



European Component Oriented Architecture (ECOIA®) Collaboration Programme: Architecture Specification Change Impact Sheet

Issue: 4

Prepared by
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Note: *This specification represents the output of a research programme and contains mature high-level concepts, though low-level mechanisms and interfaces remain under development and are subject to change. This standard of documentation is recommended as appropriate for limited lab-based evaluation only. Product development based on this standard of documentation is not recommended.*

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1 Scope

This document tracks changes between releases of the ECOA Architecture Specification.

ECOA specifies a uniform method for design, development and integration of complex real time software systems using a service oriented component based approach.

2 ECOA Architecture Specification Volumes

Architecture Specification Part 1	IAWG-ECO-TR-001 / DGT 144474 Issue 4 Architecture Specification Part 1 – Concepts
Architecture Specification Part 2	IAWG-ECO-TR-012 / DGT 144487 Issue 4 Architecture Specification Part 2 – Definitions
Architecture Specification Part 3	IAWG-ECO-TR-007 / DGT 144482 Issue 4 Architecture Specification Part 3 – Mechanisms
Architecture Specification Part 4	IAWG-ECO-TR-010 / DGT 144485 Issue 4 Architecture Specification Part 4 – Software Interface
Architecture Specification Part 5	IAWG-ECO-TR-008 / DGT 144483 Issue 4 Architecture Specification Part 5 – High Level Platform Requirements
Architecture Specification Part 6	IAWG-ECO-TR-006 / DGT 144481 Issue 4 Architecture Specification Part 6 – ECOA [®] Logical Interface
Architecture Specification Part 7	IAWG-ECO-TR-011 / DGT 144486 Issue 4 Architecture Specification Part 7 – Metamodel
Architecture Specification Part 8	IAWG-ECO-TR-004 / DGT 144477 Issue 4 Architecture Specification Part 8 – C Language Binding
Architecture Specification Part 9	IAWG-ECO-TR-005 / DGT 144478 Issue 4 Architecture Specification Part 9 – C++ Language Binding
Architecture Specification Part 10	IAWG-ECO-TR-003 / DGT 144476 Issue 4 Architecture Specification Part 10 – Ada Language Binding

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3 Current version

The current version of the Architecture Specification, published on the ECOA website, is:

- Issue 4

4 Change Tracking

The following table tracks major changes brought by each Architecture Specification Issue (compared to the previous version).

<p>AS Issue 4 (January 2016)</p>	<p>Major additions (features) :</p> <ul style="list-style-type: none"> • <u>Driver Components:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>An Application Software Component that translates the interface protocol used by legacy hardware or software into operations specified in a Service Definition with well-specified behaviour.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 1 - §8.1.2 ▪ Part 2 - §4.19 ▪ Part 3 - §7.11 ▪ Part 4 - §12 ▪ Part 8 - §12 ▪ Part 9 - §12 ▪ Part 10 - §12 • <u>Non volatile User Context:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>Context data that can be used for warm restart of an Application Software Component, which allows maintaining available functional data values in case of restart.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 1 - §7.6 ▪ Part 2 - §4.66 ▪ Part 3 - §8.4 ▪ Part 4 - §8; §11.9 ▪ Part 8 - §8; §11.9 ▪ Part 9 - §8; §11.9 ▪ Part 10 - §8; §11.9 • <u>PINFO (Persistent Information Management):</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>A way for Application Software Components to access persistent information, while remaining portable (i.e. agnostic to underlying mechanisms for handling such persistent data). "Persistent information" is data which will remain defined until it is explicitly deleted, even when the underlying platform is physically powered-off.</i>
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- Modified volumes:
 - Part 1 - §8.4
 - Part 2 - §4.42
 - Part 3 - §7.10
 - Part 4 - §9.4.14; §11.7
 - Part 7 - §6.1.3; §6.1.4; §6.1.5; §6.2.4; §8.8
 - Part 8 - §9.4.14; §11.7
 - Part 9 - §9.4.14; §11.7
 - Part 10 - §9.4.14; §11.7

Major changes of existing features:

- Platforms requirements simplification:
 - Abstract:
 - *Only actual platform requirements required for compliance with the ECOA standard have been kept. Previous requirements were removed as they are related to specific procurement requirements, not imposed by ECOA.*
 - Modified volumes:
 - Part 5 – whole document

Minor changes of existing features:

- Namespaces declaration improvement:
 - Abstract:
 - *Namespaces are now specified in the following form:
#namespace1#[_#namespacen#].types.xml.*
 - Modified volumes:
 - Part 4 – §9.1
- Asynchronous Request API change:
 - Abstract:
 - *Change return type from void to ECOA:return_status. The API can return ECOA:return_status:OK or ECOA:return_status:RESOURCE_NOT_AVAILABLE.*
 - Modified volumes:
 - Part 4 – §11.1.1.3
 - Part 8 - §11.1.1.3
 - Part 9 - §11.1.1.3
 - Part 10 - §11.1.1.3
- maxConcurrentRequests:
 - Abstract:
 - *Addition of maxConcurrentRequests to requestSent operation. Use of maxConcurrentRequests to determine queue size of request operations and associated responses.*
 - Modified volumes:

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	<ul style="list-style-type: none"> ▪ Part 7 - §6.1.5; §6.1.6; §8.8 <ul style="list-style-type: none"> • <u>Activation Model:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>Simplification by removing the explicit rhythmic activation model selection from the metamodel, as it can be implemented using the reactive model and periodic triggers.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 7 - §6.1.5; §8.8 • <u>Changed “NameId” type in the Metamodel:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>Removal of hyphen '-' as a valid character from NameId to remove issues with code bindings interpreting it as a minus sign.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 7 – §8.1.6 • <u>Changed “OpRefActivatingFifo-fifosize” type in the Metamodel:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>fifoSize changed from xsd:int to xsd:positiveInteger since null or negative integer do not make sense for sizing a FIFO.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 7 – §8.8 • <u>Changed “rank” type in the Metamodel:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>wire rank changed from xs:int to xs:positiveInteger since null or negative integer do not make sense.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 7 – §8.2 • <u>Changed “dynamicTrigger” type in the Metamodel:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>dynamicTrigger size changed from xs:int to xs:positiveInteger since null or negative integer do not make sense.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 7 – §8.8 • <u>Changed simple type name from “E_predef” to “E_basic” in the Metamodel:</u> <ul style="list-style-type: none"> ○ Abstract: <ul style="list-style-type: none"> ▪ <i>Name changed for clarity.</i> ○ Modified volumes: <ul style="list-style-type: none"> ▪ Part 7 – §8.13 • <u>Changed “ECO:DOUBLE64_MIN” and “ECO:DOUBLE64_MAX” constant values:</u>
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- Abstract:
 - *changed ECOA:DOUBLE64_MIN from -1. 7976931348623158e+308 to -1. 7976931348623157e+308*
 - *changed ECOA:DOUBLE64_MAX from 1. 7976931348623158e+308 to 1. 7976931348623157e+308.*
- Modified volumes:
 - Part 4 – §9.2
 - Part 8 - §9.2
 - Part 9 - §9.2
 - Part 10 - §9.2

Miscellaneous text clarifications (most significant ones):

- Example development process:
 - Abstract:
 - *The example development process has been improved for clarity.*
 - Modified volumes:
 - Part 1 - §7.11
- Operations timestamping:
 - Abstract:
 - *Management of timestamp points for ECOA API operations moved from Part 4 to Part 3.*
 - Modified volumes:
 - Part 3 - §7.1.1
 - Part 4 - §8.1
- Module lifecycle:
 - Abstract:
 - *Clarification of the sequence of lifecycle entry points call and lifecycle states update.*
 - Modified volumes:
 - Part 3 - §8.1
- Clarification of properties handling:
 - Abstract:
 - *More explanations added for clarity regarding properties management.*
 - Modified volumes:
 - Part 4 - §11.2.2; §11.2.3
- Clarification of ELI:
 - Abstract:
 - *Miscellaneous ELI volume clarifications.*
 - Modified volumes:
 - Part 6

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| | <ul style="list-style-type: none">• <u>Clarification of Metamodel legality rules:</u><ul style="list-style-type: none">○ Abstract:<ul style="list-style-type: none">▪ <i>Clarification of Metamodel legality rules to improve coherency and consistency of ECOA XML files.</i>○ Modified volumes:<ul style="list-style-type: none">▪ Part 7 – §6.2.1.1; §7 |
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