

SOFTWARE COMMUNICATIONS ARCHITECTURE SPECIFICATION

APPENDIX E - PLATFORM SPECIFIC MODEL (PSM) - TRANSFER MECHANISMS AND ENABLING TECHNOLOGIES



01 October 2012
Version: 4.0.1

Prepared by:

Joint Tactical Networking Center (JTNC)
33000 Nixie Way
San Diego, CA 92147-5110

Statement A - Approved for public release; distribution is unlimited (18 November 2013)

REVISION SUMMARY

Version	Revision	Date
Next <Draft>	Initial Draft Release	30 November 2010
Candidate Release	Initial Release	27 December 2011
4.0	ICWG Approved Release	28 February 2012
4.0.1	Incorporated transition to JTNC and applied SCA 4.0 Errata Sheet v1.0	01 October 2012

TABLE OF CONTENTS

E.1	SCOPE	4
E.1.1	Overview	4
E.2	CONFORMANCE	4
E.2.1	Transfer Mechanism and Enabling Technology Conformance on the Part of an SCA Product.....	4
E.2.2	Sample Conformance Statement	5
E.3	CONVENTIONS.....	5
E.4	NORMATIVE REFERENCES	5
E.5	INFORMATIVE REFERENCES	5
E.6	ATTACHMENTS	5
E.6.1	Transfer Mechanism.....	5
E.6.2	Enabling Technologies.....	5

APPENDIX E PSM – TRANSFER MECHANISMS AND ENABLING TECHNOLOGIES

E.1 SCOPE

This appendix identifies the approved set of platform specific transport and technology mappings, transformations, and model representations used to achieve conformance with the SCA PIM as defined in the main specification. As additional transfer mechanisms and enabling technologies are approved for SCA use they will be added as attachments to this appendix.

E.1.1 Overview

The SCA provides an architectural framework that can be used across a wide variety of target platforms and technologies. An SCA compliant solution can be deployed within many differing end user architectures. The architectures should be designed to align as closely as possible to their associated mission requirements. The requirements often play a large role in dictating items such as implementation language, desired performance characteristics and processor architecture. SCA is not prescriptive on the implementing technology, but a key SCA enabler is the preservation of its interface definitions across the realizing technologies.

The SCA includes transfer mechanisms to provide standardized client/server operations. Client/server communications may be co-located or distributed across different processors. The transfer mechanism structure may be comprised of object request semantics, transfer and message syntax, and transports. SCA products can be realized using a variety of transports and technologies (e.g. CORBA, C++, SOAP, Data Distribution Service (DDS), Modem Hardware Abstraction Layer (MHAL) Communication Service, etc.).

Most SCA products will use a transfer mechanism (e.g. CORBA) to connect (invoke methods in another component and transport associated data). However, some products may link components directly whereby no transfer mechanism is required (e.g., components are in libraries and methods invoked by function call). The available SCA transfer mechanisms are identified in E.6.1.

One or more Enabling Technologies, identified in E.6.2, are used. Some listed technologies may only be appropriate when used with specific Transfer Mechanisms.

E.2 CONFORMANCE

E.2.1 Transfer Mechanism and Enabling Technology Conformance on the Part of an SCA Product

The elements of this specification are not required to be used solely for a particular platform or application. The “SCA model and architecture” may be realized by many different enabling technologies (i.e. technology specific representations). As technology specific mappings are introduced it is the intent that they will be functionally equivalent to the existing representations.

Conformance for an SCA product is at the level of usage as follows:

- An SCA product needs to be conformant with the semantics, design and mandatory elements specified in a defined profile of a technology specific representation identified within this appendix.

E.2.2 Sample Conformance Statement

An SCA product can be identified as being conformant to a specific version of the SCA and the specific technology that the product realizes.

- “Product A is an SCA conformant waveform application in accordance with the LwAEP, SCA Lightweight CORBA Profile and the IDL/XML DTD platform.”

E.3 CONVENTIONS

N/A

E.4 NORMATIVE REFERENCES

N/A

E.5 INFORMATIVE REFERENCES

N/A

E.6 ATTACHMENTS

This appendix includes the following transport and technology mappings defined in their associated appendix. Additional transfer mechanisms may be included in future versions of this appendix.

E.6.1 Transfer Mechanism

- APPENDIX E-1: Platform Specific Model (PSM) - Common Object Request Broker Architecture (CORBA)

E.6.2 Enabling Technologies

- APPENDIX E-2: Platform Specific Model (PSM) - C++
- APPENDIX E-3: Platform Specific Model (PSM) - Object Management Group Interface Definition Language