

SEMI E142.3-0706

WEB SERVICES FOR SUBSTRATE MAPPING

This standard was technically approved by the global Information & Control Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on May 16, 2006. It was available at www.semi.org in June 2006 and on CD-ROM in July 2006. Originally published November 2005.

1 Purpose

1.1 This standard is meant to facilitate software vendors, service providers, and/or semiconductor manufacturers to offer a cohesive, interoperable set of tools for the transfer of substrate maps among semiconductor entities.

1.2 This document maps the services of SEMI E142 to XML Web Services. The Web Services Definition Language (WSDL) representation of this standard is contained in a separate document.

2 Scope

2.1 This standard defines how to transmit substrate maps between semiconductor manufacturing sites.

2.2 This standard defines authentication and non-repudiation of the inter-site connection.

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 standard is limited to the transfer of substrate maps as defined by SEMI E142.

3.2 This standard does not define encryption of the inter-site connection. The services defined are, however, intended to operate over an encrypted inter-site connection such as SSL.

4 Referenced Standards and Documents

4.1 SEMI Standards

SEMI E142 — Specification for Substrate Mapping

SEMI E142.1 — XML Schema for Substrate Mapping

4.2 World Wide Web Consortium Documents¹

Extensible Markup Language (XML) 1.0 (Second Edition. Namespaces in XML)

Web Services Architecture (Working Draft 8)

Web Services Glossary (Working Draft 8)

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

5 Terminology

5.1 Definitions

5.1.1 *Document* — an XML document conforming to the SEMI E142.1 Schema.

5.1.2 *Non-Repudiation* — a method by which the sender of data is provided with proof of delivery and the recipient is assured of the sender's identity, so that neither can later deny having processed the data.

5.1.3 *Service Provider* — a legal entity that provides a web service.

5.1.4 *SOAP* — the formal set of conventions governing the format and processing rules of a SOAP message. These conventions include the interactions among SOAP nodes generating and accepting SOAP messages for the purpose of exchanging information along a SOAP message path.

5.1.5 *Web Service* — a Web service is a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP-messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

¹ World Wide Web Consortium Documents are available from Massachusetts Institute of Technology, Laboratory for Computer Science, 200 Technology Square, Cambridge, MA 02139, USA, Telephone: + 1.617.253.2613, Fax: + 1.617.258.5999, <http://www.w3.org/TR/REC-xml>

6 Ordering Information

6.1 N/A

7 Description

7.1 Services Mapping

7.1.1 Table 1 shows the web services and how they map to the services defined in SEMI E142.

Table 1 Service Message Mapping Table

Service Name	Web Service	Comments
	Logon	Logon to service provider to begin a session.
	Logoff	Logoff from service provider to end a session.
MapDownload	MapDownload	Download map data assigned to the authenticated user based on specified filters for one or more substrates.
MapUpload	MapUpload	Upload map data for one or more substrates assigned to the authenticated user.

7.2 Authentication

7.2.1 All services defined in SEMI E142 are provided in the context of an authenticated session. The session is established via the Logon service and released by the Logoff service. A SessionId is generated by the service provider in response to the Logon service and returned to the client. The client must include this SessionId for all service invocations within the session. When the client invokes the Logoff service, the SessionId becomes invalid and will no longer be accepted by the service provider. The service provider shall invoke the Logoff service automatically if there is no session activity for a configurable period of time.

7.3 Session Management

7.3.1 The SessionId should be globally unique for every individual session. The SessionId is not part of the SOAP message body, but rather transmitted in a “Ticket” member of the SOAP header. In this way the handling of the session can be transparent.

7.4 Non-Repudiation

7.4.1 The service provider will maintain secure audit trails that include, at a minimum, for every service invocation; username, date, time, SessionId, service name and service parameters. The SessionId in particular can be used to compare with audit trails on the client side to prove that a transaction took place.

7.5 Logon Service

7.5.1 The client uses this service to Logon to a service provider to begin a session. If authentication succeeds a SessionId is returned.

Table 2 Logon Service Parameter Mapping Table

Parameter Name	Required (in)	Required (out)	Web Service Parameter	Parameter Value Range
-		Y	SessionId	Unique identifier of session if authentication succeeds.
-	Y		UserName	The name of the service user. For authentication to succeed, this must match a valid user account at the service provider.
-	Y		Password	The password of the service user. For authentication to succeed, this must match the password for UserName at the service provider.

7.6 Logoff Service

7.6.1 The client uses the Logoff service to end a session. The SessionId shall no longer be valid after Logoff has been invoked.