

KMIP Storage Array with Self-Encrypting Drives Profile Version 1.0

Committee Specification Draft 01

31 October 2013

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Related work:

This specification is related to:

- *Key Management Interoperability Protocol Profiles Version 1.0*. 01 October 2010. OASIS Standard. <http://docs.oasis-open.org/kmip/profiles/v1.0/os/kmip-profiles-1.0-os.html>.
- *Key Management Interoperability Protocol Specification Version 1.1*. 24 January 2013. OASIS Standard. <http://docs.oasis-open.org/kmip/spec/v1.1/os/kmip-spec-v1.1-os.html>.
- *Key Management Interoperability Protocol Specification Version 1.2*. Latest version. <http://docs.oasis-open.org/kmip/spec/v1.2/kmip-spec-v1.2.html>.

Abstract:

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

Status:

This document was last revised or approved by the OASIS Key Management Interoperability Protocol (KMIP) TC on the above date. The level of approval is also listed above. Check the "Latest version" location noted above for possible later revisions of this document.

Technical Committee members should send comments on this specification to the Technical Committee's email list. Others should send comments to the Technical Committee by using the "Send A Comment" button on the Technical Committee's web page at <http://www.oasis-open.org/committees/kmip/>.

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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].

Illustrative guidance for the implementation of KMIP clients and servers is provided in the [KMIP Usage Guide](#) [KMIP-UG].

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.
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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>.
- [RFC2246] T. Dierks and C. Allen, *The TLS Protocol, Version 1.0*, IETF RFC 2246, Jan 1999, <http://www.ietf.org/rfc/rfc2246.txt>
- [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*.
[URL](#)
Candidate OASIS Standard 01. DD MMM YYYY.
- [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 Usage Guide 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 Usage Guide 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 Usage Guide Version 1.2*.
[URL](#)
Candidate OASIS Standard 01. DD MMM YYYY.

1.3 Non-Normative References

- [KMIP-UG] One or more of [KMIP-UG-1_0], [KMIP-UG-1_1], [KMIP-UG-1_2]
[KMIP-UG-1_0] *Key Management Interoperability Protocol Usage Guide Version 1.0.*
<http://docs.oasis-open.org/kmip/ug/v1.1/kmip-ug-v1.1-cnd01.doc>
Committee Note Draft, 1 December 2011
[KMIP-UG-1_1] *Key Management Interoperability Protocol Usage Guide Version 1.1.*
<http://docs.oasis-open.org/kmip/ug/v1.1/cn01/kmip-ug-v1.1-cn01.doc>
Committee Note 01, 27 July 2012
[KMIP-UG-1_2] *Key Management Interoperability Protocol Usage Guide Version 1.2.*
[URL](#)
Committee Note Draft, DD MMM YYYY
[KMIP-TC-1_1] *Key Management Interoperability Protocol Test Cases Version 1.1.*
<http://docs.oasis-open.org/kmip/testcases/v1.1/cn01/kmip-testcases-v1.1-cn01.doc>, Committee Note 01, 27 July 2012.
[KMIP-TC-1_2] *Key Management Interoperability Protocol Test Cases Version 1.2.*
[URL](#), Committee Note Draft, DD MMM YYYY.
[KMIP-UC] *Key Management Interoperability Protocol Use Cases Version 1.0.*
<http://docs.oasis-open.org/kmip/usecases/v1.0/cs01/kmip-usecases-1.0-cs-01.doc>, Committee Specification, 15 June 2010.

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

KMIP clients conformant to this profile:

1. SHALL conform to the KMIP Baseline Client profile in [KMIP-PROF] and [KMIP-SPEC]
2. SHOULD NOT use a *Custom Attribute* [KMIP-SPEC] that duplicates information that is already in standard *Attributes* [KMIP-SPEC]

KMIP servers conformant to this profile SHALL:

1. SHALL conform to the KMIP Baseline Server profile in [KMIP-PROF] and [KMIP-SPEC] and
2. SHALL support the following *Objects* [KMIP-SPEC]
 - a. *Template* [KMIP-SPEC]
 - b. *Secret Data* [KMIP-SPEC]
3. SHALL support the following *Attributes* [KMIP-SPEC]
 - a. *Custom Attribute* [KMIP-SPEC]
4. SHALL support the following client-to-server operations:
 - a. *Register* [KMIP-SPEC]
5. SHALL support the following *Message Encoding* [KMIP-SPEC]:
 - a. *Secret Data Type Enumeration* [KMIP-SPEC] value:
 - i. Password
 - b. *Object Type Enumeration* [KMIP-SPEC] values:
 - i. Secret Data
 - ii. Template
 - c. *Name Type Enumeration* [KMIP-SPEC] value:
 - i. Uninterpreted Text String
6. SHALL support *Custom Attribute* [KMIP-SPEC] with the following data types and properties:
 - a. TextString
7. SHALL support a minimum length of 64 characters for *Custom Attribute* [KMIP-SPEC] and *Name* [KMIP-SPEC] values where the attribute type is of variable length.
8. SHALL support a minimum of 10 *Custom Attribute* [KMIP-SPEC] per managed object
9. SHALL support a minimum of 64 characters in *Custom Attribute* [KMIP-SPEC] names
10. SHALL support the Storage Array with Self-Encrypting Drives Test Cases returning results in accordance with the test cases.
11. MAY support any clause within [KMIP-SPEC] provided it does not conflict with any other clause within this section 2.2

103 12. MAY support extensions outside the scope of this standard (e.g., vendor extensions,
104 conformance clauses) that do not contradict any KMIP requirements.

3 Storage Array with Self-Encrypting Drives Test Cases

This section documents the test cases that a client or server conformant to the Storage Array with Self-Encrypting Drives Profile SHALL support.

Note: the values for the returned items and the custom attributes are illustrative. Actual values from a real client system will vary. These test cases demonstrate usage of all of the mandatory types that are required to be supported in a server implementation.

3.1 Mandatory Test Cases

This section documents the test cases that a client or server conformant to the Storage Array with Self-Encrypting Drives Profile SHALL support for each version of the KMIP protocol (major and minor).

3.1.1 SASSED-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.

	<code># TIME 0</code>
0001	<code><RequestMessage></code>
0002	<code><RequestHeader></code>
0003	<code><ProtocolVersion></code>
0004	<code><ProtocolVersionMajor type="Integer" value="1"/></code>
0005	<code><ProtocolVersionMinor type="Integer" value="0"/></code>
0006	<code></ProtocolVersion></code>
0007	<code><BatchCount type="Integer" value="1"/></code>
0008	<code></RequestHeader></code>
0009	<code><BatchItem></code>
0010	<code><Operation type="Enumeration" value="Query"/></code>
0011	<code><RequestPayload></code>
0012	<code><QueryFunction type="Enumeration" value="QueryOperations"/></code>
0013	<code><QueryFunction type="Enumeration" value="QueryObjects"/></code>
0014	<code><QueryFunction type="Enumeration"</code>
	<code>value="QueryServerInformation"/></code>
0015	<code></RequestPayload></code>
0016	<code></BatchItem></code>
0017	<code></RequestMessage></code>
0018	<code><ResponseMessage></code>
0019	<code><ResponseHeader></code>
0020	<code><ProtocolVersion></code>
0021	<code><ProtocolVersionMajor type="Integer" value="1"/></code>
0022	<code><ProtocolVersionMinor type="Integer" value="0"/></code>
0023	<code></ProtocolVersion></code>
0024	<code><TimeStamp type="DateTime" value="2013-04-25T16:53:03+00:00"/></code>
0025	<code><BatchCount type="Integer" value="1"/></code>
0026	<code></ResponseHeader></code>
0027	<code><BatchItem></code>
0028	<code><Operation type="Enumeration" value="Query"/></code>
0029	<code><ResultStatus type="Enumeration" value="Success"/></code>
0030	<code><ResponsePayload></code>
0031	<code><Operation type="Enumeration" value="Query"/></code>
0032	<code><Operation type="Enumeration" value="Locate"/></code>

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>

119

120 3.1.2 SASSED-M-2-10 - Register the authentication key

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

126

	# 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-
	templatel"/>
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-
0060	group"/>
0061	</Attribute>
0062	<Attribute>
0063	<AttributeName type="TextString" value="x-
0064	CustomAttribute1"/>
0065	<AttributeValue type="TextString" value="CustomValue1"/>
0066	</Attribute>
0067	<Attribute>
0068	<AttributeName type="TextString" value="x-
0069	CustomAttribute2"/>
0070	<AttributeValue type="TextString" value="CustomValue2"/>
0071	</Attribute>
0072	<Attribute>
0073	<AttributeName type="TextString" value="Name"/>
0074	<AttributeValue type="TextString" value="SASED-M-2-10-
0075	templatel"/>
0076	<NameType type="Enumeration"
0077	value="UninterpretedTextString"/>
0078	</AttributeValue>
0079	</Attribute>
0080	</Template>
0081	</RequestPayload>
0082	</BatchItem>
0083	</RequestMessage>
0084	<ResponseMessage>
0085	<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>

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"
0037	value="\$UNIQUE_IDENTIFIER_0"/>
0038	</ResponsePayload>
0039	</BatchItem>
0040	</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"
0052	value="\$UNIQUE_IDENTIFIER_0"/>
0053	<AttributeName type="TextString" value="x-CustomAttribute4"/>
0054	</RequestPayload>
0055	</BatchItem>
0056	</RequestMessage>
0057	<ResponseMessage>
0058	<ResponseHeader>
0059	<ProtocolVersion>
0060	<ProtocolVersionMajor type="Integer" value="1"/>
0061	<ProtocolVersionMinor type="Integer" value="0"/>
0062	</ProtocolVersion>
0063	<TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0064	<BatchCount type="Integer" value="1"/>
0065	</ResponseHeader>
0066	<BatchItem>
0067	<Operation type="Enumeration" value="GetAttributes"/>
0068	<ResultStatus type="Enumeration" value="Success"/>
0069	<ResponsePayload>
0070	<UniqueIdentifier type="TextString"
0071	value="\$UNIQUE_IDENTIFIER_0"/>
0072	<Attribute>
0073	<AttributeName type="TextString" value="x-
	CustomAttribute4"/>
	<AttributeValue type="TextString" value="CustomValue4"/>
	</Attribute>

0074	</ResponsePayload>
0075	</BatchItem>
0076	</ResponseMessage>
0077	# TIME 2
0078	<RequestMessage>
0079	<RequestHeader>
0080	<ProtocolVersion>
0081	<ProtocolVersionMajor type="Integer" value="1"/>
0082	<ProtocolVersionMinor type="Integer" value="0"/>
0083	</ProtocolVersion>
0084	<BatchCount type="Integer" value="1"/>
0085	</RequestHeader>
0086	<BatchItem>
0087	<Operation type="Enumeration" value="GetAttributes"/>
0088	<RequestPayload>
0089	<UniqueIdentifier type="TextString" value="\$UNIQUE_IDENTIFIER_0"/>
0090	<AttributeName type="TextString" value="x-CustomAttribute3"/>
0091	</RequestPayload>
0092	</BatchItem>
0093	</RequestMessage>
0094	<ResponseMessage>
0095	<ResponseHeader>
0096	<ProtocolVersion>
0097	<ProtocolVersionMajor type="Integer" value="1"/>
0098	<ProtocolVersionMinor type="Integer" value="0"/>
0099	</ProtocolVersion>
0100	<TimeStamp type="DateTime" value="2013-04-25T16:53:14+00:00"/>
0101	<BatchCount type="Integer" value="1"/>
0102	</ResponseHeader>
0103	<BatchItem>
0104	<Operation type="Enumeration" value="GetAttributes"/>
0105	<ResultStatus type="Enumeration" value="Success"/>
0106	<ResponsePayload>
0107	<UniqueIdentifier type="TextString" value="\$UNIQUE_IDENTIFIER_0"/>
0108	<Attribute>
0109	<AttributeName type="TextString" value="x-CustomAttribute3"/>
0110	<AttributeValue type="TextString" value="CustomValue3"/>
0111	</Attribute>
0112	</ResponsePayload>
0113	</BatchItem>
0114	</ResponseMessage>
0115	# TIME 3
0116	<RequestMessage>
0117	<RequestHeader>
0118	<ProtocolVersion>
0119	<ProtocolVersionMajor type="Integer" value="1"/>
0120	<ProtocolVersionMinor type="Integer" value="0"/>
0121	</ProtocolVersion>
0122	<BatchCount type="Integer" value="1"/>
0123	</RequestHeader>
0124	<BatchItem>
0125	<Operation type="Enumeration" value="Get"/>
0126	<RequestPayload>
0127	<UniqueIdentifier type="TextString" value="\$UNIQUE_IDENTIFIER_0"/>

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-
	templatel"/>
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>

131

132 3.1.4 SASSED-M-1-11 - Configuration

133 Determine server configuration details including operations supported (only the mandatory operations are
134 listed in the response example), objects supported (only the mandatory objects types are listed in the
135 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>

136

137 3.1.5 SASSED-M-2-11 - Register the authentication key

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

143

	# 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-templatel"/>
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-
	templatel"/>
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-
	templatel"/>
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>

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-
0015	group"/>
0016	</Attribute>
0017	<Attribute>
0018	<AttributeName type="TextString" value="Object Type"/>
0019	<AttributeValue type="Enumeration" value="SecretData"/>
0020	</Attribute>
0021	</RequestPayload>
0022	</BatchItem>
0023	</RequestMessage>
0024	<ResponseMessage>
0025	<ResponseHeader>
0026	<ProtocolVersion>
0027	<ProtocolVersionMajor type="Integer" value="1"/>
0028	<ProtocolVersionMinor type="Integer" value="1"/>
0029	</ProtocolVersion>
0030	<TimeStamp type="DateTime" value="2013-04-25T16:53:13+00:00"/>
0031	<BatchCount type="Integer" value="1"/>
0032	</ResponseHeader>
0033	<BatchItem>
0034	<Operation type="Enumeration" value="Locate"/>
0035	<ResultStatus type="Enumeration" value="Success"/>
0036	<ResponsePayload>
0037	<UniqueIdentifier type="TextString"
0038	value="\$UNIQUE_IDENTIFIER 0"/>
0039	</ResponsePayload>
0040	</BatchItem>
0041	</ResponseMessage>
0042	# TIME 1
0043	<RequestMessage>
0044	<RequestHeader>
0045	<ProtocolVersion>
0046	<ProtocolVersionMajor type="Integer" value="1"/>
0047	<ProtocolVersionMinor type="Integer" value="1"/>
0048	</ProtocolVersion>
0049	<BatchCount type="Integer" value="1"/>
0050	</RequestHeader>
0051	<BatchItem>
0052	<Operation type="Enumeration" value="GetAttributes"/>
0053	<RequestPayload>
0054	<UniqueIdentifier type="TextString"
0055	value="\$UNIQUE_IDENTIFIER_0"/>
0056	<AttributeName type="TextString" value="x-CustomAttribute4"/>
0057	</RequestPayload>
0058	</BatchItem>
0059	</RequestMessage>
0060	<ResponseMessage>
0061	<ResponseHeader>
0062	<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>

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>
0188	# 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>
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="1"/>
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="1"/>
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="1"/>
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>

148

149 3.1.7 SASSED-M-1-12 - Configuration

150 Determine server configuration details including operations supported (only the mandatory operations are
151 listed in the response example), objects supported (only the mandatory objects types are listed in the
152 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>

153

154 3.1.8 SASSED-M-2-12 - Register the authentication key

155 A template is created and the secret data for the authentication key is then registered. The server must
 156 allow the registration of managed objects for Object Groups either by allowed arbitrary values for Object
 157 Groups or by pre-configuration of specific Object Groups prior to the storage array registering the

158 authentication key. The authentication key may be a new authentication key or a replacement
 159 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-
	templatel"/>
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	</BatchItem>
0040	</ResponseMessage>
0041	
	# 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-
	templatel"/>
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>

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0154	<ResponsePayload>
0155	<UniqueIdentifier type="TextString"
	value="\$UNIQUE_IDENTIFIER_1"/>
0156	</ResponsePayload>
0157	</BatchItem>
0158	</ResponseMessage>

160

161 3.1.9 SASSED-M-3-12 - Retrieve Authentication Key

162 Locate and retrieve the previously registered authentication key and finally destroy both the
163 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="SASSED-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"/>

0200	<AttributeName type="TextString" value="Name"/>
0201	<AttributeValue>
0202	<NameValue type="TextString" value="SASED-M-2-12- templatel"/>
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>
0230	# TIME 6 <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>
0243	</BatchItem>
0244	</RequestMessage>
0245	<ResponseMessage>
0246	<ResponseHeader>
0247	<ProtocolVersion>
0248	<ProtocolVersionMajor type="Integer" value="1"/>
0249	<ProtocolVersionMinor type="Integer" value="2"/>
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>

164

165

4 Conformance

4.1 Conformance Statement

KMIP client and 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 conditions (2.2)
3. SHALL support all the Mandatory Test Cases (3.1) for each supported protocol version (major and minor)

4.2 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.

4.2.1 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.

4.2.2 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.

249 2. A test may omit the test identifiers if the client is unable to include them in requests. This includes
250 the following attributes:
251 a. Name; and
252 b. x-ID
253
254

Appendix A. Acknowledgments

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Participants:

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 318 Luther Martin, Voltage Security
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362 Magda Zdunkiewicz, Cryptsoft
363 Peter Zelechowski, Election Systems & Software

Appendix B. KMIP Specification Cross Reference

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

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

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

Reference Term	KMIP 1.0	KMIP 1.1	KMIP 1.2
<i>Message Structure</i>	7.1.	7.1.	7.1.
<i>Operations</i>	7.2.	7.2.	7.2.
8 Authentication			
<i>Authentication</i>	8	8	8
9 Message Encoding			
<i>Alternative Name Type Enumeration</i>	-	-	9.1.3.2.34.
<i>Attestation Type Enumeration</i>	-	-	9.1.3.2.36.
<i>Batch Error Continuation Option Enumeration</i>	9.1.3.2.29.	9.1.3.2.30.	9.1.3.2.30.
<i>Bit Masks</i>	9.1.3.3.	9.1.3.3.	9.1.3.3.
<i>Block Cipher Mode Enumeration</i>	9.1.3.2.13.	9.1.3.2.14.	9.1.3.2.14.
<i>Cancellation Result Enumeration</i>	9.1.3.2.24.	9.1.3.2.25.	9.1.3.2.25.
<i>Certificate Request Type Enumeration</i>	9.1.3.2.21.	9.1.3.2.22.	9.1.3.2.22.
<i>Certificate Type Enumeration</i>	9.1.3.2.6.	9.1.3.2.6.	9.1.3.2.6.
<i>Credential Type Enumeration</i>	9.1.3.2.1.	9.1.3.2.1.	9.1.3.2.1.
<i>Cryptographic Algorithm Enumeration</i>	9.1.3.2.12.	9.1.3.2.13.	9.1.3.2.13.
<i>Cryptographic Usage Mask</i>	9.1.3.3.1.	9.1.3.3.1.	9.1.3.3.1.
<i>Defined Values</i>	9.1.3.	9.1.3.	9.1.3.
<i>Derivation Method Enumeration</i>	9.1.3.2.20.	9.1.3.2.21.	9.1.3.2.21.
<i>Digital Signature Algorithm Enumeration</i>	-	9.1.3.2.7.	9.1.3.2.7.
<i>Encoding Option Enumeration</i>	-	9.1.3.2.32.	9.1.3.2.32.
<i>Enumerations</i>	9.1.3.2.	9.1.3.2.	9.1.3.2.
<i>Examples</i>	9.1.2.	9.1.2.	9.1.2.
<i>Hashing Algorithm Enumeration</i>	9.1.3.2.15.	9.1.3.2.16.	9.1.3.2.16.
<i>Item Length</i>	9.1.1.3.	9.1.1.3.	9.1.1.3.
<i>Item Tag</i>	9.1.1.1.	9.1.1.1.	9.1.1.1.
<i>Item Type</i>	9.1.1.2.	9.1.1.2.	9.1.1.2.
<i>Item Value</i>	9.1.1.4.	9.1.1.4.	9.1.1.4.
<i>Key Compression Type Enumeration</i>	9.1.3.2.2.	9.1.3.2.2.	9.1.3.2.2.
<i>Key Format Type Enumeration</i>	9.1.3.2.3.	9.1.3.2.3.	9.1.3.2.3.
<i>Key Role Type Enumeration</i>	9.1.3.2.16.	9.1.3.2.17.	9.1.3.2.17.
<i>Key Value Location Type Enumeration</i>	-	-	9.1.3.2.35.
<i>Link Type Enumeration</i>	9.1.3.2.19.	9.1.3.2.20.	9.1.3.2.20.
<i>Name Type Enumeration</i>	9.1.3.2.10.	9.1.3.2.11.	9.1.3.2.11.
<i>Object Group Member Enumeration</i>	-	9.1.3.2.33.	9.1.3.2.33.
<i>Object Type Enumeration</i>	9.1.3.2.11.	9.1.3.2.12.	9.1.3.2.12.
<i>Opaque Data Type Enumeration</i>	9.1.3.2.9.	9.1.3.2.10.	9.1.3.2.10.
<i>Operation Enumeration</i>	9.1.3.2.26.	9.1.3.2.27.	9.1.3.2.27.
<i>Padding Method Enumeration</i>	9.1.3.2.14.	9.1.3.2.15.	9.1.3.2.15.
<i>Put Function Enumeration</i>	9.1.3.2.25.	9.1.3.2.26.	9.1.3.2.26.
<i>Query Function Enumeration</i>	9.1.3.2.23.	9.1.3.2.24.	9.1.3.2.24.
<i>Recommended Curve Enumeration for ECDSA, ECDH, and ECMQV</i>	9.1.3.2.5.	9.1.3.2.5.	9.1.3.2.5.
<i>Result Reason Enumeration</i>	9.1.3.2.28.	9.1.3.2.29.	9.1.3.2.29.
<i>Result Status Enumeration</i>	9.1.3.2.27.	9.1.3.2.28.	9.1.3.2.28.
<i>Revocation Reason Code Enumeration</i>	9.1.3.2.18.	9.1.3.2.19.	9.1.3.2.19.
<i>Secret Data Type Enumeration</i>	9.1.3.2.8.	9.1.3.2.9.	9.1.3.2.9.
<i>Split Key Method Enumeration</i>	9.1.3.2.7.	9.1.3.2.8.	9.1.3.2.8.
<i>State Enumeration</i>	9.1.3.2.17.	9.1.3.2.18.	9.1.3.2.18.
<i>Storage Status Mask</i>	9.1.3.3.2.	9.1.3.3.2.	9.1.3.3.2.
<i>Tags</i>	9.1.3.1.	9.1.3.1.	9.1.3.1.
<i>TTLV Encoding</i>	9.1.	9.1.	9.1.
<i>TTLV Encoding Fields</i>	9.1.1.	9.1.1.	9.1.1.
<i>Usage Limits Unit Enumeration</i>	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
<i>Validity Indicator Enumeration</i>	9.1.3.2.22.	9.1.3.2.23.	9.1.3.2.23.
<i>Wrapping Method Enumeration</i>	9.1.3.2.4.	9.1.3.2.4.	9.1.3.2.4.
<i>XML Encoding</i>	9.2.	-	-
10 Transport			
<i>Transport</i>	10	10	10
12 KMIP Server and Client Implementation Conformance			
<i>Conformance clauses for a KMIP Server</i>	12.1.	-	-
<i>KMIP Client Implementation Conformance</i>	-	12.2.	12.2.
<i>KMIP Server Implementation Conformance</i>	-	12.1.	12.1.

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.