>
0117            </Attribute>
0118            <Attribute>
0119              <AttributeName type="TextString" value="x-
            CustomAttribute4"/>
0120              <AttributeValue type="TextString" value="CustomValue4"/>
0121            </Attribute>
0122            <Attribute>
0123              <AttributeName type="TextString" value="Name"/>
0124              <AttributeValue>
0125                <NameValue type="TextString" value="SASED-M-2-12-name"/>
0126                <NameType type="Enumeration"
            value="UninterpretedTextString"/>
0127              </AttributeValue>
0128            </Attribute>
0129          </TemplateAttribute>
0130          <SecretData>
0131            <SecretDataType type="Enumeration" value="Password"/>
0132            <KeyBlock>
0133              <KeyFormatType type="Enumeration" value="Opaque"/>
0134              <KeyValue>
0135                <KeyMaterial type="ByteString"
            value="2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a"/>
0136              </KeyValue>
0137            </KeyBlock>
0138          </SecretData>
0139        </RequestPayload>
0140      </BatchItem>
0141    </RequestMessage>
```

```
0142    <ResponseMessage>
0143      <ResponseHeader>
```

```
0144      <ProtocolVersion>
0145        <ProtocolVersionMajor type="Integer" value="1"/>
0146        <ProtocolVersionMinor type="Integer" value="2"/>
0147      </ProtocolVersion>
0148      <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0149      <BatchCount type="Integer" value="1"/>
0150    </ResponseHeader>
0151    <BatchItem>
0152      <Operation type="Enumeration" value="Register"/>
0153      <ResultStatus type="Enumeration" value="Success"/>
0154      <ResponsePayload>
0155        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_1"/>
0156      </ResponsePayload>
0157    </BatchItem>
0158  </ResponseMessage>
```

154

155 3.3.3 SASED-M-3-12 - Retrieve Authentication Key

156 Locate and retrieve the previously registered authentication key and finally destroy both the
157 authentication key and the template.

```
      # TIME 0
0001  <RequestMessage>
0002    <RequestHeader>
0003      <ProtocolVersion>
0004        <ProtocolVersionMajor type="Integer" value="1"/>
0005        <ProtocolVersionMinor type="Integer" value="2"/>
0006      </ProtocolVersion>
0007      <BatchCount type="Integer" value="1"/>
0008    </RequestHeader>
0009    <BatchItem>
0010      <Operation type="Enumeration" value="Locate"/>
0011      <RequestPayload>
0012        <Attribute>
0013          <AttributeName type="TextString" value="Object Group"/>
0014          <AttributeValue type="TextString" value="SASED-M-2-12-
      group"/>
0015        </Attribute>
0016        <Attribute>
0017          <AttributeName type="TextString" value="Object Type"/>
0018          <AttributeValue type="Enumeration" value="SecretData"/>
0019        </Attribute>
0020      </RequestPayload>
0021    </BatchItem>
0022  </RequestMessage>
```

```
0023  <ResponseMessage>
0024    <ResponseHeader>
0025      <ProtocolVersion>
0026        <ProtocolVersionMajor type="Integer" value="1"/>
0027        <ProtocolVersionMinor type="Integer" value="2"/>
0028      </ProtocolVersion>
0029      <TimeStamp type="DateTime" value="2013-04-25T16:53:13+00:00"/>
0030      <BatchCount type="Integer" value="1"/>
0031    </ResponseHeader>
0032    <BatchItem>
0033      <Operation type="Enumeration" value="Locate"/>
```

```
0034      <ResultStatus type="Enumeration" value="Success"/>
0035      <ResponsePayload>
0036        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0037      </ResponsePayload>
0038    </BatchItem>
0039  </ResponseMessage>
```

```
          # TIME 1
0040  <RequestMessage>
0041    <RequestHeader>
0042      <ProtocolVersion>
0043        <ProtocolVersionMajor type="Integer" value="1"/>
0044        <ProtocolVersionMinor type="Integer" value="2"/>
0045      </ProtocolVersion>
0046      <BatchCount type="Integer" value="1"/>
0047    </RequestHeader>
0048    <BatchItem>
0049      <Operation type="Enumeration" value="GetAttributes"/>
0050      <RequestPayload>
0051        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0052        <AttributeName type="TextString" value="x-CustomAttribute4"/>
0053      </RequestPayload>
0054    </BatchItem>
0055  </RequestMessage>
```

```
0056  <ResponseMessage>
0057    <ResponseHeader>
0058      <ProtocolVersion>
0059        <ProtocolVersionMajor type="Integer" value="1"/>
0060        <ProtocolVersionMinor type="Integer" value="2"/>
0061      </ProtocolVersion>
0062      <TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0063      <BatchCount type="Integer" value="1"/>
0064    </ResponseHeader>
0065    <BatchItem>
0066      <Operation type="Enumeration" value="GetAttributes"/>
0067      <ResultStatus type="Enumeration" value="Success"/>
0068      <ResponsePayload>
0069        <UniqueIdentifier type="TextString"
          value="$UNIQUE_IDENTIFIER_0"/>
0070        <Attribute>
0071          <AttributeName type="TextString" value="x-
          CustomAttribute4"/>
0072          <AttributeValue type="TextString" value="CustomValue4"/>
0073        </Attribute>
0074      </ResponsePayload>
0075    </BatchItem>
0076  </ResponseMessage>
```

```
          # TIME 2
0077  <RequestMessage>
0078    <RequestHeader>
0079      <ProtocolVersion>
0080        <ProtocolVersionMajor type="Integer" value="1"/>
0081        <ProtocolVersionMinor type="Integer" value="2"/>
0082      </ProtocolVersion>
0083      <BatchCount type="Integer" value="1"/>
0084    </RequestHeader>
0085    <BatchItem>
```

```
0086      <Operation type="Enumeration" value="GetAttributes"/>
0087      <RequestPayload>
0088        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0089        <AttributeName type="TextString" value="x-CustomAttribute3"/>
0090      </RequestPayload>
0091    </BatchItem>
0092  </RequestMessage>
```

```
0093  <ResponseMessage>
0094    <ResponseHeader>
0095      <ProtocolVersion>
0096        <ProtocolVersionMajor type="Integer" value="1"/>
0097        <ProtocolVersionMinor type="Integer" value="2"/>
0098      </ProtocolVersion>
0099      <TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0100      <BatchCount type="Integer" value="1"/>
0101    </ResponseHeader>
0102    <BatchItem>
0103      <Operation type="Enumeration" value="GetAttributes"/>
0104      <ResultStatus type="Enumeration" value="Success"/>
0105      <ResponsePayload>
0106        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0107        <Attribute>
0108          <AttributeName type="TextString" value="x-
      CustomAttribute3"/>
0109          <AttributeValue type="TextString" value="CustomValue3"/>
0110        </Attribute>
0111      </ResponsePayload>
0112    </BatchItem>
0113  </ResponseMessage>
```

```
      # TIME 3
0114  <RequestMessage>
0115    <RequestHeader>
0116      <ProtocolVersion>
0117        <ProtocolVersionMajor type="Integer" value="1"/>
0118        <ProtocolVersionMinor type="Integer" value="2"/>
0119      </ProtocolVersion>
0120      <BatchCount type="Integer" value="1"/>
0121    </RequestHeader>
0122    <BatchItem>
0123      <Operation type="Enumeration" value="Get"/>
0124      <RequestPayload>
0125        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0126      </RequestPayload>
0127    </BatchItem>
0128  </RequestMessage>
```

```
0129  <ResponseMessage>
0130    <ResponseHeader>
0131      <ProtocolVersion>
0132        <ProtocolVersionMajor type="Integer" value="1"/>
0133        <ProtocolVersionMinor type="Integer" value="2"/>
0134      </ProtocolVersion>
0135      <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0136      <BatchCount type="Integer" value="1"/>
0137    </ResponseHeader>
0138    <BatchItem>
```

```
0139      <Operation type="Enumeration" value="Get"/>
0140      <ResultStatus type="Enumeration" value="Success"/>
0141      <ResponsePayload>
0142        <ObjectType type="Enumeration" value="SecretData"/>
0143        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0144        <SecretData>
0145          <SecretDataType type="Enumeration" value="Password"/>
0146          <KeyBlock>
0147            <KeyFormatType type="Enumeration" value="Opaque"/>
0148            <KeyValue>
0149              <KeyMaterial type="ByteString"
      value="2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a"/>
0150            </KeyValue>
0151          </KeyBlock>
0152        </SecretData>
0153      </ResponsePayload>
0154    </BatchItem>
0155  </ResponseMessage>
```

```
      # TIME 4
0156  <RequestMessage>
0157    <RequestHeader>
0158      <ProtocolVersion>
0159        <ProtocolVersionMajor type="Integer" value="1"/>
0160        <ProtocolVersionMinor type="Integer" value="2"/>
0161      </ProtocolVersion>
0162      <BatchCount type="Integer" value="1"/>
0163    </RequestHeader>
0164    <BatchItem>
0165      <Operation type="Enumeration" value="Destroy"/>
0166      <RequestPayload>
0167        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0168      </RequestPayload>
0169    </BatchItem>
0170  </RequestMessage>
```

```
0171  <ResponseMessage>
0172    <ResponseHeader>
0173      <ProtocolVersion>
0174        <ProtocolVersionMajor type="Integer" value="1"/>
0175        <ProtocolVersionMinor type="Integer" value="2"/>
0176      </ProtocolVersion>
0177      <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
0178      <BatchCount type="Integer" value="1"/>
0179    </ResponseHeader>
0180    <BatchItem>
0181      <Operation type="Enumeration" value="Destroy"/>
0182      <ResultStatus type="Enumeration" value="Success"/>
0183      <ResponsePayload>
0184        <UniqueIdentifier type="TextString"
      value="$UNIQUE_IDENTIFIER_0"/>
0185      </ResponsePayload>
0186    </BatchItem>
0187  </ResponseMessage>
```

```
      # TIME 5
0188  <RequestMessage>
0189    <RequestHeader>
```

```
0190        <ProtocolVersion>
0191          <ProtocolVersionMajor type="Integer" value="1"/>
0192          <ProtocolVersionMinor type="Integer" value="2"/>
0193        </ProtocolVersion>
0194        <BatchCount type="Integer" value="1"/>
0195      </RequestHeader>
0196      <BatchItem>
0197        <Operation type="Enumeration" value="Locate"/>
0198        <RequestPayload>
0199          <Attribute>
0200            <AttributeName type="TextString" value="Name"/>
0201            <AttributeValue>
0202              <NameValue type="TextString" value="SASED-M-2-12-
    template1"/>
0203              <NameType type="Enumeration"
    value="UninterpretedTextString"/>
0204            </AttributeValue>
0205          </Attribute>
0206          <Attribute>
0207            <AttributeName type="TextString" value="Object Type"/>
0208            <AttributeValue type="Enumeration" value="Template"/>
0209          </Attribute>
0210        </RequestPayload>
0211      </BatchItem>
0212    </RequestMessage>
```

```
0213    <ResponseMessage>
0214      <ResponseHeader>
0215        <ProtocolVersion>
0216          <ProtocolVersionMajor type="Integer" value="1"/>
0217          <ProtocolVersionMinor type="Integer" value="2"/>
0218        </ProtocolVersion>
0219        <TimeStamp type="DateTime" value="2013-04-25T16:53:08+00:00"/>
0220        <BatchCount type="Integer" value="1"/>
0221      </ResponseHeader>
0222      <BatchItem>
0223        <Operation type="Enumeration" value="Locate"/>
0224        <ResultStatus type="Enumeration" value="Success"/>
0225        <ResponsePayload>
0226          <UniqueIdentifier type="TextString"
    value="$UNIQUE_IDENTIFIER_1"/>
0227        </ResponsePayload>
0228      </BatchItem>
0229    </ResponseMessage>
```

```
        # TIME 6
0230    <RequestMessage>
0231      <RequestHeader>
0232        <ProtocolVersion>
0233          <ProtocolVersionMajor type="Integer" value="1"/>
0234          <ProtocolVersionMinor type="Integer" value="2"/>
0235        </ProtocolVersion>
0236        <BatchCount type="Integer" value="1"/>
0237      </RequestHeader>
0238      <BatchItem>
0239        <Operation type="Enumeration" value="Destroy"/>
0240        <RequestPayload>
0241          <UniqueIdentifier type="TextString"
    value="$UNIQUE_IDENTIFIER_1"/>
0242        </RequestPayload>
```

```
    </BatchItem>
</RequestMessage>
<ResponseMessage>
  <ResponseHeader>
    <ProtocolVersion>
      <ProtocolVersionMajor type="Integer" value="1"/>
      <ProtocolVersionMinor type="Integer" value="2"/>
    </ProtocolVersion>
    <TimeStamp type="DateTime" value="2013-04-25T17:01:41+00:00"/>
    <BatchCount type="Integer" value="1"/>
  </ResponseHeader>
  <BatchItem>
    <Operation type="Enumeration" value="Destroy"/>
    <ResultStatus type="Enumeration" value="Success"/>
    <ResponsePayload>
      <UniqueIdentifier type="TextString"
value="$UNIQUE_IDENTIFIER_1"/>
    </ResponsePayload>
  </BatchItem>
</ResponseMessage>
```

158

159

4 Conformance

4.1 Storage Array with Self Encrypting Drive Client KMIP v1.0 Profile Conformance

KMIP client implementations conformant to this profile:

1. SHALL support the Authentication Suite conditions (2.1)
2. SHALL support the Storage Array with Self-Encrypting Drives - Client conditions (2.2)
3. SHALL support all the Mandatory Test Cases KMIP v1.0 (3.1)

4.2 Storage Array with Self Encrypting Drive Client KMIP v1.1 Profile Conformance

KMIP client implementations conformant to this profile:

1. SHALL support the Authentication Suite conditions (2.1)
2. SHALL support the Storage Array with Self-Encrypting Drives - Client conditions (2.2)
3. SHALL support all the Mandatory Test Cases KMIP v1.1 (3.2)

4.3 Storage Array with Self Encrypting Drive Client KMIP v1.2 Profile Conformance

KMIP client implementations conformant to this profile:

1. SHALL support the Authentication Suite conditions (2.1)
2. SHALL support the Storage Array with Self-Encrypting Drives - Client conditions (2.2)
3. SHALL support all the Mandatory Test Cases KMIP v1.2 (3.3)

4.4 Storage Array with Self Encrypting Drive Server KMIP v1.0 Profile Conformance

KMIP server implementations conformant to this profile:

1. SHALL support the Authentication Suite conditions (2.1)
2. SHALL support the Storage Array with Self-Encrypting Drives - Server conditions (2.3)
3. SHALL support all the Mandatory Test Cases KMIP v1.0 (3.1)

4.5 Storage Array with Self Encrypting Drive Server KMIP v1.1 Profile Conformance

KMIP server implementations conformant to this profile:

1. SHALL support the Authentication Suite conditions (2.1)
2. SHALL support the Storage Array with Self-Encrypting Drives - Server conditions (2.3)
3. SHALL support all the Mandatory Test Cases KMIP v1.1 (3.2)

4.6 Storage Array with Self Encrypting Drive Server KMIP v1.2 Profile Conformance

KMIP server implementations conformant to this profile:

1. SHALL support the Authentication Suite conditions (2.1)
2. SHALL support the Storage Array with Self-Encrypting Drives - Server conditions (2.3)
3. SHALL support all the Mandatory Test Cases KMIP v1.2 (3.3)

4.7 Permitted Test Case Variations

Whilst the test cases provided in this Profile define the allowed request and response content, some inherent variations MAY occur and are permitted within a successfully completed test case.

Each test case MAY include allowed variations in the description of the test case in addition to the variations noted in this section.

Other variations not explicitly noted in this Profile SHALL be deemed non-conformant.

4.7.1 Variable Items

An implementation conformant to this Profile MAY vary the following values:

1. UniqueIdentifier
2. PrivateKeyUniqueIdentifier
3. PublicKeyUniqueIdentifier
4. UniqueBatchItemIdentifier
5. AsynchronousCorrelationValue
6. TimeStamp
7. KeyValue / KeyMaterial including:
    a. key material content returned for managed cryptographic objects which are generated by the server
    b. wrapped versions of keys where the wrapping key is dynamic or the wrapping contains variable output for each wrap operation
8. For response containing the output of cryptographic operation in Data / SignatureData/ MACData / IVCounterNonce where:
    a. the managed object is generated by the server; or
    b. the operation inherently contains variable output
9. For the following DateTime attributes where the value is not specified in the request as a fixed DateTime value:
    a. ActivationDate
    b. ArchiveDate
    c. CompromiseDate
    d. CompromiseOccurrenceDate
    e. DeactivationDate
    f. DestroyDate
    g. InitialDate
    h. LastChangeDate
    i. ProtectStartDate
    j. ProcessStopDate
    k. ValidityDate
    l. OriginalCreationDate
10. LinkedObjectIdentifier
11. DigestValue

a. For those managed cryptographic objects which are dynamically generated

12. KeyFormatType
    a. The key format type selected by the server when it creates managed objects
13. Digest
    a. The HashingAlgorithm selected by the server when it calculates the digest for a managed object for which it has access to the key material
    b. The Digest Value
14. Extensions reported in Query for ExtensionList and ExtensionMap
15. Application Namespaces reported in Query
16. Object Types reported in Query other than those noted as required in this profile
17. Operation Types reported in Query other than those noted as required in this profile (or any referenced profile documents)
18. For TextString attribute values containing test identifiers:
    a. Additional vendor or application prefixes
19. Additional attributes beyond those noted in the response

An implementation conformant to this Profile MAY allow the following response variations:

1. Object Group values – May or may not return one or more Object Group values not included in the requests
2. y-CustomAttributes – May or may not include additional server-specific associated attributes not included in requests
3. Message Extensions – May or may not include additional (non-critical) vendor extensions
4. TemplateAttribute – May or may not be included in responses where the Template Attribute response is noted as optional in [KMIP-SPEC]
5. AttributeIndex – May or may not include Attribute Index value where the Attribute Index value is 0 for Protocol Versions 1.1 and above.
6. ResultMessage – May or may not be included in responses and the value (if included) may vary from the text contained within the test case.
7. The list of Protocol Versions returned in a DiscoverVersion response may include additional protocol versions if the request has not specified a list of client supported Protocol Versions.
8. VendorIdentification - The value (if included) may vary from the text contained within the test case.

4.7.2 Variable behavior

An implementation conformant to this Profile SHALL allow variation of the following behavior:

1. A test MAY omit the clean-up requests and responses (containing Revoke and/or Destroy) at the end of the test provided there is a separate mechanism to remove the created objects during testing.
2. A test MAY omit the test identifiers if the client is unable to include them in requests. This includes the following attributes:
    a. Name; and
    b. x-ID
3. A test MAY perform requests with multiple batch items or as multiple requests with a single batch item provided the sequence of operations are equivalent
4. A request MAY contain an optional *Authentication* [KMIP_SPEC] structure within each request

Appendix A. Acknowledgments

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Appendix B. KMIP Specification Cross Reference

Reference Term	KMIP 1.0	KMIP 1.1	KMIP 1.2
1 Introduction			
Non-Normative References	1.3.	1.3.	1.3.
Normative References	1.2.	1.2.	1.2.
Terminology	1.1.	1.1.	1.1.
2 Objects			
Attribute	2.1.1.	2.1.1.	2.1.1.
Base Objects	2.1.	2.1.	2.1.
Certificate	2.2.1.	2.2.1.	2.2.1.
Credential	2.1.2.	2.1.2.	2.1.2.
Data	-	-	2.1.10.
Data Length	-	-	2.1.11.
Extension Information	-	2.1.9.	2.1.9.
Key Block	2.1.3.	2.1.3.	2.1.3.
Key Value	2.1.4.	2.1.4.	2.1.4.
Key Wrapping Data	2.1.5.	2.1.5.	2.1.5.
Key Wrapping Specification	2.1.6.	2.1.6.	2.1.6.
MAC Data	-	-	2.1.13.
Managed Objects	2.2.	2.2.	2.2.
Nonce	-	-	2.1.14.
Opaque Object	2.2.8.	2.2.8.	2.2.8.
PGP Key	-	-	2.2.9.
Private Key	2.2.4.	2.2.4.	2.2.4.
Public Key	2.2.3.	2.2.3.	2.2.3.
Secret Data	2.2.7.	2.2.7.	2.2.7.
Signature Data	-	-	2.1.12.
Split Key	2.2.5.	2.2.5.	2.2.5.
Symmetric Key	2.2.2.	2.2.2.	2.2.2.
Template	2.2.6.	2.2.6.	2.2.6.
Template-Attribute Structures	2.1.8.	2.1.8.	2.1.8.
Transparent DH Private Key	2.1.7.6.	2.1.7.6.	2.1.7.6.
Transparent DH Public Key	2.1.7.7.	2.1.7.7.	2.1.7.7.
Transparent DSA Private Key	2.1.7.2.	2.1.7.2.	2.1.7.2.
Transparent DSA Public Key	2.1.7.3.	2.1.7.3.	2.1.7.3.
Transparent ECDH Private Key	2.1.7.10.	2.1.7.10.	2.1.7.10.
Transparent ECDH Public Key	2.1.7.11.	2.1.7.11.	2.1.7.11.
Transparent ECDSA Private Key	2.1.7.8.	2.1.7.8.	2.1.7.8.
Transparent ECDSA Public Key	2.1.7.9.	2.1.7.9.	2.1.7.9.
Transparent ECMQV Private Key	2.1.7.12.	2.1.7.12.	2.1.7.12.
Transparent ECMQV Public Key	2.1.7.13.	2.1.7.13.	2.1.7.13.
Transparent Key Structures	2.1.7.	2.1.7.	2.1.7.
Transparent RSA Private Key	2.1.7.4.	2.1.7.4.	2.1.7.4.
Transparent RSA Public Key	2.1.7.5.	2.1.7.5.	2.1.7.5.
Transparent Symmetric Key	2.1.7.1.	2.1.7.1.	2.1.7.1.
3 Attributes			
Activation Date	3.19.	3.24.	3.24.
Alternative Name	-	-	3.40.
Application Specific Information	3.30.	3.36.	3.36.
Archive Date	3.27.	3.32.	3.32.

Reference Term	KMIP 1.0	KMIP 1.1	KMIP 1.2
Attributes	3	3	3
Certificate Identifier	3.9.	3.13.	3.13.
Certificate Issuer	3.11.	3.15.	3.15.
Certificate Length	-	3.9.	3.9.
Certificate Subject	3.10.	3.14.	3.14.
Certificate Type	3.8.	3.8.	3.8.
Compromise Date	3.25.	3.30.	3.30.
Compromise Occurrence Date	3.24.	3.29.	3.29.
Contact Information	3.31.	3.37.	3.37.
Cryptographic Algorithm	3.4.	3.4.	3.4.
Cryptographic Domain Parameters	3.7.	3.7.	3.7.
Cryptographic Length	3.5.	3.5.	3.5.
Cryptographic Parameters	3.6.	3.6.	3.6.
Custom Attribute	3.33.	3.39.	3.39.
Deactivation Date	3.22.	3.27.	3.27.
Default Operation Policy	3.13.2.	3.18.2.	3.18.2.
Default Operation Policy for Certificates and Public Key Objects	3.13.2.2.	3.18.2.2.	3.18.2.2.
Default Operation Policy for Secret Objects	3.13.2.1.	3.18.2.1.	3.18.2.1.
Default Operation Policy for Template Objects	3.13.2.3.	3.18.2.3.	3.18.2.3.
Destroy Date	3.23.	3.28.	3.28.
Digest	3.12.	3.17.	3.17.
Digital Signature Algorithm	-	3.16.	3.16.
Fresh	-	3.34.	3.34.
Initial Date	3.18.	3.23.	3.23.
Key Value Location	-	-	3.42.
Key Value Present	-	-	3.41.
Last Change Date	3.32.	3.38.	3.38.
Lease Time	3.15.	3.20.	3.20.
Link	3.29.	3.35.	3.35.
Name	3.2.	3.2.	3.2.
Object Group	3.28.	3.33.	3.33.
Object Type	3.3.	3.3.	3.3.
Operation Policy Name	3.13.	3.18.	3.18.
Operations outside of operation policy control	3.13.1.	3.18.1.	3.18.1.
Original Creation Date	-	-	3.43.
Process Start Date	3.20.	3.25.	3.25.
Protect Stop Date	3.21.	3.26.	3.26.
Revocation Reason	3.26.	3.31.	3.31.
State	3.17.	3.22.	3.22.
Unique Identifier	3.1.	3.1.	3.1.
Usage Limits	3.16.	3.21.	3.21.
X.509 Certificate Identifier	-	3.10.	3.10.
X.509 Certificate Issuer	-	3.12.	3.12.
X.509 Certificate Subject	-	3.11.	3.11.
4 Client-to-Server Operations			
Activate	4.18.	4.19.	4.19.
Add Attribute	4.13.	4.14.	4.14.
Archive	4.21.	4.22.	4.22.
Cancel	4.25.	4.27.	4.27.
Certify	4.6.	4.7.	4.7.
Check	4.9.	4.10.	4.10.
Create	4.1.	4.1.	4.1.
Create Key Pair	4.2.	4.2.	4.2.

Reference Term	KMIP 1.0	KMIP 1.1	KMIP 1.2
Create Split Key	-	-	4.38.
Decrypt	-	-	4.30.
Delete Attribute	4.15.	4.16.	4.16.
Derive Key	4.5.	4.6.	4.6.
Destroy	4.20.	4.21.	4.21.
Discover Versions	-	4.26.	4.26.
Encrypt	-	-	4.29.
Get	4.10.	4.11.	4.11.
Get Attribute List	4.12.	4.13.	4.13.
Get Attributes	4.11.	4.12.	4.12.
Get Usage Allocation	4.17.	4.18.	4.18.
Hash	-	-	4.37.
Join Split Key	-	-	4.39.
Locate	4.8.	4.9.	4.9.
MAC	-	-	4.33.
MAC Verify	-	-	4.34.
Modify Attribute	4.14.	4.15.	4.15.
Obtain Lease	4.16.	4.17.	4.17.
Poll	4.26.	4.28.	4.28.
Query	4.24.	4.25.	4.25.
Re-certify	4.7.	4.8.	4.8.
Recover	4.22.	4.23.	4.23.
Register	4.3.	4.3.	4.3.
Re-key	4.4.	4.4.	4.4.
Re-key Key Pair	-	4.5.	4.5.
Revoke	4.19.	4.20.	4.20.
RNG Retrieve	-	-	4.35.
RNG Seed	-	-	4.36.
Sign	-	-	4.31.
Signature Verify	-	-	4.32.
Validate	4.23.	4.24.	4.24.
5 Server-to-Client Operations			
Notify	5.1.	5.1.	5.1.
Put	5.2.	5.2.	5.2.
6 Message Contents			
Asynchronous Correlation Value	6.8.	6.8.	6.8.
Asynchronous Indicator	6.7.	6.7.	6.7.
Attestation Capable Indicator	-	-	6.17.
Batch Count	6.14.	6.14.	6.14.
Batch Error Continuation Option	6.13.	6.13.	6.13.
Batch Item	6.15.	6.15.	6.15.
Batch Order Option	6.12.	6.12.	6.12.
Maximum Response Size	6.3.	6.3.	6.3.
Message Extension	6.16.	6.16.	6.16.
Operation	6.2.	6.2.	6.2.
Protocol Version	6.1.	6.1.	6.1.
Result Message	6.11.	6.11.	6.11.
Result Reason	6.10.	6.10.	6.10.
Result Status	6.9.	6.9.	6.9.
Time Stamp	6.5.	6.5.	6.5.
Unique Batch Item ID	6.4.	6.4.	6.4.
7 Message Format			

Reference Term	KMIP 1.0	KMIP 1.1	KMIP 1.2
Message Structure	7.1.	7.1.	7.1.
Operations	7.2.	7.2.	7.2.
8 Authentication			
Authentication	8	8	8
9 Message Encoding			
Alternative Name Type Enumeration	-	-	9.1.3.2.34.
Attestation Type Enumeration	-	-	9.1.3.2.36.
Batch Error Continuation Option Enumeration	9.1.3.2.29.	9.1.3.2.30.	9.1.3.2.30.
Bit Masks	9.1.3.3.	9.1.3.3.	9.1.3.3.
Block Cipher Mode Enumeration	9.1.3.2.13.	9.1.3.2.14.	9.1.3.2.14.
Cancellation Result Enumeration	9.1.3.2.24.	9.1.3.2.25.	9.1.3.2.25.
Certificate Request Type Enumeration	9.1.3.2.21.	9.1.3.2.22.	9.1.3.2.22.
Certificate Type Enumeration	9.1.3.2.6.	9.1.3.2.6.	9.1.3.2.6.
Credential Type Enumeration	9.1.3.2.1.	9.1.3.2.1.	9.1.3.2.1.
Cryptographic Algorithm Enumeration	9.1.3.2.12.	9.1.3.2.13.	9.1.3.2.13.
Cryptographic Usage Mask	9.1.3.3.1.	9.1.3.3.1.	9.1.3.3.1.
Defined Values	9.1.3.	9.1.3.	9.1.3.
Derivation Method Enumeration	9.1.3.2.20.	9.1.3.2.21.	9.1.3.2.21.
Digital Signature Algorithm Enumeration	-	9.1.3.2.7.	9.1.3.2.7.
Encoding Option Enumeration	-	9.1.3.2.32.	9.1.3.2.32.
Enumerations	9.1.3.2.	9.1.3.2.	9.1.3.2.
Examples	9.1.2.	9.1.2.	9.1.2.
Hashing Algorithm Enumeration	9.1.3.2.15.	9.1.3.2.16.	9.1.3.2.16.
Item Length	9.1.1.3.	9.1.1.3.	9.1.1.3.
Item Tag	9.1.1.1.	9.1.1.1.	9.1.1.1.
Item Type	9.1.1.2.	9.1.1.2.	9.1.1.2.
Item Value	9.1.1.4.	9.1.1.4.	9.1.1.4.
Key Compression Type Enumeration	9.1.3.2.2.	9.1.3.2.2.	9.1.3.2.2.
Key Format Type Enumeration	9.1.3.2.3.	9.1.3.2.3.	9.1.3.2.3.
Key Role Type Enumeration	9.1.3.2.16.	9.1.3.2.17.	9.1.3.2.17.
Key Value Location Type Enumeration	-	-	9.1.3.2.35.
Link Type Enumeration	9.1.3.2.19.	9.1.3.2.20.	9.1.3.2.20.
Name Type Enumeration	9.1.3.2.10.	9.1.3.2.11.	9.1.3.2.11.
Object Group Member Enumeration	-	9.1.3.2.33.	9.1.3.2.33.
Object Type Enumeration	9.1.3.2.11.	9.1.3.2.12.	9.1.3.2.12.
Opaque Data Type Enumeration	9.1.3.2.9.	9.1.3.2.10.	9.1.3.2.10.
Operation Enumeration	9.1.3.2.26.	9.1.3.2.27.	9.1.3.2.27.
Padding Method Enumeration	9.1.3.2.14.	9.1.3.2.15.	9.1.3.2.15.
Put Function Enumeration	9.1.3.2.25.	9.1.3.2.26.	9.1.3.2.26.
Query Function Enumeration	9.1.3.2.23.	9.1.3.2.24.	9.1.3.2.24.
Recommended Curve Enumeration for ECDSA, ECDH, and ECMQV	9.1.3.2.5.	9.1.3.2.5.	9.1.3.2.5.
Result Reason Enumeration	9.1.3.2.28.	9.1.3.2.29.	9.1.3.2.29.
Result Status Enumeration	9.1.3.2.27.	9.1.3.2.28.	9.1.3.2.28.
Revocation Reason Code Enumeration	9.1.3.2.18.	9.1.3.2.19.	9.1.3.2.19.
Secret Data Type Enumeration	9.1.3.2.8.	9.1.3.2.9.	9.1.3.2.9.
Split Key Method Enumeration	9.1.3.2.7.	9.1.3.2.8.	9.1.3.2.8.
State Enumeration	9.1.3.2.17.	9.1.3.2.18.	9.1.3.2.18.
Storage Status Mask	9.1.3.3.2.	9.1.3.3.2.	9.1.3.3.2.
Tags	9.1.3.1.	9.1.3.1.	9.1.3.1.
TTLV Encoding	9.1.	9.1.	9.1.
TTLV Encoding Fields	9.1.1.	9.1.1.	9.1.1.
Usage Limits Unit Enumeration	9.1.3.2.30.	9.1.3.2.31.	9.1.3.2.31.

Reference Term	**KMIP 1.0**	**KMIP 1.1**	**KMIP 1.2**
Validity Indicator Enumeration	9.1.3.2.22.	9.1.3.2.23.	9.1.3.2.23.
Wrapping Method Enumeration	9.1.3.2.4.	9.1.3.2.4.	9.1.3.2.4.
XML Encoding	9.2.	-	-
10 Transport			
Transport	10	10	10
12 KMIP Server and Client Implementation Conformance			
Conformance clauses for a KMIP Server	12.1.	-	-
KMIP Client Implementation Conformance	-	12.2.	12.2.
KMIP Server Implementation Conformance	-	12.1.	12.1.

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Appendix C. Revision History

Revision	Date	Editor	Changes Made
wd01	21-May-2013	Tim Hudson / Mahadev Karadigudda	Converted from draft proposal to OASIS template with minor rewording and inclusion of references to KMIP 1.2 documents
wd02	25-June-2013	Tim Hudson	Updated test cases and changed how multiple versions of the specification are referenced and added test cases for all versions.
wd03	6-August-2013	Tim Hudson	Updated to include Permitted Test Case Variations and updated Test Cases based on July 2013 Interop
wd04	10-August-2013	Tim Hudson	Updated Permitted Test Case Variations
wd04a	24-October-2013	Tim Hudson	Editorial update to include VendorIdentification in the list of allowed variations as per TC motion.
pr01update	11-June-2014	Tim Hudson	Updated following Public Review

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