

# The Electronic Book Exchange System (EBX) Version 0.8

The complete technical specifications for the Electronic Book Exchange (EBX) system for interoperable applications and devices that use public-key cryptography for copyright protection and distribution of electronic books.

The EBX system is being developed by the EBX Working Group, whose members are Adobe Systems Incorporated, the American Library Association, Audible, ContentGuard, DigitalOwl.com, Glassbook, GlobalMentor, Nokia, RightsMarket.com, SoftLock.com, Thomson Consumer Electronics, Versaware, and Yankee Rights Management.

## **July 2000 Draft**

Copyright © 2000 Book Industry Study Group, Inc. All rights reserved.

Editorial contact: Glassbook, Inc., 1601 Trapelo Rd., Waltham, MA 02451  
781-434-2000 [ebx-editor@glassbook.com](mailto:ebx-editor@glassbook.com)

<b>1</b>	<b>AN OVERVIEW OF THE EBX SYSTEM.....</b>	<b>6</b>
1.1	TERMS.....	6
1.2	ROLES .....	7
1.3	SYSTEM PRINCIPLES .....	8
1.3.1	<i>Consumer Needs.....</i>	8
1.3.2	<i>Bookseller and Distributor Needs.....</i>	10
1.3.3	<i>Publisher Needs.....</i>	10
1.3.4	<i>Author Needs.....</i>	11
1.3.5	<i>Library Needs.....</i>	11
1.4	ASSUMPTIONS .....	12
1.5	BASIC DESIGN .....	12
1.6	VOUCHERS .....	14
1.7	FUNCTIONAL MODEL .....	15
1.7.1	<i>Publishing.....</i>	15
1.7.2	<i>Distribution to Online Booksellers and/or Distributors .....</i>	16
1.7.3	<i>Delivery to Consumers.....</i>	17
1.7.4	<i>Transfer Between Consumers – “Give/Lend” .....</i>	18
1.7.5	<i>Transfer Between Libraries and Consumers.....</i>	19
<b>2</b>	<b>TRUST MODEL.....</b>	<b>21</b>
2.1	RELIANCE ON TRUST FOR NEGOTIATION OF DETAILS.....	21
2.2	RESULTS AND EFFECTS OF THE TRUST MODEL .....	21
2.3	NEED FOR PRESCRIPTION .....	22
2.4	TRUST MODEL OVERVIEW .....	22
2.4.1	<i>Behavior of Components in a Multivendor Environment.....</i>	22
2.4.2	<i>Future Versions.....</i>	22
2.4.3	<i>Evaluation and Rating of Products from Different Manufacturers .....</i>	23
2.4.4	<i>Trustedness and Trust Services.....</i>	24
2.4.5	<i>List of Trust Services.....</i>	25
2.4.6	<i>Factors Affecting the Value of Content.....</i>	26
2.5	CHARACTERIZING TRUST LEVELS .....	28
2.5.1	<i>Scope of Particular Failures.....</i>	28
2.5.2	<i>Skill, Tools and Expense Required to Cause Failures .....</i>	29
2.5.3	<i>Trust Levels and Certification.....</i>	30
2.5.4	<i>Perspectives on the Six Levels of Trust.....</i>	32
2.5.5	<i>Definitions of Trust Levels .....</i>	32
<b>3</b>	<b>FOUNDATION TRUST SERVICES .....</b>	<b>38</b>
3.1	PKI: FOUNDATION MECHANISM FOR AUTHENTICATION .....	38
3.1.1	<i>Requirements.....</i>	38
3.1.2	<i>Overall EBX Certificate Authority Architecture .....</i>	39
3.1.3	<i>Vendor Certificate Authorities .....</i>	41
3.2	COMPONENT TRUST LEVEL CERTIFICATION.....	43
3.2.1	<i>Certification Criteria.....</i>	44
3.2.2	<i>Certification Methods.....</i>	45
3.2.3	<i>Certification Entities .....</i>	46

3.2.4	Reviews.....	46
<b>4</b>	<b>TRANSFER PROTOCOL.....</b>	<b>47</b>
4.1	TRANSFER PROTOCOL AND TRANSPORT PROTOCOLS .....	48
4.2	DOMAINS OF TRUST .....	48
4.3	EXAMPLE OPERATION – E-BOOK PURCHASE.....	49
4.4	NOTATIONAL CONVENTIONS AND GENERIC GRAMMAR.....	50
4.5	HTTP IMPLEMENTATION NOTE: EBX HTTP REQUEST .....	50
4.6	HTTP IMPLEMENTATION NOTE: EBX HTTP HEADER EXTENSIONS .....	51
4.6.1	<i>EBX-Action Header.....</i>	<i>51</i>
4.6.2	<i>EBX-Version Header.....</i>	<i>51</i>
4.6.3	<i>EBX Challenge-Response Headers.....</i>	<i>52</i>
4.7	RECEIVING FULFILLMENT INSTRUCTIONS (HANDOFF).....	53
4.7.1	<i>Handoff Request to Voucher Server.....</i>	<i>53</i>
4.7.2	<i>Voucher Server Processing of Handoff Request.....</i>	<i>53</i>
4.7.3	<i>Handoff Response from Voucher Server (XML fulfillment instructions).....</i>	<i>54</i>
4.7.4	<i>Client Processing of Handoff Response from Voucher Server (XML fulfillment instructions).....</i>	<i>56</i>
4.8	GETTING VOUCHER(S) .....	56
4.8.1	<i>Voucher Request to Voucher Server (purchase, borrow) .....</i>	<i>56</i>
4.8.2	<i>Voucher Server Processing of Voucher Request (purchase, borrow).....</i>	<i>58</i>
4.8.3	<i>Response from Voucher Server (purchase, borrow).....</i>	<i>59</i>
4.8.4	<i>Client Processing of Response from Voucher Server for Voucher Request (purchase, borrow)60</i>	<i>60</i>
4.8.5	<i>Acknowledgment Request to Voucher Server (ACK) .....</i>	<i>61</i>
4.8.6	<i>Voucher Server Processing of Acknowledgment Request (ACK).....</i>	<i>62</i>
4.8.7	<i>Acknowledgment Response from Voucher Server (ACK) .....</i>	<i>62</i>
4.8.8	<i>Client Processing of Acknowledgment Response from Voucher Server (ACK).....</i>	<i>63</i>
4.9	GETTING ENCRYPTED E-BOOK(S).....	63
4.9.1	<i>Content Request to Content Server (purchase, borrow) .....</i>	<i>63</i>
4.9.2	<i>Content Response from Content Server (purchase, borrow) .....</i>	<i>63</i>
4.10	GIVING OR LENDING A BOOK (CONSUMER TO CONSUMER).....	64
4.10.1	<i>Transfer Request from Owner to Receiver (give, lend).....</i>	<i>64</i>
4.10.2	<i>Transfer Response from Receiver to Owner (give, lend).....</i>	<i>65</i>
4.10.3	<i>Owner Processing of Transfer Response from Receiver (give, lend) .....</i>	<i>67</i>
4.10.4	<i>Voucher Transmission Request from Owner to Receiver (give, lend) .....</i>	<i>68</i>
4.10.5	<i>Receiver Processing of Voucher Transmission Request (give, lend).....</i>	<i>69</i>
4.10.6	<i>Voucher Transmission Response from Receiver to Owner (give, lend).....</i>	<i>69</i>
4.10.7	<i>Owner Processing of Voucher Transmission Response from Receiver (give, lend) 70</i>	<i>70</i>
4.10.8	<i>Content Transmission Request from Owner to Receiver (give, lend).....</i>	<i>70</i>
4.10.9	<i>Content Transmission Response from Receiver to Owner (give, lend).....</i>	<i>71</i>
4.11	ELECTRONIC MAIL TRANSFER.....	71
4.12	EBX ERROR HANDLING AND FLOW.....	71
4.12.1	<i>HTTP Implementation Note .....</i>	<i>71</i>
4.12.2	<i>Successful Requests to Voucher Servers .....</i>	<i>71</i>
4.12.3	<i>Failed Requests to Voucher Servers.....</i>	<i>72</i>

4.12.4	<i>Discussion of Voucher Fulfillment and ACK</i> .....	73
<b>5</b>	<b>VOUCHER ENGINE MODEL</b> .....	<b>75</b>
5.1	VOUCHER ENGINE PROCESSING .....	75
5.2	VOUCHER ENGINE RULES .....	75
5.3	VOUCHER ENGINE INTERFACES.....	76
5.3.1	<i>Create Voucher</i> .....	76
5.3.2	<i>Issue Voucher</i> .....	77
5.3.3	<i>Revoke Voucher</i> .....	77
5.3.4	<i>Import Voucher</i> .....	78
5.3.5	<i>Delete Voucher</i> .....	78
5.3.6	<i>Issue Nonce</i> .....	78
5.3.7	<i>Issue Credentials</i> .....	79
5.3.8	<i>Encrypt Content</i> .....	79
5.3.9	<i>Decrypt Content</i> .....	79
5.4	VOUCHER ENGINE PROCESSING OF EBX RIGHTS.....	80
5.4.1	<i>Writing EBX Rights in a Voucher</i> .....	80
5.4.2	<i>Enforcing EBX Rights in a Voucher</i> .....	81
<b>6</b>	<b>METADATA FORMAT</b> .....	<b>82</b>
6.1	METADATA ELEMENT .....	82
6.1.1	<i>Identifier Element</i> .....	82
6.1.2	<i>Format Element</i> .....	83
6.1.3	<i>Metadata Example</i> .....	83
<b>7</b>	<b>VOUCHER FORMAT</b> .....	<b>85</b>
7.1	RIGHTS SPECIFICATION .....	85
7.1.1	<i>Rights Overview</i> .....	85
7.1.2	<i>Licensee</i> .....	86
7.1.3	<i>Transfer Rights</i> .....	86
7.1.4	<i>Usage Rights</i> .....	87
7.1.5	<i>Authorization context</i> .....	87
7.1.6	<i>Consideration</i> .....	87
7.1.7	<i>Portion</i> .....	88
7.1.8	<i>Target</i> .....	88
7.1.9	<i>Scope</i> .....	89
7.1.10	<i>Consumer’s knowledge of rights</i> .....	89
7.2	VOUCHER OBJECT.....	89
7.2.1	<i>EBX-Voucher – Voucher start-tag</i> .....	90
7.2.2	<i>ID – ISBN, DOI, or URN element</i> .....	90
7.2.3	<i>ContentKey – Content decryption key element</i> .....	91
7.2.4	<i>CopyCount – Count of authorized copies element</i> .....	91
7.2.5	<i>Rights – Basic permissions element</i> .....	92
7.2.6	<i>Lending – Lending Timeout and Status Element</i> .....	92
7.2.7	<i>PersonalUse – Personal use element</i> .....	93
7.2.8	<i>MAC – Message Authentication Code element</i> .....	93
<b>8</b>	<b>FORMAT OF OTHER OBJECTS</b> .....	<b>95</b>

8.1	CREDENTIALS OBJECT FORMAT .....	95
8.1.1	<i>Credentials – Credentials start-tag</i> .....	95
8.1.2	<i>AuthenticationScheme</i> .....	96
8.1.3	<i>Nonce</i> .....	96
8.1.4	<i>SignedData</i> .....	97
<b>9</b>	<b>APPENDIX A: CERTIFICATION POLICIES AND PROCEDURES .....</b>	<b>98</b>
<b>10</b>	<b>APPENDIX B: APPLICABLE LAWS.....</b>	<b>99</b>
10.1	U.S. EXPORT LAWS.....	99
10.2	(U.S.) DIGITAL MILLENNIUM COPYRIGHT ACT .....	100
<b>11</b>	<b>APPENDIX C - CONTENT FORMAT REQUIREMENTS.....</b>	<b>101</b>
<b>12</b>	<b>APPENDIX D - CONTENT FORMAT USAGE GUIDELINES .....</b>	<b>102</b>
12.1	OPEN EBOOK FORMAT .....	102
12.1.1	<i>Container File Format</i> .....	102
12.1.2	<i>Encryption</i> .....	103
12.1.3	<i>Metadata</i> .....	103
12.1.4	<i>Display Properties</i> .....	103
12.1.5	<i>Font Embedding</i> .....	103
12.1.6	<i>Open eBook Book Design Guidelines</i> .....	103
<b>13</b>	<b>APPENDIX E - REFERENCES .....</b>	<b>105</b>
<b>14</b>	<b>APPENDIX F - EDIT HISTORY .....</b>	<b>107</b>
14.1	VERSION 0.1.....	107
14.2	VERSION 0.2.....	107
14.3	VERSION 0.3.....	107
14.4	VERSION 0.4.....	107
14.5	VERSION 0.5.....	108
14.6	VERSION 0.6.....	108
14.7	VERSION 0.7.....	108
14.8	VERSION 0.8.....	108

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.