10.2.6.6 *showHistory* — This service is used to inquire history in HistoryRecord. Following table defines its parameters.

Table 60

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
Items	C	-	Expected Items.
Restriction	C	-	Restriction for items.
History	-	M	Requested attachment's history.
ServiceStatus	-	M	Result of service request.

10.2.6.7 *destruct* — This service is used to remove HistoryRecord object. This service is typically used when an attachment is removed from inventory. Following table defines its parameters.

Table 61

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
State	-	M	Immediate state just before removed.
ServiceStatus	-	M	Result of service request.

10.2.6.8 *Parameter List* — Above services use following parameters.

Table 62

Parameter	*Definition*	*Form*
DataName	Name of data value.	Text.
DataValue	Value of data.	Value.
EventCaption	Caption of an event for indexing information including identification, code and timestamp.	Text.
History	History of an Attachment. It's not necessary to have entire history depending on the other service parameters: it may be summary, limited or simple record.	Text.
Item	Category of a historic record: event, exception, fluctuating values, critical/affective process condition, cycles and etc.	Text.
Restriction	Screening parameter for history items: e.g., all, latest, summary, time=0715/300903-1655/311203, time=-100.	Text.
ServiceStatus	Result of service to show successful or reason of failure.	Text.
State	State of HistoryBuffer object.	Text.

10.2.7 *Inventory* — Following tables define services of Inventory class.

10.2.7.1 *Service List* — Inventory class has following services.

Table 63

Operation	*Description*	*Type*	*Reqd*
Update	Updates Inventory information for an Attachment.	R	Y
Install	Adds an Attachment to Inventory.	R	Y
uninstall	Removes an Attachment from Inventory.	R	Y
showNamespace	Inquires subject equipment group to serve.	R	N
changeNamespace	Changes subject equipment group to serve.	R	N
ListUp	List up attachments registered in Inventory.	R	Y
showData	Inquires information of an Attachment in Inventory.	R	Y

10.2.7.2 *update* — This service is used to updates information for an Attachment registered in Inventory. Following table defines its parameters.

Table 64

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	M	-	Identification of Attachment.
Operation	M	-	Operation done on an Attachment.
Location	C	-	Source, destination or both.
ServiceStatus	-	M	Result of service request.

10.2.7.3 *install* — This service is used to register a brand new or used Attachment for adding on Inventory. Following table defines its parameters.

Table 65

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	M	-	Identification of Attachment.
AttachmentName	M	-	Operation done on an Attachment.
AttachmentType	M	-	Operation done on an Attachment.
Location	C	-	Logical partition in Inventory: option.
History	C	-	Known history including manufacturer and date.
Handle	-	C	A kind of logical ID given locally on registration: option.
ServiceStatus	-	M	Result of service request.

10.2.7.4 *uninstall* — This service is used to unregister an Attachment for removing from Inventory. Following table defines its parameters.

Table 66

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	M	-	Identification of Attachment.
ServiceStatus	-	M	Result of service request.

10.2.7.5 *showNamespace* — This service is used to inquire target equipment group. Following table defines its parameters.

Table 67

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
GroupName	-	M	Target group name.
ServiceStatus	-	M	Result of service request.

10.2.7.6 *changeNamespace* — This service is used to change target equipment group. Following table defines its parameters.

Table 68

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
GroupName	M	-	New group name.
ServiceStatus	-	M	Result of service request.

10.2.7.7 *listUp* — This service is used to inquire registered Attachments in Inventory. Following table defines its parameters.

Table 69

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
Restriction	C	-	Condition for expected Attachments.
AttachmentId	-	M	Attachment identification (may be list).
ServiceStatus	-	M	Result of service request.

10.2.7.8 *showData* — This service is used to inquire information of a registered Attachment. Following table defines its parameters.

Table 70

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	M	-	Identification of Attachment.
AttachmentInfo	-	M	Information of specified Attachment including location.
ServiceStatus	-	M	Result of service request.

10.2.7.9 *Parameter List* — Above services use following parameters.

Table 71

Parameter	*Definition*	*Form*
AttachmentId	Identification of Attachment: usually equivalent to physical ID maybe tagged on physical attachment.	Text.
AttachmentInfo	Information of an Attachment as it is: location and such attributes as name and type. It is given by name-value pairs, concatenated with equal sign or colon and separated by semicolon: additional parenthesis and braces may be allowed for optional readability.	Text.
AttachmentName	Human friendly name assigned on an Attachment.	Text.
AttachmentType	Type of Attachment: at least jig or implement, and based on attachments' compatibility. Further classification is dependent on manufacturer, attachment, equipment or strategy of its user.	Enumerated.
GroupName	Target equipment group name for Inventory. This parameter is useful if there are several pieces of equipment with equivalent fundamental function but attachment management is separated by group.	Text.
Handle	A kind of logical ID given locally on registration or creation of Attachment object.	Text.
History	Historic record of Attachment.	Text.
Location	Public location of an Attachment, given by name and identification separated by a colon. Identification is optional but required if name is not unique for Inventory.	Text.
Operation	Updating operation name: one of following. Release: for leaving stock yard for equipment, Storage: for reaching stock yard, Deploy: for arriving by equipment, Withdraw: leaving equipment for stock yard, and Forward: for transferring for the other equipment.	Enumerated.
Restriction	Screening parameter for history items: e.g., all, type=ttttt, name=nnn.	Text.
ServiceStatus	Result of service to show successful or reason of failure.	Text.

10.2.8 *Invoice* — Following tables defines services of Invoice class.

10.2.8.1 *Service List* — Invoice class has following services.

Table 72

Operation	*Description*	*Type*	*Reqd*
ShowId	Inquires identification of Invoice.	R	Y
showAttachments	Inquires Attachment identifications on this Invoice.	R	Y
showTypes	Inquires Attachment Types respective above.	R	Y
showLoadports	Inquires expected load ports to load listed Attachments.	R	N
showHistory	Inquires history of each Attachment listed above.	R	Y

10.2.8.2 *showId* — This service is used to inquire Invoice's ID. Following table defines its parameters.

Table 73

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
InvoiceId	-	M	Identification of Invoice.
ServiceStatus	-	M	Result of service request.

10.2.8.3 *showAttachments* — This service is used to inquire a list of Attachment identification written in Invoice. Following table defines its parameters.

Table 74

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	-	M	Identification of Attachment (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.8.4 *showTypes* — This service is used to inquire Attachment types respective to Attachment list above. Following table defines its parameters.

Table 75

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentType	-	M	Type of Attachment (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.8.5 *showLoadports* — This service is used to inquire expected load ports to load Attachments. Following table defines its parameters.

Table 76

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
LoadportId	-	M	Load port number (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.8.6 *showHistory* — This service is used to inquire Attachment history. Following table defines its parameters.

Table 77

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	-	M	Identification of Attachment.
History	-	M	Requested attachment's history.
ServiceStatus	-	M	Result of service request.

10.2.8.7 *Parameter List* — Above services use following parameters.

Table 78

Parameter	*Definition*	*Form*
AttachmentId	Identification of Attachment: usually equivalent to physical ID maybe tagged on physical attachment.	Text.
AttachmentType	Type of Attachment: at least jig or implement, and based on attachments' compatibility. Further classification is dependent on manufacturer, attachment, equipment or strategy of its user.	Enumerated.
History	History of an Attachment. It's not necessary to have entire history: it may be summary, limited or simple record useful for choice of attachment suitable to specific process.	Text.
InvoiceId	Identification of Invoice assigned by such management agent as Attachment dispatcher or Attachment Tracer.	Text.
LoadportId	Load port number assigned; assignment manner may be dependent on equipment.	Text.
ServiceStatus	Result of service to show successful or reason of failure.	Text.

10.2.9 *JitMachine* — Following tables defines services of JitMachine class.

10.2.9.1 *Service List* — JitMachine class has following services.

Table 79

Operation	*Description*	*Type*	*Reqd*
ShowId	Inquires identification of JitMachin.	R	Y
showName	Inquires human friendly name of JitMachine.	R	Y
showType	Inquires JitMachine Types.	R	Y
receiveInvoice	Delivers Invoice information.	R	N
showAttachments	Inquires Attachments staying on a JitMachine (Secondments).	R	Y
showExceptions	Inquires effective Exceptions raised on a JitMachine.	R	Y

10.2.9.2 *showId* — This service is used to inquire JitMachine's ID. Following table defines its parameters.

Table 80

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
MachineId	-	M	Identification of JitMachine.
ServiceStatus	-	M	Result of service request.

10.2.9.3 *showName* — This service is used to inquire human friendly name of Jigs/Implements Tracking Machine. Following table defines its parameters.

Table 81

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
MachineName	-	M	Name of Machine.
ServiceStatus	-	M	Result of service request.

10.2.9.4 *showType* — This service is used to inquire Jigs/Implements Tracking Machine type. Following table defines its parameters.

Table 82

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
MachineType	-	M	Type of Machine.
ServiceStatus	-	M	Result of service request.

10.2.9.5 *receiveInvoice* — This service is used to delivers Invoice information to specific JitMachine. Following table defines its parameters.

Table 83

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
InvoiceId	M	-	Identification of Invoice.
AttachmentId	M	-	Identification of Attachment (maybe list).
AttachmentType	M	-	Type of Attachment (maybe list).
LoadportId	C	-	Load port number (maybe list).
History	M	-	Attachment's history (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.9.6 *showAttachments* — This service is used to inquire a list of Attachments staying on JitMachine. Following table defines its parameters.

Table 84

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	-	M	Identification of Attachment (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.9.7 *showExceptions* — This service is used to inquire effective Exceptions raised on a JitMachine. Following table defines its parameters.

Table 85

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
ExceptionId	-	M	Identification of Exception (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.9.8 *Parameter List* — Above services use following parameters.

Table 86

Parameter	*Definition*	*Form*
AttachmentId	Identification of Attachment: usually equivalent to physical ID maybe tagged on physical attachment.	Text.
AttachmentType	Type of Attachment: at least jig or implement, and based on attachments' compatibility. Further classification is dependent on manufacturer, attachment, equipment or strategy of its user.	Enumerated.
ExceptionId	Identification of Exception. It's usually dependent to equipment.	Text.
History	History of an Attachment. It's not necessary to have entire history: it may be summary, limited or simple record useful for choice of attachment suitable to specific process.	Text.
InvoiceId	Identification of Invoice assigned by such management agent as Attachment dispatcher or Attachment Tracer.	Text.
LoadportId	Load port number assigned; assignment manner may be dependent on equipment.	Text.
MachineId	Identification of JitMachine. It's usually dependent to equipment user.	Text.
MachineName	Human Friendly of JitMachine. It's usually dependent to equipment user.	Text.
MachineType	Type of JitMachine. It starts with such general name as 'Molder', followed by supplier, model name/number of equipment and may be version code. They are separated by colon. The general name is mandatory but the others are optional dependent on compatibility.	Text.
ServiceStatus	Result of service to show successful or reason of failure.	Text.

10.2.10 *PublicLocation* — Following tables define services of PublicLocation class.

10.2.10.1 *Service List* — PublicLocation class has following services.

Table 87

Operation	*Description*	*Type*	*Reqd*
showId	Inquires identification of the location.	R	Y
showName	Inquires name of the location.	R	Y
changeName	Substitutes name of the location.	R	Y
showLocationType	Inquires type of the location.	R	Y
showPossibleType	Inquires acceptable type of attachment on the location.	R	Y
ShowCapacity	Inquires the capacity of the location.	R	Y
showAvailableSpace	Inquires acceptable amount of attachments.	R	Y
updateOccupanvy	Increases or decreases occupying attachments on the location.	R	Y
showAttachments	Inquires attachments on the location.	R	Y
showState	Inquires state information.	R	Y
updateState	Updates state information.	R	Y

10.2.10.2 *showId* — This service is used to inquire location's identification. Following table defines its parameters.

Table 88

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
LocationId	-	M	Identification of Public Location.
ServiceStatus	-	M	Result of service request.

10.2.10.3 *showName* — This service is used to inquire human friendly name of PublicLocation. Following table defines its parameters.

Table 89

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
LocationName	-	M	Given name of possible location for Attachment.
ServiceStatus	-	M	Result of service request.

10.2.10.4 *changeName* — This service is used to replace human friendly name of PublicLocation. Following table defines its parameters.

Table 90

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
LocationName	M	-	New name of possible location for Attachment.
ServiceStatus	-	M	Result of service request.

10.2.10.5 *showLocationType* — This service is used to inquire type of PublicLocation. Following table defines its parameters.

Table 91

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
LocationType	-	M	Type of PublicLocation.
ServiceStatus	-	M	Result of service request.

10.2.10.6 *showPossibleTypes* — This service is used to inquire acceptable Attachment types for the Public Location. Following table defines its parameters.

Table 92

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentType	-	M	Acceptable type of Attachment (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.10.7 *showCapacity* — This service is used to inquire maximum number of occupancy of Attachment for Public Location. Following table defines its parameters.

Table 93

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
Capacity	-	M	Maximum number of acceptable Attachment on Public Location.
ServiceStatus	-	M	Result of service request.

10.2.10.8 *showAvailableSpace* — This service is used to inquire number of available additional occupants on the Public Location for Attachment. Following table defines its parameters.

Table 94

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
Space	-	M	Open space for possible Attachments on PublicLocation.
ServiceStatus	-	M	Result of service request.

10.2.10.9 *updateOccupancy* — This service is used to fluctuate number of available unoccupied space on PublicLocation. Following table defines its parameters.

Table 95

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
Occupancy	M	-	Number of occupancy to increase or decrease.
ServiceStatus	-	M	Result of service request.

10.2.10.10 *showAttachments* — This service is used to inquire a list of Attachments occupying on PublicLocation. Following table defines its parameters.

Table 96

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	-	M	Identification of Attachment (maybe list).
ServiceStatus	-	M	Result of service request.

10.2.10.11 *showState* — This service is used to inquire occupancy state of Public Location. Following table defines its parameters.

Table 97

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
State	-	M	State of Public Location.
ServiceStatus	-	M	Result of service request.

10.2.10.12 *updateState* — This service is used to update occupancy state of Public Location in order to follow reality of corresponding Attachment on equipment. Following table defines its parameters.

Table 98

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
State	M	-	New state of PublicLocation.
ServiceStatus	-	M	Result of service request.

10.2.10.13 *Parameter List* — Above services use following parameters.

Table 99

Parameter	*Definition*	*Form*
AttachmentId	Identification of Attachment: usually equivalent to physical ID maybe tagged on physical attachment.	Text.
AttachmentType	Type of Attachment: at least jig or implement, and based on attachments' compatibility. Further classification is dependent on manufacturer, attachment, equipment or strategy of its user.	Enumerated.
Capacity	Maximum number of occupant available on Public Location.	Value.
LocationId	Identification of PublicLocation. If stock has logical or physical partitions, their locations may be differently identified. If a piece of equipment has more than one locations for different Attachment types, their locations may be differently identified.	Text.
LocationName	Human friendly name of PublicLocation.	Text.

Parameter	*Definition*	*Form*
LocationType	Type of PublicLocation. At lease it is classified into 'Stock' and 'Equipment'. If stock has logical or physical partitions, their types may different LocationTypes. If a piece of equipment has more than one locations, they may be different LocatuinTypes.	Text.
Space	Number of available free position for possible Attachment.	Value.
Occupancy	Fluctuation number of occupants for PublicLocation: positive for increment and negative for decrement.	Value.
ServiceStatus	Result of service to show successful or reason of failure.	Text.
State	Occupancy state of PublicLocation object.	Text.

10.2.11 *Secondment* — Following tables defines services of Secondment class.

10.2.11.1 *Service List* — Secondment class has following services.

Table 100

Operation	*Description*	*Type*	*Reqd*
ShowId	Inquires secondment's identification.	R	Y
showName	Inquires secondment's name.	R	Y
changeName	Substitutes secondment's name.	R	Y
showType	Inquires type of the secondment.	R	Y
showState	Inquires state information.	R	Y
Destruct	Destruct a Secondment object.	R	Y

10.2.11.2 *showId* — This service is used to inquire Secondment's identification. Following table defines its parameters.

Table 101

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentId	-	M	Identification of Secondment.
ServiceStatus	-	M	Result of service request.

10.2.11.3 *showName* — This service is used to inquire human friendly name of Secondment. Following table defines its parameters.

Table 102

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentName	-	M	Given human friendly name of Secondment.
ServiceStatus	-	M	Result of service request.

10.2.11.4 *changeName* — This service is used to replace human friendly name of Secondment. Following table defines its parameters.

Table 103

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentName	M	-	New name of Secondment.
ServiceStatus	-	M	Result of service request.

10.2.11.5 *showType* — This service is used to inquire type of Secondment. Following table defines its parameters.

Table 104

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
AttachmentType	-	M	Type of Secondment.
ServiceStatus	-	M	Result of service request.

10.2.11.6 *showState* — This service is used to inquire state of Secondment. Following table defines its parameters.

Table 105

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
State	-	M	State of Secondment.
ServiceStatus	-	M	Result of service request.

10.2.11.7 *destruct* — This service is used to remove Secondment object. This service is typically used when an attachment is removed from equipment. Following table defines its parameters.

Table 106

Parameter	*Req/Ind*	*Rsp/Conf*	*Description*
State	-	M	Immediate state just before removed.
ServiceStatus	-	M	Result of service request.

10.2.11.8 *Parameter List* — Above services use following parameters.

Table 107

Parameter	*Definition*	*Form*
AttachmentId	Identification of Attachment: usually equivalent to physical ID maybe tagged on physical attachment.	Text.
AttachmentName	Human friendly name assigned on an Attachment.	Text.
AttachmentType	Type of Attachment: at least jig or implement, and based on attachments' compatibility. Further classification is dependent on manufacturer, attachment, equipment or strategy of its user.	Enumerated.
ServiceStatus	Result of service to show successful or reason of failure.	Text.
State	Occupancy state of PublicLocation object.	Text.

RELATED INFORMATION 1
USE CASE OF TRACKING JIGS AND IMPLEMENTS

NOTICE: This related information is not an official part of SEMI T12 and was derived from the work of the originating task force. This related information was approved for publication by full letter ballot procedures on January 9, 2004.

R1-1 Use Case Diagram

R1-1.1 Use Case diagram is one of good start point to understand and analyze problem domain. It is often used before modeling a system.

R1-1.2 Use Case diagram consists of Actors and Use Cases. A use case defines something expected to a system related to an actor or between actors. All use cases build up whole system.

R1-2 Use Case Diagram of Attachment Tracking

R1-2.1 Figure R1-1 is for use cases of Jigs and Implements.

R1-2.2 *Update Inventory* — Jig Handler updates when it takes jig to or brings from equipment. Tool updates when jig has arrived (and verified) and removed.

R1-2.3 *Update or Check History* — Tool reports when it uses some amount of cycle or such things as maintenance, inspection or problem happens. Superintendent checks history of a jig. Provided information is based on data in database with inquiry about current delta on equipment.

R1-2.4 *Manage Exception* — Tool reports when some exception happens. Superintendent instructs something. Tool replies.

R1-2.5 *Invoice* — Superintendent send invoice to let tool know which jig is delivered. Tool asks whether received jig is right one or not. If something is wrong, an exception process is required.

R1-2.6 *Manage Expiration* — When Jig is used repeatedly and it use-time or cycles reaches preset value, tool has to make some expected action to avoid unexpected processing.

R1-2.7 *Manage Exception* — Superintendent configures effective period or cycle of a Jig. Tool stop using the Jig or notify the event when it is expired.

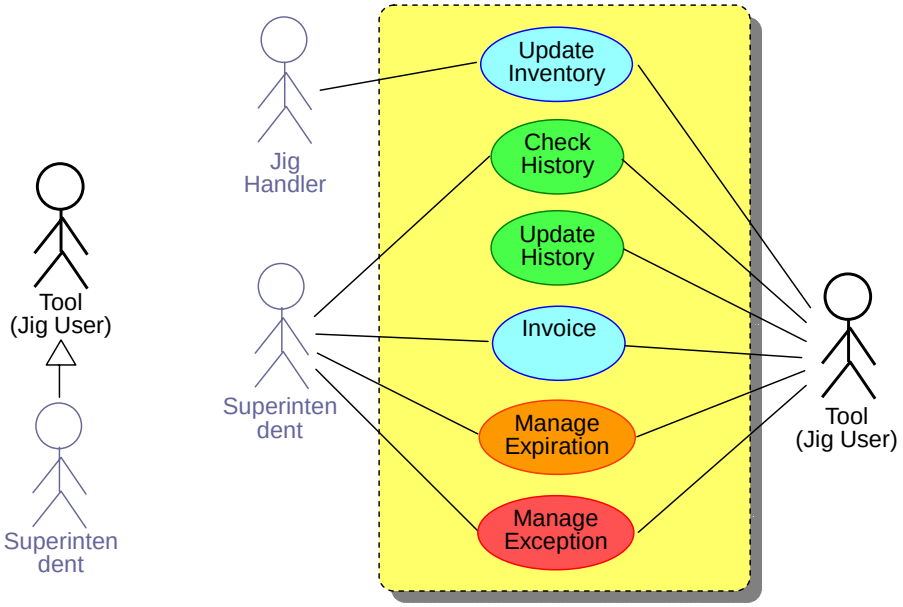

Figure R1-1

RELATED INFORMATION 2
AN EXAMPLE ON EQUIPMENT WITH SECS-II AND GEM

NOTICE: This related information is not an official part of SEMI T12 and was derived from the work of the originating task force. This related information was approved for publication by full letter ballot procedures on January 9, 2004.

R2-1 GEM Level Example

R2-1.1 This example is a possible implementation of attachment tracking capabilities "*Acquisition of Minimum Tracking Information*" and "*Action on Expiration*" with SEMI E5 (SECS-II) and SEMI E30 (GEM).

R2-1.2 Great many equipment and production lines adopt GEM level implementation around the world because it was standardized more than ten years ago and was the only unified communication standard between equipment and factory host computer for long period.

R2-2 Example Scenario

R2-2.1 An example scenario consists of setting up expiry, tracing data of an attachment and hitting expiration.

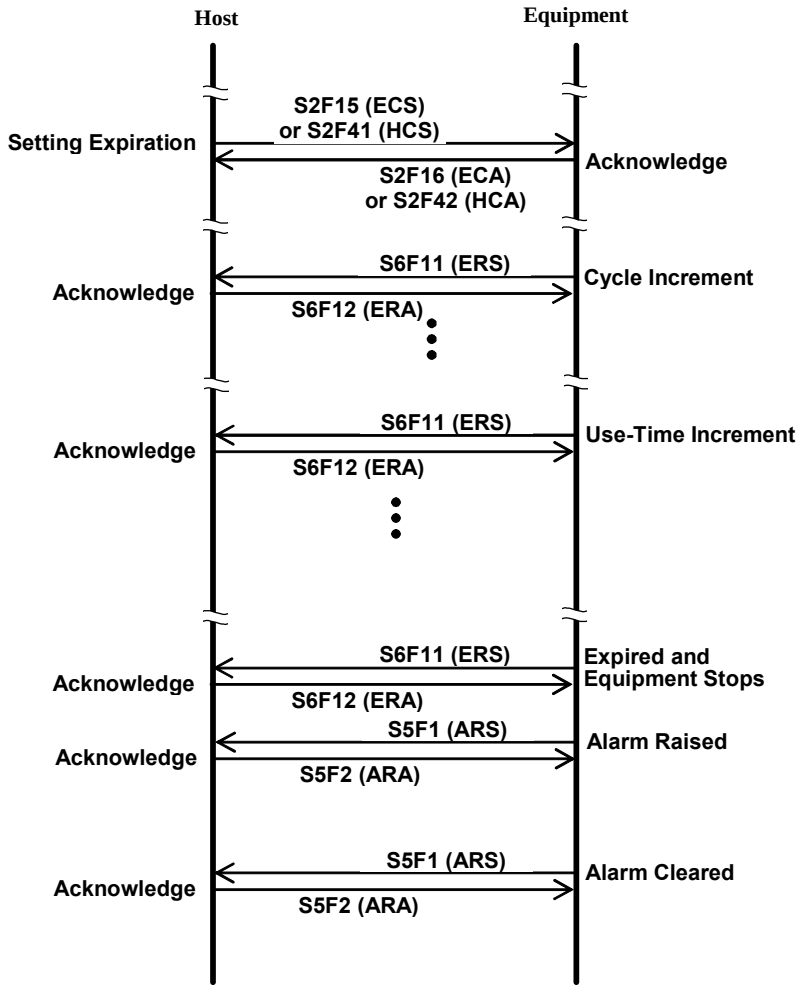

Figure R2-1

RELATED INFORMATION 3
AN EXAMPLE ON EQUIPMENT WITH SECS-II, GEM AND OSS

NOTICE: This related information is not an official part of SEMI T12 and was derived from the work of the originating task force. This related information was approved for publication by full letter ballot procedures on January 9, 2004.

R3-1 Example with GEM plus OSS

R3-1.1 This example is a possible implementation of attachment tracking capabilities "*Acquisition of Minimum Tracking Information*", "*Action on Expiration*" and "*Identification and Verification of Attachments*" with SEMI E5 (SECS-II), SEMI E30 (GEM) and SEMI E39 (OSS).

R3-1.2 Object base system modeling and OSS has been recognized recently by equipment users especially in 300 mm fabs as handy tools to access data on equipment because the allows accessing unit by object rather than all values or just one data.

R3-2 Example Scenario

R3-2.1 An example scenario consists of verification of attachment/setting up expiry, tracing data of an attachment and hitting expiration.

R3-2.2 *Verification of Attachment/Setting up Expiry*

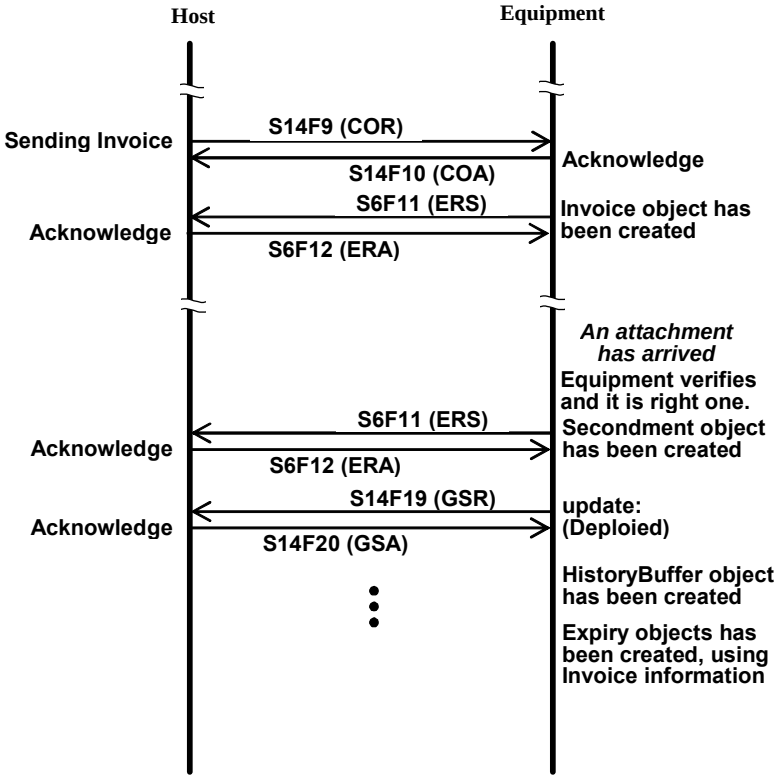

Figure R3-1

R3-2.3 *Tracing Data of an Attachment and Hitting Expiration*

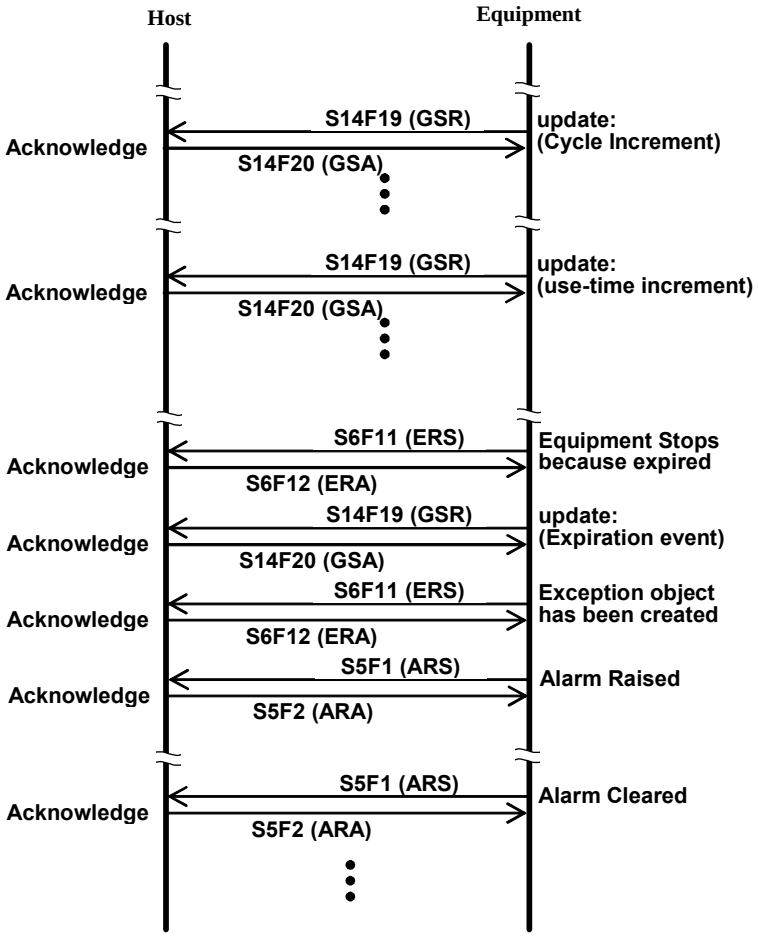

Figure R3-2

SEMI T12.1-0704
SPECIFICATION FOR SECS PROTOCOL FOR TRACKING JIGS AND IMPLEMENTS

This specification was technically approved by the Global Traceability Committee and is the direct responsibility of the Japanese Traceability Committee. Current edition approved by the Japanese Regional Standards Committee on April 30, 2004. Initially available at www.semi.org June 2004; to be published July 2004.

1 Purpose

1.1 The purpose of this document is to map Services and data in Specification of Tracking Jig and Implements into SECS protocol.

2 Scope

2.1 This document is applied to SECS implementation of Jigs and Implements traceability with some interoperability with semiconductor Manufacturing Execution System (MES).

NOTICE: This standard does not purport to address safety issues, if any, associated with its use. It is the responsibility of the users of this standard to establish appropriate safety and health practices and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards

3.1 *SEMI Standards*

SEMI E5 — SEMI Equipment Communication Standard 2 Message Content (SECS-II)

SEMI E39 — Object Service Standard: Concepts, Behavior and Services

SEMI T12 — Specification for Tracing Jigs and Implements

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

4 Requirements

4.1 *Service Mapping* — This specification maps service instructions defined in "Specification for Jigs and Implements" into SECS stream/functions as follows. Supporting Class names specified in the following table are used as OBJSPEC or a part of OBJSPEC to request services.

Table 1 Service Message Instruction Mapping

Service Message Name	*Supporting Class*	*Stream, Function*	*SECS-II Message Name*
addEvent	HistoryRecord	S14, F19/F20	Generic Service Request / Response
adopt	HistoryDB	S14, F19/F20	Generic Service Request / Response
changeAction	Expiry	S14, F19/F20	Generic Service Request / Response
changeDescription	Expiry	S14, F19/F20	Generic Service Request / Response
changeExpiration	Expiry	S14, F19/F20	Generic Service Request / Response
changeName	Attachment, PublicLocation, Secondment	S14, F19/F20	Generic Service Request / Response
changeNamespace	Inventory	S14, F19/F20	Generic Service Request / Response
destrcut	Exception, Expiry, HistoryBuffer, HistoryRecord, Secondment	S14, F19/F20	Generic Service Request / Response
disown	HistoryDB	S14, F19/F20	Generic Service Request / Response
fluctuate	HistoryRecord	S14, F19/F20	Generic Service Request / Response
install	Inventory	S14, F19/F20	Generic Service Request / Response
listEvent	HistoryRecord	S14, F19/F20	Generic Service Request / Response

Service Message Name	*Supporting Class*	*Stream, Function*	*SECS-II Message Name*
listRecords	HistoryDB	S14, F19/F20	Generic Service Request / Response
listUp	Inventory	S14, F19/F20	Generic Service Request / Response
receiveInvoice	JitMachine	S14, F19/F20	Generic Service Request / Response
reset	HistoryDB	S14, F19/F20	Generic Service Request / Response
setReleaseCondition	HistoryBuffer	S14, F19/F20	Generic Service Request / Response
showAction	Expiry	S14, F19/F20	Generic Service Request / Response
showAttachment	HistoryBuffer	S14, F19/F20	Generic Service Request / Response
showAttachments	Invoice, JitMachine, PublicLocation	S14, F19/F20	Generic Service Request / Response
showAvailableSpace	PublicLocation	S14, F19/F20	Generic Service Request / Response
showCapacity	PublicLocation	S14, F19/F20	Generic Service Request / Response
showCategory	Exception	S14, F19/F20	Generic Service Request / Response
showCode	Exception	S14, F19/F20	Generic Service Request / Response
showData	Inventory	S14, F19/F20	Generic Service Request / Response
showDescription	Exception, Expiry	S14, F19/F20	Generic Service Request / Response
showEvent	HistoryRecord	S14, F19/F20	Generic Service Request / Response
showExeptions	JitMachine	S14, F19/F20	Generic Service Request / Response
showExpiration	Expiry	S14, F19/F20	Generic Service Request / Response
showHistory	Attachment, HistoryBuffer, HistoryDB, HistoryRecord, Invoice	S14, F19/F20	Generic Service Request / Response
showId	Attachment, Exception, Expiry, Invoice, JitMachine, PublicLocation, Secondment	S14, F19/F20	Generic Service Request / Response
showLoadports	Invoice	S14, F19/F20	Generic Service Request / Response
showLocationType	PublicLocation	S14, F19/F20	Generic Service Request / Response
showName	Attachment, JitMachine, PublicLocation, Secondment	S14, F19/F20	Generic Service Request / Response
showNamespace	Inventory	S14, F19/F20	Generic Service Request / Response
showOccupancy	PublicLocation	S14, F19/F20	Generic Service Request / Response
showPossibleType	PublicLocation	S14, F19/F20	Generic Service Request / Response
showReleaseCondition	HistoryBuffer	S14, F19/F20	Generic Service Request / Response
showState	Exception, Expiry, HistoryBuffer, PublicLocation, Secondment	S14, F19/F20	Generic Service Request / Response
showSubject	Exception, Expiry	S14, F19/F20	Generic Service Request / Response
showType	Attachment, JitMachine, Secondment	S14, F19/F20	Generic Service Request / Response
showTypes	Invoice	S14, F19/F20	Generic Service Request / Response
uninstall	Inventory	S14, F19/F20	Generic Service Request / Response
update	HistoryDB, Inventory	S14, F19/F20	Generic Service Request / Response
updateHistory	Attachment, Exception, HistoryBuffer	S14, F19/F20	Generic Service Request / Response
updateState	PublicLocation	S14, F19/F20	Generic Service Request / Response

4.2 *Service Parameter Mapping* — The Following Table shows the mapping between service parameters defined by "Specification for Tracking Jigs and Implements" standard and Data Items defined by SEMI E5. The data item SVCNAME used with S14F19 is the text string defined in the above table. The data item SPNAME used with S14F19/F20 is also text string defined in following table. It is recommended but not limited to be case sensitive for both data items for future extension.

Table 2 Service Message Parameter Mapping

Parameter Name	*SECS-II Data Item Reference*	*SECS-II Format*	*Remarks*
Action	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Action SPVAL = (20)	
AttachmentId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = AttachmentId SPVAL = (20)	
AttachmentInfo	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = AttachmentInfo SPVAL = (20)	
AttachmentName	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = AttachmentName SPVAL = (20)	
AttachmentType	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = AttachmentType SPVAL = (20)	Space separated enumeration if more than one enumerated items.
Capacity	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Capacity SPVAL = (51, 52, 54)	
Category	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Category SPVAL = (20)	
Code	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Code SPVAL = (20)	
Condition	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Condition SPVAL = (20)	
DataName	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = DataName SPVAL = (20)	
DataValue	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = DataValue SPVAL = (00, 1x, 2x, 3x, 4x, 5x)	“x” is an appropriate octal defined in SEMI E5.
Description	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Description SPVAL = (20)	
EventCaption	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = EventCaption SPVAL = (20)	
ExceptionId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = ExceptionId SPVAL = (20)	numeric or alpha-numeric
Expiration	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Expiration SPVAL = (20)	
ExpiryId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = ExpiryId SPVAL = (20)	

Parameter Name	*SECS-II Data Item Reference*	*SECS-II Format*	*Remarks*
GroupName	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = GroupName SPVAL = (20)	
Handle	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Handle SPVAL = (20)	
History	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = History SPVAL = (20)	
HistoryDifference	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = HistoryDifference SPVAL = (20)	
InvoiceId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = InvoiceId SPVAL = (20)	
Item	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Item SPVAL = (20)	
LoadportId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = LoadportId SPVAL = (20)	
Location	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Location SPVAL = (20)	
LocationId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = LocationId SPVAL = (20)	
LocationName	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = LocationName SPVAL = (20)	
LocationType	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = LocationType SPVAL = (20)	
MachineId	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = MachineId SPVAL = (20)	
MachineName	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = MachineName SPVAL = (20)	
MachineType	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = MachineType SPVAL = (20)	
Operation	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Operation SPVAL = (20)	One of enumerated word defined in the standard.
Occupancy	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Occupancy SPVAL = (51, 52, 54)	

Parameter Name	*SECS-II Data Item Reference*	*SECS-II Format*	*Remarks*
Restriction	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Restriction SPVAL = (20)	
ServiceStatus	L, 2 1. <SVCACK> 2. L, p 1. L, 2 1. <ERRCODE$_1$> 2. <ERRTEXT$_1$> …. …. …. p. L, 2 1. <ERRCODE$_p$> 2. <ERRTEXT$_p$>	SVCACK = (10) ERRCODE = (51, 52, 54) ERRTEXT = (20)	If service was successful, P=0 and no error list is attached. If not, the maximum length of each ERRTEXT must be 80.
Space	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = Space SPVAL = (51, 52, 54)	
State	L, 2 1. <SPNAME> 2. <SPVAL>	SPNAME = State SPVAL = (20)	
Name of Service	<SVCNAME>	20	*Note:* message name other than message parameter.

4.3 *The Other Communication* — The other SECS-II communication may additionally take place to run manufacturing systems. Such communications as event report and exception notification are usually done from equipment to host. Also some instructive communications for manufacturing as job management and remote command are done from host to equipment. But they are just recommended to do regularly and independently to this specification because they are not in the scope of traceability but in production scope.

RELATED INFORMATION 1
LEGACY SECS MAPPING FOR RESTRICTED CAPABILITIES

NOTICE: This related information is not an official part of SEMI T12.1 and was derived from the Japanese Traceability Committee. This related information was approved for publication by full letter ballot on April 30, 2004.

R1-1 Legacy Mapping for Older Equipment

R1-1.1 Often older equipment may not have Object Service capability implemented with functions of stream 14. Limited service messages and their parameters are mapped as shown in the following tables. This mapping is one of example legacy mappings and there are not a full mapping but effective functions for Jigs and Implements Tracking.

Table R1-1 Service Instructions Mapping

Service Message Name	*Supporting Class*	*Stream, Function*	*SECS-II Message Name*
changeAction	Expiry	S2, F15/F16	New Equipment Constans Send / Ack.
changeExpiration	Expiry	S2, F15/F16	New Equipment Constans Send / Ack.
showState	Expiry	S1, F3/F4	Selected Equipment Status Request / Data
updateHistory	Attachment	S6, F11/F12	Event Report Send / Acknowledge
updateState	PublicLocation	S6, F11/F12	Event Report Send / Acknowledge

Table R1-2 Service Parameters Mapping

Parameter Name	*SECS-II Data Item Reference*	*SECS-II Format*	*Remarks*
Action	L, 2 1. <ECID> 2. <ECV>	ECID = (20) ECV = (3x, 4x, 5x)	changeAction of Expiry
Expiration	L, 2 1. <ECID> 2. <ECV>	ECID = (20) ECV = (3x, 4x, 5x)	changeExpiration of Expiry
HistoryDifference	<V>	V=(0, 1x, 2x, 3x, 4x, 5x)	updateHistory of Attachment
Item	<V>	V=(20, 3x, 5x)	updateHistory of Attachment
ServiceStatus	L, 0	N/A	changeAction / changeExpiration of Expiry
	<EAC>	EAC=(10)	showState of Expiry
State	<SV>	SV=(20)	showState of Expiry <SVID> is required
	<V>	SV=(20, 1x)	updateState of PublicLocation

SEMI T12.2-0704
SPECIFICATION FOR XML PROTOCOL FOR TRACKING JIGS AND IMPLEMENTS

This specification was technically approved by the Global Traceability Committee and is the direct responsibility of the Japanese Traceability Committee. Current edition approved by the Japnese Regional Standards Committee on April 30, 2004. Initially available at www.semi.org June 2004; to be published July 2004.

1 Purpose

1.1 The purpose of this document is to map Services and data in Specification of Tracking Jig and Implements into XML protocol.

2 Scope

2.1 This document is applied to XML implementation of Jigs and Implements traceability with some interoperability with Surface Mount Technology (SMT) equipment.

NOTICE: This standard does not purport to address safety issues, if any, associated with its use. It is the responsibility of the users of this standard to establish appropriate safety and health practices and determine the applicability of regulatory or other limitations prior to use.

3 Limitations

3.1 This protocol mapping has a consideration being interoperable with SMT manufacturing it may be used in such area, using this specification on such manufacturing area is not guaranteed because this specification is originally planned to be working on semiconductor manufacturing systems including equipment.

4 Referenced Standards

4.1 *SEMI Standards*

SEMI T12 — Specification for Tracing Jigs and Implements

4.2 *Association Connecting Electronics Industries (IPC)/National Electronics Manufacturing Initiative (NEMI)/American National Standard institute (ANSI)* [1]

IPC-2501 — Definition for Web-Based Exchange of XML data; (July, 2003)

IPC-2541 — Generic Requirements for Electronics Manufacturing Shop-Floor Equipment Communication (CAMX); (October, 2001 / ANSI Approved November, 2001)

4.3 *World Wide Web Consortium (W3C)* [2]

REC-xml-20001006 — Extensible Markup Language (XML) 1.0 (Second Edition)

NOTE-SOAP-20000508 — Simple Object Access Protocol (SOAP) 1.1

4.4 *Internet Engineering Task Force* [3]

RFC2045 — Multipurpose Internet Message Extensions (MIME) Part 1: Format of Internet Message Bodies

RFC2616 — Hyper Text Transfer Protocol – HTTP/1.1

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

5 Terminology

5.1 *Acronyms and Abbreviations*

5.1.1 *MIME* — Multipurpose Internet Message Extensions

5.1.2 *SOAP* — Simple Object Access Protocol

5.1.3 *XML* — eXtensible Markup Language

6 Base Requirements

6.1 *Base Protocol Mapping* — This XML protocol specification adopts Simple Object Access Protocol (SOAP) over Hyper Text Transfer Protocol (HTTP) on Transmission Control Protocol/Internet Protocol (TCP/IP). Some equipment users produce not only semiconductor devices but also Print Circuit Boards (PCBs). It is convenient for such users to have common messaging protocol with standard messaging for Surface Mount Technology (SMT). For this purpose this protocol mapping extension standard specifies the messaging mechanism conformant to IPC-2501 “Definition for Web-Based Exchange of XML Data” as one of mapping means. Also this extension standard document follows IPC-2541 “Generic Requirements for Electronics Manufacturing Shop-Floor Equipment

1 http://www.ipc.org, http://www.nemi.org, http://www.ansi.org,
The original developer is IPC with NEMI cooperation, ANSI ends up with authorizing approval.

2 http://www.w3c.org,

3 http://www.ietf.org,

Communication Messages" and IPC-2551 "Sectional Requirements for Manufacturing Execution System" for that reason. The following subsections describe a part of these specifications for introduction. Refer to these documents for detail reference.

6.2 *SOAP Structure* — A HTTP message in this specification has an envelope to contain a couple of MIME blocks. One is for SOAP Envelope and the other is for message detail to be able to mix with such non-XML information as binary data. The service message specified in "Specification for Tracking Jigs and Implements" is contained in latter one. SOAP standard envelop MIME Block contains SOAP Header which has message information and SOAP Body which contains SOAP Faults. Outlined diagram is shown in Related Information. Official definitions are given in referenced documents.

6.3 *Messaging Mechanism* — Message Broker, that is logical middle ware server to handle and relay messages, is assumed somewhere on communication network. While the broker behaves as communication server, the other logical nodes are message clients. Every message starts with a client and responded by the server. Messages communicated between clients are exchanged through the server. The server keeps posted messages from clients in a queue for each individual client. Expecting recipient client asks the server for messages and a topmost message in the queue for the client is responded if the queue is not empty. The recipient client posts acknowledge back to the server. When the recipient replies back a message to the original sender client, same thing happens with switched roles between sender and recipient clients. Explanatory diagrams for this outline are shown in Related Information. Official specification is given in referenced documents.

6.4 *Issues Specific to this Messaging* — A few issues for IPC based communication protocol for Jigs and Implements Tracking are introduced here.

6.4.1 *Domain Configuration* — Message Broker has domain configuration information to make sure all acting entities, possible messages with related publisher, recipient and subscriber clients. Also it has other detail characteristics of the domain of communication. Every client needs to look up the information before the first messaging.

6.4.2 *Message Information* — This is an element contained in SOAP Header. This information provides time of transaction, sender, destination, message identification and schema type used for service message detail in the second MIME block.

6.4.3 *Attributes in Service Message Element* — The top element of each service message has date/time of the message, session ID or session reference, request ID or request reference, and optional values. Some of the optional values are extended for Jigs and Implements Tracking communication: linkId, linkCnt and linkExp. The extension may be used for delayed reply message and multiple divided replies to keep conformance of related messages.

7 Requirements

7.1 *Service Mapping* — Services defined in "Specification for Tracking Jigs and Implement" are mapped on the following table.

7.1.1 *Capitalized Service Message Element Name Base* — Each service message is mapped into an XML element with capitalized heading letter to prevent collision with XML or XML Schema native words.

7.1.2 *Service Message Element Name Suffix* — Because of symmetry of message broker communication and for XML element naming convention, suffix of 'Request' or 'Response' is added to each service message element name for request or response respectively: e.g. AddEventRequest to request service and AddEventResponse for its response message.

Table 1 Service Instruction Mapping

Service Message Name	*Supporting Class*	*Service Message Element Name Base*	*Remarks*
addEvent	HistoryRecord	AddEvent	
adopt	HistoryDB	Adopt	
changeAction	Expiry	ChangeAction	
changeDescription	Expiry	ChangeDescription	
changeExpiration	Expiry	ChangeExpiration	
changeName	Attachment, PublicLocation, Secondment	ChangeName	
changeNamespace	Inventory	ChangeNamespace	
destrcut	Exception, Expiry, HistoryBuffer, HistoryRecord, Secondment	Destrcut	
disown	HistoryDB	Disown	

Service Message Name	*Supporting Class*	*Service Message Element Name Base*	*Remarks*
fluctuate	HistoryRecord	Fluctuate	
install	Inventory	Install	
listEvent	HistoryRecord	ListEvent	
listRecords	HistoryDB	ListRecords	
listUp	Inventory	ListUp	
receiveInvoice	JitMachine	ReceiveInvoice	
reset	HistoryDB	Reset	
setReleaseCondition	HistoryBuffer	SetReleaseCondition	
showAction	Expiry	ShowAction	
showAttachment	HistoryBuffer	ShowAttachment	
showAttachments	Invoice, JitMachine, PublicLocation	ShowAttachments	
showAvailableSpace	PublicLocation	ShowAvailableSpace	
showCapacity	PublicLocation	ShowCapacity	
showCategory	Exception	ShowCategory	
showCode	Exception	ShowCode	
showData	Inventory	ShowData	
showDescription	Exception, Expiry	ShowDescription	
showEvent	HistoryRecord	ShowEvent	
showExeptions	JitMachine	ShowExeptions	
showExpiration	Expiry	ShowExpiration	
showHistory	Attachment, HistoryBuffer, HistoryDB, HistoryRecord, Invoice	ShowHistory	
showId	Attachment, Exception, Expiry, Invoice, JitMachine, PublicLocation, Secondment	ShowId	
showLoadports	Invoice	ShowLoadports	
showLocationType	PublicLocation	ShowLocationType	
showName	Attachment, JitMachine, PublicLocation, Secondment	ShowName	
showNamespace	Inventory	ShowNamespace	
showOccupancy	PublicLocation	ShowOccupancy	
showPossibleType	PublicLocation	ShowPossibleType	
showReleaseCondition	HistoryBuffer	ShowReleaseCondition	
showState	Exception, Expiry, HistoryBuffer, PublicLocation, Secondment	ShowState	
showSubject	Exception, Expiry	ShowSubject	
showType	Attachment, JitMachine, Secondment	ShowType	
showTypes	Invoice	ShowTypes	
uninstall	Inventory	Uninstall	
update	HistoryDB, Inventory	Update	
updateHistory	Attachment, Exception, HistoryBuffer	UpdateHistory	
updateState	PublicLocation	UpdateState	

7.2 *Service Parameter Mapping* — Service parameter type mapping is shown in the following table.

Table 2 Service Parameter Type Mapping

Parameter Name	*Attribute/Element*	*Type*	*Remarks*
Action	Element	string	
AttachmentId	Element	string	
AttachmentInfo	Element	string	
AttachmentName	Element	string	
AttachmentType	Element	anyType	Some Enumeration
Capacity	Element	unsignedInt	
Category	Element	string	
Code	Element	string	
Condition	Element	string	
DataName	Element	string	
DataValue	Element	anyType	Usually integer or float
Description	Element	string	
EventCaption	Element	anyType	Formatted Text
ExceptionId	Element	string	
Expiration	Element	string	
ExpiryId	Element	string	
GroupName	Element	string	
Handle	Element	string	
History	Element	anyType	Formatted Text
HistoryDifference	Element	anyType	Formatted Text
InvoiceId	Element	string	
Item	Element	string	maybe enumerated
LoadportId	Element	string	Usually small integer
Location	Element	string	
LocationId	Element	string	
LocationName	Element	string	
LocationType	Element	string	
MachineId	Element	string	
MachineName	Element	string	
MachineType	Element	string	
Operation	Element	string	Enumerated
Occupancy	Element	int	Positive or Nagative
Restriction	Element	string	regular expression or any
ServiceStatus	Element	complexType	status+ Rejection
Space	Element	unsignedInt	Usually small integer
State	Element	string	Class dependent

7.3 *Additional Parameters for Service Messages* — Because this protocol mapping works for asynchronous HTTP server-client communication on message broker, such additional parameters to give complementary information as issued time and transaction identification are required to be attached to each message. The information may be dependent to the role of the message. Type mapping of them are shown in the following table.

Table 3 Type Mapping of Additional Parameters

Parameter Name	*Attribute/Element*	*Type*	*Remarks*
dateTime	Attribute	dateTime	
sessionId	Attribute	string	
sessionRef	Attribute	string	
requestId	Attribute	string	
requestRef	Attribute	string	
linkId	Attribute	string	extended for delayed response
linkCnt	Attribute	integer	extended for delayed response
linkExp	Attribute	duration	extended for delayed response

7.4 *Example XML Message Fragments* — The following subsections give examples of some fragments of service messages in XML. A full message is given with envelopes and headers.

7.4.1 *addEvent Request* — The following XML description is an example of the principal part of service request message for addEvent provided by HistoryRecord objects. Because the structure of parameter ‘History’ is dependent to event, attachment type and equipment, the standard doesn’t define it. Suppliers are required to define the structure or negotiate with specific user. Users need to discuss with suppliers or interpret their structures.

```
<AddEventRequest dateTime=”2004-03-29T13:05:25.000-08:00”
 SessionRef=”SemiJitQs-9876543210” RequestId=”123456”>
  <History>
    <HistoryIndex>
      <Id>120123456789</Id>
      <Type>UPXB Modl Die XYZ737</Type>
    </ HistoryIndex>
    <Event>
      <Id>12345678</Id>
      <EventClass>Milestone</EventClass>
      <NamedValue>
        <SetPoint>10000</SetPoint>
        <TotalTimes>150000</TotalTimes>
      </NamedValue>
      <Machine>UPXB039</Machine>
      <TimeStamp>2004-03-29T13:05:18.000-08:00</TimeStamp>
    <Event>
  </History>
</AddEventRequest>
```

7.4.2 *showTypes Response* — The following XML description is an example of the principal part of service response message for showTypes provided by Invoice objects.

```
<ShowTypesResponse dateTime=”2004-03-29T09:07:59.000-08:00”
 SessionRef=”SemiJitQs-9876543123” RequestRef=”123443” status=”GRANTED”>
  <AttachmentType>UPXB Modl Die XYZ737</AttachmentType>
  <ServiceStatus>
    <SvcAck>Successful</SvcAck>
  </ServiceStstus>
</ShowTypesResponse>
```

APPENDIX 1
XML SCHEMA

NOTICE: The material in this appendix is an official part of SEMI T12.2 and was approved by full letter ballot procedures on April 30, 2004.

A1-1 XML Message Schema

A1-1.1 *XML Schema* — XML Schema is a kind of template for documents. The following XML Schemas shows how messages in this XML protocol are represented.

A1-1.1.1 *Message Schema* — Each message in T12 has one XML Schema. Parsing with the schema, application can understand what elements and attributes mean. Also it can check syntax easily.

A1-1.1.2 *Common Definitions* — Common part of the schema is separated and it is included in each message schema.

A1-1.2 *Enumeration* — Attachment specific or eqiopment specific enumeration may not be addressed here. Corresponding part of the shema should be extended or restricted with 'redefine' element, for example, in application schema.

```
XML Message Schema Name:  T12ChangeNameRequestAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -  Change Name Request - - - - - - - - - - - - - -  -->
<xsd:element name="ChangeNameRequest" type="ChangeNameRequestType"/>

<xsd:complexType name="ChangeNameRequestType">
  <xsd:sequence>
    <xsd:element name="AttachmentName" type="xsd:string"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType></xxx>

</xsd:schema>


XML Message Schema Name:  T12ChangeNameResponseAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Change Name Response - - - -  - - - -    -->
<xsd:element name="ChangeNameResponse" type="ChangeNameResponseType"/>

<xsd:complexType name="ChangeNameResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentName" type="xsd:string" minOccurs="0" maxOccurs="1"/>
```

```
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowHistoryRequestAtt.xsd for Attachment Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show History Request - - - -  - - - -    -->
<xsd:element name="ShowHistoryRequest" type="ShowHistoryRequestType"/>

<xsd:complexType name="ShowHistoryRequestType">
  <xsd:sequence>
  <xsd:element name="Items" type="xsd:string" minOccurs="0" maxOccurs="unbounded"
    />
    <xsd:element name="Restriction" type="xsd:string" minOccurs="0"
maxOccurs="unbounded"/>
  xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowHistoryResponseAtt.xsd for Attachment Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show History Response - - - -  - - - -    -->
<xsd:element name="ShowHistoryResponse" type="ShowHistoryResponseType"/>

<xsd:complexType name="ShowHistoyResponseType">
  <xsd:sequence>
    <xsd:element name="History" type="HistoryType" minOccurs="0"
     maxOccurs="unbounded"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowIdRequestAtt.xsd for Attachment Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
```

```
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show ID Request - - - -  - - - -    -->
<xsd:element name="ShowIdRequest" type="ShowIdRequestType"/>

<xsd:complexType name="ShowIdRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowIdResponseAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show ID Response - - - -  - - - -    -->
<xsd:element name="ShowIdResponse" type="ShowIdResponseType"/>

<xsd:complexType name="ShowIdResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentId" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowNameRequestAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show Name Request - - - -  - - - -    -->
<xsd:element name="ShowNameRequest" type="ShowNameRequestType"/>

<xsd:complexType name="ShowNameRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowNameResponseAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
```

```
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show Name Response - - - -  - - - -    -->
<xsd:element name="ShowNameResponse" type="ShowNameResponseType"/>

<xsd:complexType name="ShowNameResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentName" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowTypeRequestAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show Type Request - - - -  - - - -    -->
<xsd:element name="ShowTypeRequest" type="ShowTypeRequestType"/>

<xsd:complexType name="ShowTypeRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowTypeResponseAtt.xsd      for Attachment Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show Type Response - - - -  - - - -    -->
<xsd:element name="ShowTypeResponse" type="ShowTypeResponseType"/>

<xsd:complexType name="ShowTypeResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentType" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12UpdateHistoryRequestAtt.xsd   for Attachment Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Update History Request - - - -  - - - -    -->
<xsd:element name="UpdateHistoryRequest" type="UpdateHistoryRequestType"/>

<xsd:complexType name="UpdateHistoryRequestType">
  <xsd:sequence>
    <xsd:element name="Items" type="xsd:string"/>>
    <xsd:element name="History" type="HistoryType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12UpdateHistoryResponseAtt.xsd   for Attachment Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Update History Response - - - -  - - - -    -->
<xsd:element name="UpdateHistoryResponse" type="UpdateHistoryResponseType"/>

<xsd:complexType name="UpdateHistoyResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12DestructRequestExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Destruct Request - - - -  - - - -    -->
<xsd:element name="DestructRequest" type="DestructRequestType"/>

<xsd:complexType name="DestructRequestType">
```

```
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12DestructResponseExc.xsd for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Destruct Response - - - -  - - - -    -->
<xsd:element name="DestructResponse" type="DestructResponseType"/>

<xsd:complexType name="DestructResponseType">
  <xsd:sequence>
    <xsd:element name="State" type="ExceptionStateType"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for Exception   $$$- - - - - -  - - -->
<xsd:simpleType name="ExceptionStateType">
  <restriction base="xsd:string">
    <enumeration value="CLEARED"/>
    <enumeration value="SET"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>
```

XML Message Schema Name: T12ShowCategoryRequestExc.xsd for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show Category Request - - - -  - - - -    -->
<xsd:element name="ShowCategoryRequest" type="ShowCategoryRequestType"/>

<xsd:complexType name="ShowCategoryRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowCategoryResponseExc.xsd for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
```

```
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - -  - - - -     Show Category Response - - - -  - - - -    -->
<xsd:element name="ShowCategoryResponse" type="ShowCategoryResponseType"/>

<xsd:complexType name="ShowCategoryResponseType">
  <xsd:sequence>
    <xsd:element name="Category" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowCodeRequestExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - -  - - - -     Show Code Request - - - -  - - - -    -->
<xsd:element name="ShowCodeRequest" type="ShowCodeRequestType"/>

<xsd:complexType name="ShowCodeRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowCodeResponseExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - -  - - - -     Show Code Response - - - -  - - - -    -->
<xsd:element name="ShowCodeResponse" type="ShowCodeResponseType"/>

<xsd:complexType name="ShowCodeResponseType">
  <xsd:sequence>
    <xsd:element name="Code" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowDescriptionRequestExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - -  - - - -     Show Description Request - - - -  - - - -    -->
<xsd:element name="ShowDescriptionRequest" type="ShowDescriptionRequestType"/>

<xsd:complexType name="ShowDescriptionRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowDescriptionResponseExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - -  - - - -     Show Description Response - - - -  - - - -    -->
<xsd:element name="ShowDescriptionResponse" type="ShowDescriptionResponseType"/>

<xsd:complexType name="ShowDescriptionResponseType">
  <xsd:sequence>
    <xsd:element name="Description" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowIdRequestExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - -  - - - -     Show ID Request - - - -  - - - -    -->
<xsd:element name="ShowIdRequest" type="ShowIdRequestType"/>

<xsd:complexType name="ShowIdRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowIdResponseExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - -  - - - -     Show ID Response - - - -  - - - -    -->
<xsd:element name="ShowIdResponse" type="ShowIdResponseType"/>

<xsd:complexType name="ShowIdResponseType">
  <xsd:sequence>
    <xsd:element name="ExceptionId" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowStateRequestExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!--  - - - - - - Show State Request - - - - - -     -->
<xsd:element name="ShowStateRequest" type="ShowStateRequestType"/>

<xsd:complexType name="ShowStateRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowStateResponseExc.xsd   for Exception Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show State Response - - - - - -  - - -->
<xsd:element name="ShowStateResponse" type="ShowStateResponseType"/>

<xsd:complexType name="ShowStateResponseType">
  <xsd:sequence>
    <xsd:element name="State" type="ExeptionStateType"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
```

```
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for Exception   $$$- - - - - -  - - -->
<xsd:simpleType name="ExceptionStateType">
  <restriction base="xsd:string">
    <enumeration value="CLEARED"/>
    <enumeration value="SET"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>


XML Message Schema Name:  T12ShowSubjectRequestExc.xsd      for Exception Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - - -   Show Subject Request - - - - - - -  - - -->
<xsd:element name="ShowSubjectRequest" type="ShowSubjectRequestType"/>

<xsd:complexType name="ShowSubjectRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowSubjectResponseExc.xsd      for Exception Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - - -   Show Subject Response - - - - - - -  - - -->
<xsd:element name="ShowSubjectResponse" type="ShowSubjectResponseType"/>

<xsd:complexType name="ShowSubjectResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentId" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12UpdateStateRequestExc.xsd      for Exception Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
```

```
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Update State Request - - - - - -  - - -->
<xsd:element name="UpdateStateRequest" type="UpdateStateRequestType"/>

<xsd:complexType name="UpdateStateRequestType">
  <xsd:sequence>
    <xsd:element name="State" type="ExeptionStateType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for Exception   $$$- - - - - -  - - -->
<xsd:simpleType name="ExceptionStateType">
  <restriction base="xsd:string">
    <enumeration value="CLEARED"/>
    <enumeration value="SET"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>


XML Message Schema Name:  T12UpdateStateResponseExc.xsd      for Exception Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Update State Response - - - - - -  - - -->
<xsd:element name="UpdateStateResponse" type="UpdateStateResponseType"/>

<xsd:complexType name="UpdateStateResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ChangeActionRequestExp.xsd      for Expiry Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Change Action Request - - - - - -  - - -->
```

```
<xsd:element name="ChangeActionRequest" type="ChangeActionRequestType"/>

<xsd:complexType name="ChangeActionRequestType">
  <xsd:sequence>
    <xsd:element name="Action" type="xsd:string"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ChangeActionResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Change Action Response - - - - - -  - - -->
<xsd:element name="ChangeActionResponse" type="ChangeActionResponseType"/>

<xsd:complexType name="ChangeActionResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ChangeExpirationRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Change Expiration Request - - - - - -  - - -->
<xsd:element name="ChangeExpirationRequest" type="ChangeExpirationRequestType"/>

<xsd:complexType name="ChangeExpirationRequestType">
  <xsd:sequence>
    <xsd:element name="Expiration" type="xsd:string"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ChangeExpirationResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
```

```
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Change Expiration Response - - - - - -  - - -->
<xsd:element name="ChangeExpirationResponse" type="ChangeExpirationResponseType"/>

<xsd:complexType name="ChangeExpirationResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ChangeDescriptionRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Change Description Request - - - - - -  - - -->
<xsd:element name="ChangeDescriptionRequest" type="ChangeDescriptionRequestType"/>

<xsd:complexType name="ChangeDescriptionRequestType">
  <xsd:sequence>
    <xsd:element name="Description" type="xsd:string"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ChangeDescriptionResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Change Description Response - - - - - -  - - -->
<xsd:element name="ChangeDescriptionResponse" type="ChangeDescriptionResponseType"/>

<xsd:complexType name="ChangeDescriptionResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12DestructRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - - - - Destruct Request - - - - - - - - - - - - -->
<xsd:element name="DestructRequest" type="DestructRequestType"/>

<xsd:complexType name="DestructRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12DestructResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - - - - Destruct Response - - - - - - - - - - - - -->
<xsd:element name="DestructResponse" type="DestructResponseType"/>

<xsd:complexType name="DestructResponseType">
  <xsd:sequence>
    <xsd:element name="State" type="ExpiryStateType"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for Expiry   $$$- - - - - -  - - -->
<xsd:simpleType name="ExpiryStateType">
  <restriction base="xsd:string">
    <enumeration value="EXPIRED"/>
    <enumeration value="VALID"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>
```

XML Message Schema Name: T12ShowActionRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>
```

```
<!-- - - - - - - -   Show Action Request - - - - - -  - - -->
<xsd:element name="ShowActionRequest" type="ShowActionRequestType"/>

<xsd:complexType name="ShowActionRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowActionResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Action Response - - - - - -  - - -->
<xsd:element name="ShowActionResponse" type="ShowActionResponseType"/>

<xsd:complexType name="ShowActionResponseType">
  <xsd:sequence>
    <xsd:element name="Action" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowDescriptionRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Description Request - - - - - -  - - -->
<xsd:element name="ShowDescriptionRequest" type="ShowDescriptionRequestType"/>

<xsd:complexType name="ShowDescriptionRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowDescriptionResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
```

```
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Description Response - - - - - -  - - -->
<xsd:element name="ShowDescriptionResponse" type="ShowDescriptionResponseType"/>

<xsd:complexType name="ShowDescriptionResponseType">
  <xsd:sequence>
    <xsd:element name="Description" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowExpirationRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Expiration Request - - - - - -  - - -->
<xsd:element name="ShowExpirationRequest" type="ShowExpirationRequestType"/>

<xsd:complexType name="ShowExpirationRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowExpirationResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Expiration Response - - - - - -  - - -->
<xsd:element name="ShowExpirationResponse" type="ShowExpirationResponseType"/>

<xsd:complexType name="ShowExpirationResponseType">
  <xsd:sequence>
    <xsd:element name="Expiration" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowIdRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
```

```
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show ID Request - - - - - -  - - -->
<xsd:element name="ShowIdRequest" type="ShowIdRequestType"/>

<xsd:complexType name="ShowIdRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowIdResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show ID Response - - - - - -  - - -->
<xsd:element name="ShowIdResponse" type="ShowIdResponseType"/>

<xsd:complexType name="ShowIdResponseType">
  <xsd:sequence>
    <xsd:element name="ExpiryId" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowStateRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show State Request - - - - - -  - - -->
<xsd:element name="ShowStateRequest" type="ShowStateRequestType"/>

<xsd:complexType name="ShowStateRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowStateResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show State Response - - - - - -  - - -->
<xsd:element name="ShowStateResponse" type="ShowStateResponseType"/>

<xsd:complexType name="ShowStateResponseType">
  <xsd:sequence>
    <xsd:element name="State" type="ExpiryStateType"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for Expiry   $$$- - - - - -  - - -->
<xsd:simpleType name="ExpiryStateType">
  <restriction base="xsd:string">
    <enumeration value="EXPIRED"/>
    <enumeration value="VALID"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>
```

XML Message Schema Name: T12ShowSubjectRequestExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Subject Request - - - - - -  - - -->
<xsd:element name="ShowSubjectRequest" type="ShowSubjectRequestType"/>

<xsd:complexType name="ShowSubjectRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowSubjectResponseExp.xsd for Expiry Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Subject Response - - - - - -  - - -->
<xsd:element name="ShowSubjectResponse" type="ShowSubjectResponseType"/>
```

```
<xsd:complexType name="ShowSubjectResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentId" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12DestructRequestHbf.xsd for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - - - - Destruct Request - - - - - - - - - - -->
<xsd:element name="DestructRequest" type="DestructRequestType"/>

<xsd:complexType name="DestructRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12DestructResponseHbf.xsd for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - - - - Destruct Response - - - - - - - - - - -->
<xsd:element name="DestructResponse" type="DestructResponseType"/>

<xsd:complexType name="DestructResponseType">
  <xsd:sequence>
    <xsd:element name="State" type="HistoryBufferStateType"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for History Buffer   $$$- - - - - -  - - -->
<xsd:simpleType name="HistoryBufferStateType">
  <restriction base="xsd:string">
    <enumeration value="EMPTY"/>
    <enumeration value="BUFFERED"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>
```

XML Message Schema Name: T12SetReleaseConditionRequestHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Set Release Condition Request - - - - - -  - - -->
<xsd:element name="SetReleaseConditionRequest" type="SetReleaseConditionRequestType"/>

<xsd:complexType name="SetReleaseConditionRequestType">
  <xsd:sequence>
    <xsd:element name="Condition" type="xsd:string"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12SetReleaseConditionResponseHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Set Release Condition Response - - - - - -  - - -->
<xsd:element name="SetwReleaseConditionResponse"
type="SetReleaseConditionResponseType"/>

<xsd:complexType name="SetReleaseConditionResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowAttachmentRequestHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Attachment Request - - - - - -  - - -->
<xsd:element name="ShowAttachmentRequest" type="ShowAttachmentRequestType"/>
```

```
<xsd:complexType name="ShowAttachmentRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowAttachmentResponseHbf.xsd   for HistoryBuffer Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Attachment Response - - - - - -  - - -->
<xsd:element name="ShowAttachmentResponse" type="ShowAttachmentResponseType"/>

<xsd:complexType name="ShowAttachmentResponseType">
  <xsd:sequence>
    <xsd:element name="AttachmentId" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowHistoryRequestHbf.xsd   for HistoryBuffer Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show History Request - - - - - -  - - -->
<xsd:element name="ShowHistoryRequest" type="ShowHistoryRequestType"/>

<xsd:complexType name="ShowHistoryRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>


XML Message Schema Name:  T12ShowHistoryResponseHbf.xsd   for HistoryBuffer Class

<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show History Response - - - - - -  - - -->
```

```
<xsd:element name="ShowHistoryResponse" type="ShowHistoryResponseType"/>

<xsd:complexType name="ShowHistoyResponseType">
  <xsd:sequence>
    <xsd:element name="History" type="HistoryType" minOccurs="0"
maxOccurs="unbounded"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowReleaseConditionRequestHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Release Condition Request - - - - - -  - - -->
<xsd:element name="ShowReleaseConditionRequest"
type="ShowReleaseConditionRequestType"/>

<xsd:complexType name="ShowReleaseConditionRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowReleaseConditionResponseHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show Release Condition Response - - - - - -  - - -->
<xsd:element name="ShowReleaseConditionResponse"
type="ShowReleaseConditionResponseType"/>

<xsd:complexType name="ShowReleaseConditionResponseType">
  <xsd:sequence>
    <xsd:element name="Condition" type="xsd:string"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowStateRequestHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show State Request - - - - - -  - - -->
<xsd:element name="ShowStateRequest" type="ShowStateRequestType"/>

<xsd:complexType name="ShowStateRequestType">
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12ShowStateResponseHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Show State Response - - - - - -  - - -->
<xsd:element name="ShowStateResponse" type="ShowStateResponseType"/>

<xsd:complexType name="ShowStateResponseType">
  <xsd:sequence>
    <xsd:element name="State" type="HistoryBufferStateType"/>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

<!-- - - - - - - - -$$$   State for History Buffer   $$$- - - - - -  - - -->
<xsd:simpleType name="HistoryBufferStateType">
  <restriction base="xsd:string">
    <enumeration value="EMPTY"/>
    <enumeration value="BUFFERED"/>
    <enumeration value="NO STATE"/>
  </restriction>
</xsd:simpleType>

</xsd:schema>
```

XML Message Schema Name: T12UpdateHistoryRequestHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Update History Request - - - - - -  - - -->
```

```
<xsd:element name="UpdateHistoryRequest" type="UpdateHistoryRequestType"/>

<xsd:complexType name="UpdateHistoryRequestType">
  <xsd:sequence>
    <xsd:element name="History" type="HistoryType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12UpdateHistoryResponseHbf.xsd   for HistoryBuffer Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Update History Response - - - - - -  - - -->
<xsd:element name="UpdateHistoryResponse" type="UpdateHistoryResponseType"/>

<xsd:complexType name="UpdateHistoyResponseType">
  <xsd:sequence>
    <xsd:element name="ServiceStatus" type="ServiceStatusType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegResponseAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12AdoptRequestHdb.xsd   for HistoryDB Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
 targetNamespace=http://www.semi.org/Traceability/T12.2-V01
 elementFormDefault="qualified" attributeFormDefault="qualified">

<xsd:include
 schemaLocation="http://www.semi.org/Traceability/T12.2-V01/CommonDefinitions"/>

<!-- - - - - - - -   Adopt Request - - - - - -  - - -->
<xsd:element name="AdoptRequest" type="AdoptRequestType"/>

<xsd:complexType name="AdoptRequestType">
  <xsd:sequence>
    <xsd:element name="AttachmentId" type="xsd:string"/>
    <xsd:element name="History" type="HistoryType"/>
  </xsd:sequence>
  <xsd:atributeGroup ref="RegRequestAttr"/>
</xsd:complexType>

</xsd:schema>
```

XML Message Schema Name: T12AdoptResponseHdb.xsd   for HistoryDB Class

```
<xsd:schema xmlns:xsd=http://www.w3.org/2001/XMLSchema
 xmlns:jit=http://www.semi.org/Traceability/T12.2-V01
```