

e-Government



Technical Standards Catalogue
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CONTENTS

1	INTRODUCTION	3
2	CHANGES FROM PREVIOUS VERSION.....	4
3	ISSUES UNDER CONSIDERATION.....	5
4	INTERCONNECTION	7
	TABLE 1 SPECIFICATIONS FOR INTERCONNECTIVITY	7
	TABLE 2 SPECIFICATIONS FOR WEB SERVICES	10
5	DATA INTEGRATION	16
	TABLE 3 SPECIFICATIONS FOR DATA INTEGRATION	16
6	CONTENT MANAGEMENT METADATA	19
	TABLE 4 SPECIFICATIONS FOR CONTENT MANAGEMENT METADATA	19
	TABLE 5 SPECIFICATIONS FOR IDENTIFIERS	20
7	E-SERVICES ACCESS.....	23
	TABLE 6 SPECIFICATIONS FOR COMPUTER WORKSTATIONS.....	23
	TABLE 7 SPECIFICATIONS FOR OTHER CHANNELS	26
	TABLE 8 SPECIFICATIONS FOR MOBILE PHONES	27
	TABLE 9 SPECIFICATIONS FOR CONFERENCING SYSTEMS OVER IP	27
	TABLE 10 SPECIFICATIONS FOR VOICE OVER IP (VoIP) SYSTEMS.....	28
	TABLE 11A SPECIFICATIONS FOR SMART CARDS – DATA DEFINITION	29
	TABLE 11B SPECIFICATIONS FOR SMART CARDS – APPLICATIONS INCLUDING MULTI-APPLICATIONS	31
	TABLE 11C SPECIFICATIONS FOR SMART CARDS – ELECTRICAL	33
	TABLE 11D SPECIFICATIONS FOR SMART CARDS – COMMUNICATION PROTOCOLS.....	34
	TABLE 11E SPECIFICATIONS FOR SMART CARDS – PHYSICAL	35
	TABLE 11F SPECIFICATIONS FOR SMART CARDS – SECURITY	37
	TABLE 11G SPECIFICATIONS FOR SMART CARDS – TERMINAL INFRASTRUCTURE.....	39
	TABLE 12 SPECIFICATIONS FOR BIOMETRIC DATA INTERCHANGE	40
	TABLE 13 SPECIFICATIONS FOR SMART TRAVEL DOCUMENTS	43
	TABLE 14 SPECIFICATIONS FOR ACCESSIBILITY AND USABILITY	43
8	SPECIFICATIONS FOR BUSINESS AREAS	45
	TABLE 15 SPECIFICATIONS FOR BUSINESS AREAS – MISCELLANEOUS.....	45
	TABLE 16 SPECIFICATIONS FOR BUSINESS AREAS – E-LEARNING	47
	TABLE 17 SPECIFICATIONS FOR BUSINESS AREAS – E-HEALTH AND SOCIAL CARE	49
	TABLE 18 SPECIFICATIONS FOR BUSINESS AREAS: FINANCE	49
	TABLE 19 SPECIFICATIONS FOR BUSINESS AREAS: COMMERCE, PURCHASING AND LOGISTICS	50
	TABLE 20 SPECIFICATIONS FOR BUSINESS AREAS – WORKFLOW.....	51
9	APPENDICES	52
	APPENDIX A: ABBREVIATIONS AND ACRONYMS USED IN THE E-GIF.....	52
	APPENDIX B: GLOSSARY OF METADATA TERMS	55

1 Introduction

The Technical Standards Catalogue defines the minimum¹ set of specifications that conform to the technical policies as defined in e-GIF.

The current specification for the e-GIF is given below and covers the areas of interconnectivity, data integration, content management metadata and e-services access. Each area comprises tables containing specifications and includes version numbers and notes. Government is, however, committed to ensuring that these technical policies and specifications are kept aligned to the changing requirements of the public sector and to the evolution of the market and technology. Please consult the website for the latest version of the e-GIF specification at <http://www.govtalk.gov.uk/schemasstandards/egif.asp>.

Where the specification required is not the latest published version, the version number is quoted, e.g. 1.3. Otherwise a reference URL for the specification is quoted.

¹ Additional specifications may be necessary to support specific sectors' business requirements.

2 Changes from previous version

Technical policies are now available in the [e-GIF](#). The Technical Standards Catalogue covers standards specifications and proposed changes to technical policy only.

The main changes from TSC v6.1 are:

- Revised specifications for interconnection, see '[Specifications for interconnectivity](#)'.
- Revised specifications for web services, see '[Specifications for interconnectivity](#)'.
- Specifications for semantic web, see '[Specifications for data integration](#)'.
- Revised specifications for data integration, see '[Specifications for data integration](#)'.
- Revised specifications for document access, see '[Specifications for computer workstations](#)'.
- Revised specifications for smart cards, see '[Specifications for smart cards](#)'.
- Revised specifications for biometrics data interchange, see '[Specifications for biometric data interchange](#)'.
- Specifications for accessibility and usability, see '[Specifications for accessibility and usability](#)'.
- Revised specifications for specific business areas, see '[Specifications for specific business areas](#)'.

Issue addressed where there are no changes to the TSC

- As with other applications e-Forms have to comply with XML, but no specific e-Forms specifications are mandated in the e-GIF.

3 Issues under consideration

3.1 Technical specifications and standards that are under consideration for future versions of the TSC:

- selection of specific business area related specifications
- ISO/IEC standards for XML schema languages
- XML specifications for office applications

3.2 Technical policies under consideration for future versions of the e-GIF:

Proposed new policy for web services and repositories

- Web services - the standards for web services across government are subject to the evolving UK government policy and the possible adoption of service orientated architecture. Particular aspects under consideration are:
 - web services supporting SOAP version 1.1 must define a strategy for conformance to SOAP version 1.2.
 - switching servers for web services must support both SOAP versions 1.1 and 1.2 at interfaces claiming conformance to the e-GIF.
 - web services should be considered where there is a requirement for service syndication, joined up architectures, handshaking or common rules engines.

Note: tutorial information on web services architecture can be found at <http://www.w3.org/DesignIssues/WebServices.html>

- Repositories - repositories used for sharing policy, standards and common business data across UK government shall conform to agreed standards.

Proposed new policy for accessibility and usability

- The technical policies for providing accessibility and usability are:
 - Government information systems will be designed to meet UK legislation and to support channels that provide accessibility for disabled people.
 - Government information systems will be designed to meet the requirements of the Disability Discrimination Act 1995 (DDA 1995) and the Disability Discrimination Act 2005 (DDA 2005). The DDA's places a legal obligation on a department that offers a service to the public to make all reasonable adjustments where services would otherwise be

impossible or unreasonably difficult for disabled people to use.

- Government information systems will be designed so that anyone with an impairment that affects their use of this equipment is not disadvantaged or excluded by these systems.
- Designers and developers of Government information systems are to be fully aware of, and complying with a set of technical standards for accessibility and usability specified in the technical standards catalogue:

4 Interconnection

Technical policies for interconnection are outlined in the [e-GIF](#)

Table 1 Specifications for interconnectivity

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Hypertext transfer protocols	RFC 2616, Upgrade mechanism in HTTP/1.1 to initiate Transport Layer Security (TLS) over an existing TCP connection	A
E-mail transport (see 4.1)	E-mail products that support interfaces that conform to the SMTP/MIME for message transfer. This includes RFC 2821, RFC 2822, RFC 2045, RFC 2046, RFC 2646, RFC 2047, RFC 2231, RFC 2048, RFC 3023, RFC 2049 Note: e-mail attachments may conform to the file types for browsers and viewers as defined for the specific delivery channel, see Section 7 – e-Services access and Channels	A
E-mail transport security	Unless security requirements dictate otherwise, e-mail products that provide secure mail transport facilities shall as a minimum conform to RFC 3207	A
E-mail content security	Unless security requirements dictate otherwise, and only when appropriate, S/MIME v3 will be used for pan-government messaging security when end-to-end security is required. This includes RFC 3369, RFC 2631, RFC 2632, RFC 2633	A
Mailbox access (see 4.1)	Unless security requirements dictate otherwise, e-mail products that provide mail access facilities shall as a minimum conform to POP3 for remote mailbox access. This includes RFC 1939, RFC 1957 and RFC 2449. Where additional mail facilities are required, unless security requirements dictate otherwise, e-mail products that provide advanced mail access facilities shall conform to IMAP for remote mailbox access. This includes RFC 3501, RFC 2342, RFC 2971, RFC 3502, RFC 3503, and RFC 3510. Interfaces for e-mail systems are to conform to POP3 for mailbox retrieval.	A
Secure mailbox access	Mailbox access over insecure networks shall use HTTPS, conforming to the Transport security standards listed below. This includes RFC 2595 when using TLS with IMAP, POP3 and ACAP to access mailbox.	A

Directory	GSI Notice 1/2003 Information GSI Directory Schema. LDAP v3 is to be used for general purpose directory user access.	A
Domain name services	DNS (RFC 1035) The UK Government domain naming guidelines are at policy www.cabinetoffice.gov.uk/e-government/domain . GSI domain-naming follows these guidelines as far as possible. GSI e-mail addressing specifications are defined in GNC Technical Notice 2/2001 (Domain Names, DNS and E-mail Addressing)	A
File transfer protocols	FTP (RFC 959) (with restart and recovery) and HTTP (RFC 2616) for file transfer	A
Newsgroup services	NNTP (RFC 977) where required, subject to security constraints	A
Real-time messaging services	The Model and Requirements for Instant Messaging and Presence Protocol (impp) are defined by the IETF RFC 2778, RFC 2779 ²	R
	Extensible Messaging and Presence Protocol (XMPP) is a series of IETF Internet drafts for a standard protocol for streaming XML elements in order to exchange messages and presence information in close to real time	U
	Session Initiation Protocol (SIP) for Instant Messaging RFC 3428 is a standard for Instant Messaging that focuses on the application of RFC 3261 (SIP) to the suite of services collectively known as instant messaging and presence (IMP). The aim is to produce an interoperable standard for these services outlined in RFC 2779 The IETF WG SIMPLE (Session Initiation Protocol (SIP) for Instant Messaging and Presence Leveraging Extensions) have series of Internet drafts for real time messaging services http://www.ietf.org/html.charters/wg-dir.html	U
LAN/WAN interworking	IP v4 (RFC 791) Departments are to interconnect using IP v4 and plan for migration to IP v6 in due course	A
Security	Central government departments should refer to the Manual of Protective Security. Other parts of the public sector should refer to the e-Government strategy framework and guidelines on security at http://www.govtalk.gov.uk/policydocs/consult_subject_document.asp?docnum=649	A
<i>The following specifications are to be used to meet the requirements of the e-Government Security Framework where appropriate:</i>		
IP security	IP-SEC (RFC 2402/2404)	A

² Real-time messaging. At the current time there are numerous real time messaging protocols in use, largely as components of commercial instant messaging services (for example: AIM, ICQ, MSN and Yahoo Messenger). Interoperability between services based on the various protocols is limited. A number of Internet drafts are currently in production to define common profiles and common services for gateways between real time messaging systems. Also, end-user desktop-based utilities are available that combine the functionality of the commercial instant messaging services and support connectivity between users of the various commercial instant messaging services.

(Authenticated header)		
IP encapsulation security (for VPN requirements)	ESP (RFC 2406)	A
Transport security	SSL v3/TLS (RFC 2246)	A
Encapsulation security	CMS (RFC3369)	A
Timestamp token	TSP (RFC 3161)	A
Secure Shell	Departments requiring Secure Shell (SSH) support should reference the following Internet Drafts: SSH File Transfer Protocol SSH Transport Layer Protocol SSH Authentication Protocol SSH Connection Protocol SSH Protocol Architecture Generic Message Exchange Authentication For SSH For further information see: http://www.ietf.org/ids.by.wg/secsh.html	U
<i>Certain e-government information is 'sensitive' in that it might contain personal or commercially confidential information, but it does not fall within the definitions of government classified information. For the protection of such information, e.g. data and private keys, the following specifications are advised:</i>		
Encryption algorithms	3DES, AES (FIPS 197), Blowfish FIPS-197 can be found at: http://csrc.nist.gov/publications/fips/fips197/fips-197.pdf	A
For signing	RSA, DSA, DSS (FIPS 186-2) FIPS-186 can be found at: http://www.itl.nist.gov/fipspubs/fip186.htm	A
For key transport	RSA, DSA	A
For hashing	SHA-512, SHA-256 (FIPS 180-2)	A
	For backward compatibility SHA-1, MD5 should also be supported. FIPS-180 can be found at: http://csrc.nist.gov/publications/fips/fips180-2/fips180-2withchangenotice.pdf	A
<i>The above is not exhaustive and is intended as a guide. For advice on specific implementations or specific algorithms please contact CSIA @cabinet-office.x.gsi.gov.uk</i>		
Transport	TCP (RFC 793) UDP (RFC 768) where required, subject to security constraints	A

Note: Copies of the IETF RFCs can be found at <http://www.ietf.org/rfc.html>
FIPS publications can be found at <http://csrc.nist.gov/publications>

4.1 E-mail

E-mail transport

E-mail transport is defined as the interface between two e-mail systems:



Mailbox access

Mailbox access is defined as the interface between an e-mail client and e-mail server:



Table 2 Specifications for Web services

The following standards apply where systems use a Web services architecture.

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Web service request delivery	SOAP v1.2, as defined by the W3C http://www.w3.org/TR/soap12-part1/ http://www.w3.org/TR/soap12-part2/ Guidance on the use of SOAP can be found at http://www.w3.org/TR/soap12-part0/ and http://www.w3.org/TR/xmlp-scenarios/ See the W3C web site http://www.w3.org for the latest drafts of the SOAP specifications and transport bindings. Web services may use SOAP version 1.1 as an interim solution provided there is a migration strategy for conformance to SOAP version 1.2.	A
Web service request registry	UDDI v3.0 specification (Universal Description, Discovery and Integration) defined by OASIS http://www.uddi.org/specification.html Applicable for dynamic Web services requiring web service discovery using WSDL.	R
Web service description language	WSDL 1.1, Web Service Description Language as defined by the W3C, the specifications can be found at http://www.w3.org/TR/wsdl	A
Web services business	ebXML Registry Services Specification v2.1 as defined	R

repositories	<p>by OASIS http://www.oasis-open.org/committees/regrep/documents/2.1/specs/ebrs.pdf Also, published as ISO/TS 15000-4 Electronic business eXtensible Markup Language (ebXML) -- Part 4: Registry services specification (ebRS) (available in English only)</p>	
	<p>ebXML Registry Information Model v2.1 as defined by OASIS http://www.oasis-open.org/committees/regrep/documents/2.1/specs/ebrim_v2.1.pdf Also published as ISO/TS 15000-3 Electronic business eXtensible Markup Language (ebXML) -- Part 3: Registry information model specification</p>	R
Web service basic interoperability profile	<p>Basic Profile Version 1.0 (BdAD Final Material) as defined by the Web Services Interoperability Organisation (WS-I) http://www.ws-i.org/Profiles/BasicProfile-1.0-2004-04-16.html</p>	R
	<p>Basic Profile 1.0 – Errata as WS-I http://www.ws-i.org/Profiles/BasicProfile-1.0-errata-2004-03-17.html</p>	U
	<p>Basic Profile Version 1.1 as defined by WS-I http://www.ws-i.org/Profiles/Basic/2003-12/BasicProfile-1.1.pdf</p>	U
	<p>Simple SOAP Binding Profile 1.0 as defined by WS-I http://www.ws-i.org/Profiles/Basic/2003-08/SimpleSoapBindingProfile-1.0.pdf</p>	U
Web service attachments interoperability profile	<p>Attachments Profile version 1.0 as defined by WS-I http://www.ws-i.org/Profiles/Basic/2003-08/AttachmentsProfile-1.0.pdf</p>	U
Web service choreography	<p>Web Services Choreography Description Language (WS-CDL) as defined by W3C http://www.w3.org/TR/ws-cdl-10/</p>	U
	<p>Business Process Execution Language for Web Services BPEL4WS as defined by the BEA, IBM, Microsoft, SAP AG and Siebel http://www-106.ibm.com/developerworks/library/ws-bpel/</p>	U
	<p>WSCI 1.0 (The Web Service Choreography Interface) Sponsor: BEA, Sun, Oracle http://www.w3.org/TR/wsci/</p>	U
Web services security	<p>Basic Security Profile Version 1.0 (WS-I Security) as defined by WS-I http://www.ws-i.org/Profiles/BasicSecurityProfile-1.0-2005-01-20.html</p>	A
	<p>RFC 2818: HTTP over TLS as defined by IETF http://www.ietf.org/rfc/rfc2818.txt</p>	A
	<p>Web Services Security: SOAP Message Security 1.0 (WS-Security 2004) as defined by OASIS http://docs.oasis-open.org/wss/2004/01/oasis-200401-</p>	R

	wss-soap-message-security-1.0.pdf Errata 1.0 for Web Services Security: SOAP Message Security V1.0 http://www.oasis-open.org/committees/download.php/11146/oasis-200401-wss-soap-message-security-1.0-errata-004.pdf	
	Web Services Security: UsernameToken Profile as defined by OASIS http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0.pdf Errata 1.0 for Web Services Security: UsernameToken Profile V1.0 http://www.oasis-open.org/committees/download.php/11143/oasis-200401-wss-username-token-profile-1.0-errata-003.pdf	R
	Web Services Security: X.509 Certificate Token Profile as defined by OASIS http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-x509-token-profile-1.0.pdf Errata 1.0 for Web Services Security:X.509 Certificate Token Profile V1.0 http://www.oasis-open.org/committees/download.php/11145/oasis-200401-x509-token-profile-1.0-errata-004.pdf	R
	Web Services Security: SAMLToken Profile as defined by OASIS http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.0.pdf	R
	Web Services Security: Rights Expression Language (REL) Profile as defined by OASIS http://docs.oasis-open.org/wss/oasis-wss-rel-token-profile-1.0.pdf	R
	Web Services Security: KerberosToken Profile as defined by OASIS http://www.oasis-open.org/committees/download.php/8266/oasis-xxxxx-wss-kerberos-token-profile-1%200.pdf	F
	Web Services Security: Minimalist Profile (MProf) as defined by OASIS http://www.oasis-open.org/committees/download.php/1720/WSS-MinimalistProfile-20030307.pdf	F
	Web Services Trust Language (WS-Trust) as defined by BEA Systems, Inc., Computer Associates International, Inc., International Business Machines Corporation, Layer 7 Technologies, Microsoft Corporation, Netegrity, Inc., Oblix Inc., OpenNetwork Technologies Inc., Ping Identity Corporation, Reactivity Inc., RSA Security Inc., VeriSign Inc., and Westbridge Technology, Inc. All rights reserved. http://www-106.ibm.com/developerworks/library/specification/ws-trust/	F

WS- Secure conversation	Web Services Secure Conversation Language (WS-SecureConversation), IBM, Microsoft, RSA Security & VeriSign, May 2004 http://specs.xmlsoap.org/ws/2004/04/sc/ws-secureconversation.pdf	F
WS-Federation	Web Services Federation Language (WS-Federation) 08 July 2003 International Business Machines Corporation, Microsoft Corporation, BEA Systems, Inc., RSA Security, Inc., VeriSign, Inc. All rights reserved. http://msdn.microsoft.com/webservices/understanding/advancedwebservices/default.aspx?pull=/library/en-us/dnglobspec/html/ws-federation.asp	F
WS-Reliable Messaging	Web Services Reliable Messaging (WS-Reliability 1.1) OASIS Committee Draft 24 August 2004.. http://docs.oasis-open.org/wsrn/2004/06/WS-Reliability-CD1.086.pdf	U
	Web Services Reliable Messaging Protocol (WS Reliable Messaging March 04) as defined by the BEA, IBM, Microsoft, and TIBCO software Inc ftp://www6.software.ibm.com/software/developer/library/ws-reliablemessaging200403.pdf	F
WS-Addressing	Web Services Addressing (WS- Addressing) as defined by the BEA, IBM and Microsoft ftp://www6.software.ibm.com/software/developer/library/ws-add200403.pdf	F
WS-Transactions	OASIS Business Transaction Protocol (BTP) as defined by OASIS. Latest working draft see http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=business-transaction . Version 1.1	F
	Web Services Atomic Transaction (WS-AtomicTransaction) as defined by BEA Systems, International Business Machines Corporation, Microsoft Corporation, Inc. All rights reserved. ftp://www6.software.ibm.com/software/developer/library/WS-AtomicTransaction.pdf	F
WS-Coordination	Web Services Coordination (WS-Coordination) as defined by BEA, IBM and Microsoft. ftp://www6.software.ibm.com/software/developer/library/WS-Coordination.pdf	F
WS-Policy	Web Services Policy Framework (WS-Policy) as defined by BEA, IBM, Microsoft and SAP AG. ftp://www6.software.ibm.com/software/developer/library/ws-policy.pdf	U
	Web Services Policy Assertions Language (WS-PolicyAssertions) as defined by BEA, IBM, Microsoft and SAP AG. http://ifr.sap.com/ws-policy/ws-policyassertions.pdf	U
	Web Policy Attachments (WS-PolicyAttachment) as defined by BEA, IBM, Microsoft and SAP AG. http://ifr.sap.com/ws-policy/ws-policyattachment.pdf	U

WS-Security Policy	Web Services Security Policy Language (WS-SecurityPolicy) as defined by IBM, Microsoft, RSA Security Inc. and VeriSign Inc. http://www-106.ibm.com/developerworks/library/ws-secpol/	F
WS-Business Activity	Web Services Business Activity Framework (WS-BusinessActivity) as defined by the BEA, IBM, Microsoft and SAP AG. ftp://www6.software.ibm.com/software/developer/library/WS-BusinessActivity.pdf	F
Business Collaboration	BPML 1.0 (Business Process Modeling Language) as defined by BPMI.ORG http://www.bpmi.org	F
	Collaboration Protocol Profile (CCPs) and Agreement (CPA's) specification as defined by OASIS http://www.ebxml.org/specs/ebCCP.pdf	F
WS-Discovery	Web Services Dynamic Discovery (WS-Discovery). as defined by, BEA Systems, Canon, Intel Microsoft and webMethods, Inc http://msdn.microsoft.com/library/en-us/dnglobspec/html/ws-discovery.pdf	F
WS-Access Control profiles	SAML 2.0 profile for XACML as defined by OASIS http://docs.oasis-open.org/xacml/access_control-xacml-2.0-saml_profile-spec-cd-02.pdf	R
	XML Digital Signature profile of XACML as defined by OASIS. http://docs.oasis-open.org/xacml/access_control-xacml-2.0-dsig_profile-spec-cd-01.pdf	U
	Hierarchical Resource profile of XACML http://docs.oasis-open.org/xacml/access_control-xacml-2.0-hier_profile-spec-cd-01.pdf	U
	Multiple Resource profile of XACML http://docs.oasis-open.org/xacml/access_control-xacml-2.0-mult_profile-spec-cd-01.pdf	U
	Core and Hierarchical Role Based Access Control (RBAC) profile, Version 2.0, as defined by OASIS. http://docs.oasis-open.org/xacml/access_control-xacml-2.0-rbac_profile1-spec-cd-01.pdf	U
WS- security mark-up profiles	Binding for the OASIS Security Assertion Markup Language (SAML) V2.0 http://www.oasis-open.org/committees/download.php/11040/sstc-saml-bindings-2.0-cd-04.pdf	R
	Profiles for the OASIS Security Assertion Markup Language (SAML) v2.0 http://www.oasis-open.org/committees/download.php/11038/sstc-saml-profiles-2.0-cd-04.pdf	U
	Metadata for the OASIS Security Assertion Markup Language (SAML) v2.0 http://www.oasis-open.org/committees/download.php/11036/sstc-saml-metadata-2.0-cd-04.pdf	U
	Authentication Context for the OASIS Security Assertion Markup Language (SAML) v2.0	U

	http://www.oasis-open.org/committees/download.php/11047/sstc-saml-authn-context-2.0-cd-04.pdf	
WS-Transfer	Web Service Transfer http://msdn.microsoft.com/library/en-us/dnglobspec/html/ws-transfer.pdf	F
WS-Enumeration	Web Service Enumeration http://msdn.microsoft.com/library/en-us/dnglobspec/html/ws-enumeration.pdf	F
WS-MetadataExchange	Web Service MetadataExchange http://msdn.microsoft.com/library/en-us/dnglobspec/html/ws-metadataexchange.pdf	F
WS-Eventing	Web Services Eventing http://ftpna2.bea.com/pub/downloads/WS-Eventing.pdf	F

Note: see [Table 3 Specifications for data integration](#) for current XML security standards

5 Data integration

Technical policies for data integration are outlined in the [e-GIF](#).

Table 3 Specifications for data integration

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Data integration metadata/meta language	XML (Extensible Markup Language) as defined by W3C http://www.w3.org/XML	A
Data integration metadata definition	XML schema as defined by W3C, the specifications can be found at XML Schema Part 1: Structures http://www.w3.org/TR/xmlschema-1/structures XML Schema Part 2: Datatypes http://www.w3.org/TR/xmlschema-2/datatypes Government XML schemas, for the latest versions see the GovTalk site at http://www.govtalk.gov.uk/schemasstandards/schemalibrary.asp	A
Data transformation	XSL (Extensible Stylesheet Language) as defined by W3C http://www.w3.org/TR/xsl XSL Transformation (XSLT) as defined by W3C http://www.w3.org/TR/xslt	A
Data description language	RDF (Resource Description Framework) as defined by W3C http://www.w3.org/TR/REC-rdf-syntax/ . RDF can be used with OWL for adding semantics.	A
Ontology-based information exchange	OWL (Web Ontology Language Semantics and Abstract Syntax) as defined by W3C. http://www.w3.org/TR/owl-semantics/ For formal descriptions of the meaning of terminology used in web documents for the automatic processing of such documents. OWL can be used with RDF for adding semantics.	R
Data modelling language	UML (Unified Modelling Language) at http://www.omg.org/gettingstarted/specsandprods.html/ UML is also published as ISO/IEC 19501:2005 Information technology -- Open Distributed Processing -- Unified Modeling Language (UML) Version 1.4.2	A

Data modelling exchange	XMI (XML Metadata Interchange), version 2.0 as defined by OMG. http://www.omg.org/technology/documents/formal/xmi.htm	U
Data definition and schema standardisation process	As per GovTalk processes in Part 1 Government Data Standards, see http://www.govtalk.gov.uk/schemasstandards/eservices.asp	A
Minimum interoperable character set	Transformation Format – 8 bit UTF-8 (RFC 2279), which supports the exchange of the full character set. Individual items in the XML schema may be further restricted in character set on a case-by-case basis	A
XML signatures	XML-Signature Syntax and Processing (XML-Dsig) as defined by W3C http://www.w3.org/TR/2002/REC-xmlsig-core-20020212	A
	OASIS DSS (Digital Signature Services), including XML timestamp tokens. http://docs.oasis-open.org/dss/cd/oasis-dss-1[1].0-core-spec-cd.pdf	U
XML encryption	XML-Encryption Syntax and Processing (XML-Enc) as defined by W3C http://www.w3.org/TR/xmlenc-core/	A
XML signature and encryption	Decryption Transform for XML Signature as defined by W3C http://www.w3.org/TR/xmlenc-decrypt	A
XML key management where a PKI environment is used	XML-Key Management Specification (XKMS 2.0) as defined by W3C http://www.w3.org/TR/xkms2/	A
XML security mark-up	SAML V2.0 (Security Assertion Markup Language) as defined by OASIS http://www.oasis-open.org/committees/security/index.shtml http://www.oasis-open.org/committees/download.php/11042/sstc-saml-core-2.0-cd-04.pdf	A
XML access control	XACML (eXtensible Access Control Markup Language) as defined by OASIS http://docs.oasis-open.org/xacml/access_control-xacml-2_0-core-spec-cd-04.pdf	U

Note: Copies of the W3C specifications can be found at <http://www.w3.org/TR>

Copies of the OASIS specifications can be found at <http://www.oasis-open.org>

5.1 Notes on XML and middleware

- not all systems are required to be directly XML enabled
- where appropriate it is acceptable to use middleware as illustrated below

Figure 1 *Direct interchange*

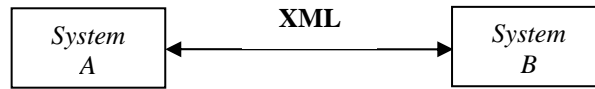
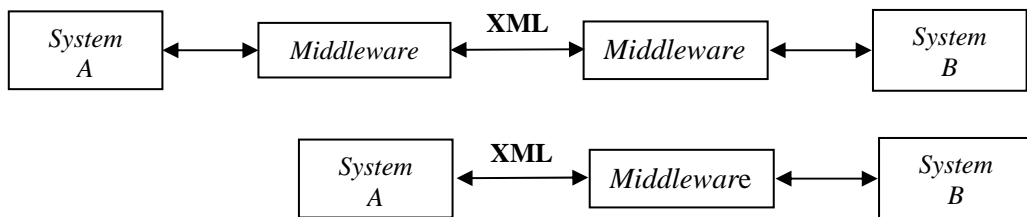


Figure 2 *Interchanges via middleware*



6 Content management metadata

Technical policies for content management metadata are outlined in the [e-GIF](#)

Table 4 Specifications for content management metadata

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Content management metadata definition	XML Schema Government XML metadata schema will be held at http://www.govtalk.gov.uk/schemasstandards/xmlschema.asp	A
Content management metadata elements and refinements	e-GMS which incorporates Dublin Core http://www.govtalk.gov.uk/schemasstandards/metadata.asp	A
Subject element, category refinement	GCL (Government Category List) http://www.govtalk.gov.uk/schemasstandards/gcl.asp The GCL may be withdrawn when the next version of the e-GMS is issued; it is advised to use the IPSV.	U
	IPSV (Integrated Public Sector Vocabulary) http://www.esd.org.uk/standards/ipsv/	A
Data definition	Government Data Standards Catalogue http://www.govtalk.gov.uk/schemasstandards/eservices.asp	A
Metadata harvesting	Open Archives Initiative Protocol for Metadata Harvesting 2.0 (OAI-PMH) for metadata collection Protocol Version 2.0 of 2002-06-14 Document Version 2003/02/21T00:00:00Z http://www.openarchives.org/OAI/openarchivesprotocol.html	A
Content syndication	RSS (RDF Site Summary) Version 1 The RSS is a standard format for syndicating news content over the web using Dublin Core and RDF Published by the RSS-DEV Working Group http://web.resource.org/rss/1.0/	A
	RSS (Really Simple Syndication) Version 2 The RSS was originally designed an alternative standard format for syndicating news content over the web, however RSS can be and is being used to publish	R

	various type of data over the web, not just news data. The RSS 2.0 is offered by the Berkman Center for Internet & Society at Harvard Law School under the terms of the Attribution/Share Alike Creative Commons license http://blogs.law.harvard.edu/tech/rss	
Context-sensitive linking	OpenURL 0.1 (migrating to 1.0) for context-sensitive linking http://www.exlibrisgroup.com/sfx_openurl.htm The OpenURL is designed to enable the transfer of the metadata from the information service to a service component that can provide context-sensitive services for the transferred metadata	A
Distributed searching	Z39.50 or Search/Retrieve Web Service (SRW) http://lcweb.loc.gov/z3950/agency/zing/srw/service.html ISO 23950:1998 Information and documentation -- Information retrieval (Z39.50) -- Application service definition and protocol specification http://lcweb.loc.gov/z3950/agency/ Note: The two documents are technically the same with only slight editorial differences	A

Table 5 Specifications for identifiers

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Persistent and unique logical identifiers	ANSI/NISO Z39.84 provides a syntax for unique identification for digital content. Note: mechanism must be deployed to ensure that the Digital Object Identifiers (DOIs) have unique values	R
	DOIs provide a way to link users of the materials to the rights holders themselves to facilitate automated digital commerce	U
Persistent identifiers	XRI (OASIS Extensible Resource Identifier) the purpose of XRI is to define a URI scheme and a corresponding URN namespace for distributed directory services that enable the identification of resources (including people and organizations) and the sharing of data across domains, enterprises and applications. This standard is considered immature to be adopted by e-GIF for a standard for persistent identifiers at the current time http://www.oasis-open.org/home/index.php	F

Unique identifiers	GUID (Globally Unique Identifier), there are no rules for the syntax of a GUID. Aggregators must view them as a string. The source of the feed needs to establish the uniqueness of the string. If the GUID element has an attribute named 'isPermaLink' with a value of true, the reader may assume that it is a permalink to the item, that is, a URL that can be opened in a Web browser. GUIDs are part of the RSS 2.0 standard http://www.guid.org/	U
Persistent identifiers	Using National Bibliography Number (NBN) as Uniform Resource Names RFC 3188 http://www.ietf.org/rfc.html	F
Identifier resolution system	Handles: the Handle system is a resolution system with an associated naming system. A naming authority is authorised to create and maintain Handles, and the identifier for it must be unique to that authority but has no prescribed syntax http://www.handle.net/introduction.html	U
Identifiers for persistent URLs	PURLs (persistent URL) a PURL is a Persistent Uniform Resource Locator. Functionally, a PURL is a URL. However, instead of pointing directly to the location of an Internet resource, a PURL points to an intermediate resolution service http://purl.org/	R
Persistent name for URLs	URN (Uniform Resource NameName) A URN is a persistent, globally unique name assigned to an object. In contrast to a URL, which changes whenever the location of an object changes, a URN has no location dependence and therefore a longer lifetime http://www.w3.org/TR/2001/NOTE-uri-clarification-20010921/	R
Registered namespaces	URI (Uniform Resource Identifier) a URI is a registered identification referring to Protocols or namespaces. A URN is a form of URI which uses a namespace (and associated Resolution Protocols) for persistent object names http://www.w3.org/TR/2001/NOTE-uri-clarification-20010921/	R
Scheme for site identification on the WWW	URL (Uniform Resource Locator) a URL is the address of a resource which is retrievable using the Internet. A URL has to provide sufficient information to locate an object using a specified scheme. In the case of HTTP URLs, the scheme is 'http', and the scheme-dependent part specifies the name of the HTTP Server as well as the path of the object on the HTTP Server http://www.w3.org/TR/2001/NOTE-uri-clarification-20010921/	R

Identifiers for digital objects using ASN.1	Object Identifier (OIDs) are used in ASN.1 based protocols. ISO/IEC 9834-2:1993 Information technology -- Open Systems Interconnection -- Procedures for the operation of OSI Registration Authorities -- Part 2: Registration procedures for OSI document types ISO/IEC 8824-1:2003 Information technology -- Abstract Syntax Notation One (ASN.1): Specification of basic notation ISO/IEC 8824-2:2003 Information technology -- Abstract Syntax Notation One (ASN.1): Information object specification http://www.iso.ch/iso/en/ISOOnline.frontpage	R
Radio tracking identification	RFIDs (Radio Frequency Identification) use tracking and access applications where bar codes and labels are not suitable. RFID has established itself in a wide range of markets including livestock identification and automated vehicle identification (AVI) systems because of its ability to track moving objects. For further information see ISO/IEC SC31 RFID Related Standards including ISO/IEC 15434, 15459, 15961-3, 18000, 18001, 18046.18047, 19789 and 24710.	R
Archival identifiers	ARK (Archival Resource Key) is an IETF Internet draft, the scheme intended to facilitate the persistent naming and retrieval of information objects http://www.ietf.org/internet-drafts/draft-kunze-ark-08.txt	F
Codes for physical object as used in the retail industry	EAN.UCC (European Article Number/Uniform Code Council) was the first bar code symbology widely adopted. An industry standard bar code symbology for product marking http://www.gs1uk.org/sec_home.asp?fid=60	R

7 e-Services access

Technical policies for e-Services access are outlined in the [e-GIF](#)

Table 6 Specifications for computer workstations

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Hypertext interchange formats	HTML v4.01 http://www.w3.org/TR/html401/ and XHTML v1.0 http://www.w3.org/TR/xhtml1/	A
Document file types	<p>Rich Text Format as (.rtf) files http://www.microsoft.com/downloads/details.aspx?FamilyID=e5b8ebc2-6ad6-49f0-8c90-e4f763e3f04f&DisplayLang=en</p> <p>Plain/Formatted Text as (.txt) files</p> <p>Hypertext documents as (.htm) files 01 http://www.w3.org/TR/html401/</p> <p>Acrobat (.pdf) viewer minimum version 4 http://www.adobe.com/products/acrobat/readermain.html</p> <p>Word (.doc) viewer/reader for Windows XP, Windows 2000, Windows 95, Windows 98, Windows NT, with minimum support for Word97 format http://www.microsoft.com/downloads/details.aspx?FamilyID=a8e0c6ee-d736-4fd6-8a78-adaa6488b2ac&DisplayLang=en</p> <p>Lotus Notes Web Access (.nsf)</p> <p>Multimedia Message formats (.mht), see IETF RFC 2557 for further information http://www.ietf.org/rfc.html.</p> <p>Other file formats may be used in addition to the above list provided they meet the technical policy for document handling in the e-GIF</p>	A

Spreadsheet file types	<p>Hypertext documents as (.htm) files 01 http://www.w3.org/TR/html401/</p> <p>Delimited files as (.csv) files.</p> <p>Excel (.xls), viewer/reader minimum support for Windows 2000, Windows 95, Windows 98, Windows NT.</p> <p>http://www.microsoft.com/downloads/details.aspx?familyid=C8378BF4-996C-4569-B547-75EDBD03AAF0&displaylang=en</p> <p>Other file formats may be used in addition to the above list provided they meet the technical policy for document handling in the e-GIF.</p>	A
Presentation file types	<p>Hypertext documents as (.htm) files 01 http://www.w3.org/TR/html401/</p> <p>Powerpoint (.ppt, .pps), viewer/reader minimum support for Windows 2000 Service Pack 3, Windows 98 Second Edition, Windows ME, Windows Server 2003, Windows XP.</p> <p>http://www.microsoft.com/downloads/details.aspx?FamilyID=428d5727-43ab-4f24-90b7-a94784af71a4&displaylang=en</p> <p>Powerpoint (.ppt, .pps) viewer/reader for MAC., http://www.microsoft.com/mac/downloads.aspx?pid=download&location=/mac/download/office98/powerpoint98viewer.xml&secid=20&ssid=7</p> <p>Other file formats may be used in addition to the above list provided they meet the technical policy for document handling in the e-GIF.</p>	A
Character sets and alphabets	<p>UNICODE http://www.unicode.org/unicode/uni2book/u2.html</p> <p>ISO/IEC 10646-1:2000 http://www.iso.ch/iso/en/ISOOnline.frontpage Transformation Format for 16 planes of group 00 (UTF-16)</p>	A
Graphical/still image information exchange specifications	<p>Joint Photographic Experts Group/ISO 10918 (.jpg) http://www.jpeg.org/index.html</p> <p>Graphics Interchange Format (.gif) http://www.w3.org/Graphics/GIF/spec-gif87.txt</p> <p>Portable Network Graphics (.png) http://www.libpng.org/pub/png/</p> <p>For images that will not tolerate information loss use Tag Image File format (.tif) http://partners.adobe.com/asn/developer/pdfs/tn/TIFF6.pdf</p> <p>When highly compressed imaging is required use Enhanced Compressed Wavelet (.ecw) http://www.ermapper.com/</p>	A

Scripting	ECMA 262 Script http://www.ecma-international.org/publications/standards/ECMA-262.HTM	A
Vector graphics	Scalable Vector Graphics (.svg) http://www.w3.org/TR/SVG/ Vector Markup Language (vml)	A
Moving image and audio/visual information exchange specifications	Moving Picture Experts Group (.mpg) http://www.chiariglione.org/mpeg/standards.htm MPEG-1/ISO 11172 Conversion is provided by most mainstream packages	A
Audio/video streaming data	RealAudio/RealVideo (.ra, .ram, .rm, .rmm) http://uk.real.com Macromedia Shockwave (.swf) http://sdc.shockwave.com/downloads/ Windows media formats (.asf, .wma, .wmv) http://www.microsoft.com/downloads/search.aspx?displaylang=en&categoryid=4 Apple Quicktime (.avi, .mov, .qt) http://www.apple.com/quicktime/download/ Waveform Audio File Format (.wav) ISO-MPEG Audio Layer-3 (.mp3) Also published as: ISO/IEC 11172-3:1993 and Co1:1996 ISO/IEC 13818-3:1998 8 μ Law H263, see video conferencing standards Ogg Vorbis Speex	A
Animation	Macromedia Flash (.swf) http://sdc.shockwave.com/downloads/ Apple Quicktime (.avi, .mov, .qt) http://www.apple.com/quicktime/download/ Macromedia Shockwave (.swf) http://sdc.shockwave.com/downloads/	A
Extended programming	When extended programming facilities at the browser are absolutely essential alternative suitable programming languages or technology may be used, but they must comply with the other provisions and policy requirements of the e-GIF, e.g. free downloads of plug-ins	A
General purpose files and compression	File types (.zip), (.gz), (.tgz), (.tar)	A

Note: In accordance with the technical policy on downloadable viewers and plug-ins, converters and viewers for Microsoft Office products can be found at: <http://office.microsoft.com/assistance/preview.aspx?AssetID=HA010449811033&CTT=6&Origin=EC010963431033>

Table 7 Specifications for other channels³

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Hypertext interchange formats	HTML v3.2 http://www.w3.org/TR/REC-html32	A
Document file types	Plain/Formatted Text as (.txt) files Hypertext documents as (.htm) files	A
Spreadsheet file types	Hypertext documents as (.htm) files	A
Presentation file types	Hypertext documents as (.htm) files	A
Character sets and alphabets	UNICODE http://www.unicode.org/unicode/uni2book/u2.html ISO/IEC 10646-1:2000 http://www.iso.ch/iso/en/ISOOnline.frontpage Transformation Format for 16 planes of group 00 (UTF-16)	A
Graphical/still image information exchange specifications	Joint Photographic Experts Group/ISO 10918 (.jpg) http://www.jpeg.org/index.html Graphics Interchange Format (.gif) http://www.w3.org/Graphics/GIF/spec-gif87.txt Portable Network Graphics (.png) http://www.libpng.org/pub/png/	A
Scripting	ECMA 262 Script http://www.ecma-international.org/publications/standards/ECMA-262.HTM	A

³ Specifications are for access channels with restricted facilities, such as kiosks, PDAs, Smart Phones (PDA/mobiles) and iDTV. If a service requires the facilities of a more sophisticated access device, reasonable alternative ways of delivering a more limited service should also be provided following the standards defined in Table 7.

Table 8 Specifications for mobile phones⁴

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
WAP specifications ⁴	The specifications to be used are defined by the WAP Forum, see www.wapforum.org/what/technical.htm Note: Only when the standards defined for smart phones in Table 7 other channels are not applicable	A
GPRS	The General Packet Radio Service specifications as defined by European Telecommunications Standard Institute (ETSI) for Mobile Stations including: EN No: 301 113, 301 344, 301 347 and TS 101 297, 101 351, see www.etsi.org	A
SMS	The Short Message Service specifications as defined by European Telecommunications Standards Institute (ETSI) for Mobile Stations including: ETS 300 536, 537, 300 559, 300 560, see www.etsi.org	A
MMS	The Multimedia Messaging Service specifications as defined by European Telecommunications Standards Institute (ETSI) for Mobile Stations including: TS 122 140, 123 140, 126 140, see www.etsi.org	A

Table 9 Specifications for conferencing systems over IP⁵

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Assembly	ITU H .323 (07/03), version 5 Standards for the assembly of Audio, Video, Data and Control (AVDC)	R
Audio	The minimum audio standards required are ITU G.723.1 and G.722	R
Video	The video standards required are ITU H.261 and H.263	R

⁴ The specifications for the delivery of services to the citizen via mobile phones are dependent on the evolution and availability of new technologies like 3G. If there is a need for service provision via mobile phone is not provided by those listed in Table 7 Specifications for other channels, then the standards defined by the WAP specifications are appropriate.

⁵ Many government projects are requiring videoconferencing facilities; Table 9 specifications for conferencing systems over IP defines the basic standards required. Multimedia conferencing services with integrated real time sound, video, data services using a variety of terminals are evolving in the marketplace. Many of the standards for multimedia conferencing are being developed under the general voice over IP (VoIP) activity in the IETF and ITU. Current standards proposed as defined in Table 10 Specifications for Voice over IP (VoIP) systems. Future versions will refine Table 9 in line with market lead product developments.

Data	The data standards required are ITU T.120	R
Control and signalling	The control and signalling standards required are ITU T.H.225 and H.245	R
Call control signalling	The call control signalling standards required are ITU T.Q.931 Note: When call control signalling is required	U

Note: Copies of the ITU specifications can be found at <http://www.itu.int/publications/index.html>

Table 10 Specifications for Voice over IP (VoIP) systems

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Assembly	ITU H.323 (07/03), version 5 Standards for the assembly of Audio, Video, Data and Control (AVDC)	R
Gateway control	The following define standards for multimedia gateways: Media Gateway Control Protocol (MGCP): RFC 3435 Media Gateway: RFC 2805 Simple Gateway Control Protocol: RFC 3525 Megaco Protocol version 1.0: RFC 3015 Signalling System 7 (SS7) Message Transfer Part 3 (MTP3) User Adaptation Layer (M3UA): RFC 3332 Megaco: ITU H.248 ⁶	R
Application layer signalling	Session Initiation Protocol (SIP): RFC 3261 An application-layer control (signalling) protocol for creating, modifying, and terminating sessions with one or more participants	R
Resource setup	Resource ReSerVation Protocol (RSVP): RFC 2205 and RFC 2750. A resource reservation setup protocol designed for an integrated services Internet. RSVP provides receiver-initiated setup of resource reservations for multicast or unicast data flows	R

⁶ SIP works in conjunction with RSVP (Resource Reservation Protocol), RTP/RTCP (Real-time Control Protocol), RTSP (Real-time Streaming Protocol), SAP (Session Announcement Protocol) and SDP (Session Description Protocol). RTP/RTCP is used for transporting real time data, RSVP for reserving resources, RTSP for controlled delivery of streams, SAP for advertising multimedia sessions and SDP for describing multimedia sessions. H.323 also works in conjunction with RTP and RTCP (Real-time Control Protocol). The present day voice gateways usually comprises two parts: the signalling gateway and the media gateway. The signalling gateway communicates with the media gateway using MGCP (Media Gateway Control Protocol). MGCP can interoperate with both SIP and H.323.

Transport and control protocol	Real Time Protocol (RTP) and Real Time Control Protocol (RTCP): RFC 3550 RTP and RTCP provide end-to-end network transport functions suitable for applications transmitting real-time data, such as audio, video or simulation data, over multicast or unicast network services	R
Delivery control	Real Time Streaming Protocol (RTSP): RFC 2326 RTSP is an application-level protocol for control over the delivery of data with real-time properties. RTSP provides an extensible framework to enable controlled, on-demand delivery of real-time data, such as audio and video	R
Announcement protocol	Session Announcement Protocol (SAP): RFC 2974 An experimental RFC for multicast announcement of session description information and defines an announcement protocol	U
Session description	Session Description Protocol (SDP): RFC 2327 SDP is intended for describing multimedia sessions for the purposes of session announcement, session invitation, and other forms of multimedia session initiation. Other SDP RFCs include RFC 3524	U
Extended RTCP	RTP Control Protocol Extended Reports (RTCP XR): RFC 3611 Defines the Extended Report (XR) packet type for the RTP Control Protocol (RTCP), and defines how the use of XR packets can be signalled by an application if it employs the Session Description Protocol (SDP)	U

Note: Copies of the IETF RFCs can be found at <http://www.ietf.org/rfc.html>
Copies of the ITU specifications can be found at <http://www.itu.int/publications/index.html>

Specifications for smart cards

Table 11a Specifications for smart cards – data definition

Specification	e-GIF status A= Adopted R= Recommended U= Under review F= For future consideration		Notes
		Applicable to	
Definitions - Government Data Standards Catalogue, http://www.govtalk.gov.uk/schemasstandards/eservices.asp , provides data definitions and XML Schema fragments	A	All	Government Data Standards Catalogue takes precedence should a conflict of data definitions occur

ISO/IEC 7816-6: 2004 Identification cards - Integrated circuit cards Part 6: Inter industry data elements for interchange*	R	All	
ISO/IEC 7812-1:2000 Identification cards- Identification of issuers Part 1: Numbering system ISO/IEC 7812-1:2000/Cor 1: 2001	R	All	
EN 1546-3: 2000 Identification Card Systems - Inter-sector Electronic Purse – Part 3: Data elements and interchanges	U	All	
EN 1546-4:1999 Identification Card Systems - Inter-sector Electronic Purse - Part 4: Data objects	U	All	
CEN-ISSS: CWA 13987-1: 2003 Smart Card Systems - Interoperable Citizen Services - User Related Information Part 1: Definition of User Related Information and implementation	R	All	This document provides a specification and guidance for setting up a card community
EN 1545-1 Identification card systems surface transport applications. Part 1: Elementary data types, general codelists and general data elements	R	Transport applications	Defines the codification of data elements used for public transport (such as the date, time, validation event, transport contract, etc.)To be reviewed when final standard is published
EN 1545-2 - Identification card systems surface transport applications. Part 2. Transport's and travel's payment related data elements and codelists	R	Transport applications	To be reviewed when final standard is published

* These standards have security implications

Table 11b Specifications for smart cards – applications including multi-applications

Specification	e-GIF status A= <i>Adopted</i> R= <i>Recommended</i> U= <i>Under review</i> F= <i>For future consideration</i>		Notes
		Applicable to	
ISO/IEC 7816-4: 2005 Identification cards - Integrated circuit(s) cards with contacts – Part 4: Organization, security and commands for interchange *	R	Integrated circuit(s) cards with contacts	This standard specifies the contents of command-response, means of data retrieval, structure of operational characteristics of the card, structure of application data, methods of file access. A security architecture defining access rights to files and data in the card, means and mechanisms for identifying and addressing applications in the card, methods for secure messaging, access methods to the algorithms processed by the card. It does not describe these algorithms.
ISO/IEC 7816-5: 2004 Identification cards - Integrated circuit cards Part 5: Registration of Application Providers	R	Integrated circuit(s) cards with contacts	A register of application providers is kept by KTAS ⁷ in Denmark and used for application selection through the use of unique application identifier numbers. Registration in the UK is via BSI, and has been delegated to APACS.
ISO/IEC 7816-7: 1999 Identification cards -- Integrated circuit(s) cards with contacts Part 7: Inter industry commands for Structured Card Query Language (SCQL)*	R	Integrated circuit(s) cards with contacts	Draft Amd 1: Extended Card Data Base (ECDB)
ISO/IEC 7813; 2001 Identification cards, Financial transaction cards	R	Financial cards	
ISO/IEC 7812-2; 2000 Identification cards Identification of issuers Part 2: Application and registration procedures	R	All	

⁷ KTAS (aka TeleDanmark) is the ISO/IEC 7816-5 Registration Authority. Address is Tegholmegade 1, DK-1790, Copenhagen, V, Denmark

EN 1332-1: 1999 Identification card systems – Man machine interface Part 1: Design principles for the user interface	R	All	
EN 1332-4: 1999 Identification card systems – Man machine interface Part 4: Coding of user requirements for people with special needs	R	All	
Integrated Transport Smartcard Organisation (ITSO) Specification TS 1000 (Version 2.1) ITSO/1000-0 Concept & Content ITSO/1000-1 General Reference ITSO/1000-2 Customer Media Data and Customer Media Architecture ITSO/1000-3 Terminals ITSO/1000-4 HOPS ITSO/1000-5 Customer Media Data Record Definitions ITSO/1000-6 Message Data ITSO/1000-7 ITSO Security Subsystem ITSO/1000-8 ISAM Detailed Operation (available on request from ITSO) ITSO/1000-9 ITSO Communications ITSO/1000-10 Customer Media Definitions http://www.itso.org.uk/spec.asp http://www.itso.org.uk/spec.asp	R	Public transport smart cards	These standards are Crown copyright and have been developed for use in the public transport sector. Applications developed using these standards can reside on multi-application cards. Some elements of these standards could be used in areas other than transport
CEN-ISSS: CWA 13987-2: 2003 Smart Card Systems - Interoperable Citizen Services – Extended User Related Information Part 2: Implementation Guidelines	F	All	This document provides guidance for setting up a card community
CEN-ISSS: CWA 13987-3: 2003 Smart Card Systems - Interoperable Citizen Services - Extended User Related Information Part 3: Guidelines to Creating, Operating and Maintaining an Interoperable Card Community	F	All	This document provides a specification and guidance for setting up a card community

* These standards have security implications

Table 11c Specifications for smart cards – electrical

Specification	e-GIF status		Notes
		Applicable to	
	A= Adopted R= Recommended U= Under review F= For future consideration		
ISO/IEC 7816-10: 1999 Identification cards – Integrated circuit(s) cards with contacts Part 10: Electronic signals and answer to reset for synchronous cards*	R	Integrated circuit(s) cards with contacts	
ISO/IEC 7816-12 Identification cards – Integrated circuit(s) cards with contacts Part 12: USB electrical interface and operating procedures*	F	Integrated circuit(s) cards with contacts	
ISO/IEC 14443-2: 2001 Identification cards – Contactless integrated circuit(s) cards – Proximity cards Part 2: Radio frequency power and signal interface	R	Proximity integrated circuit(s) cards	This part defines the radio frequency interface, and contains two quite different modulation techniques (Types A and B) for data communication between card and terminal. Type A is based on the Philips Mifare technology (widely licensed to other manufacturers). Type B is a new concept. These two types run in parallel through this part of the standard and through part 3. In addition, some Type A specific items appear in part 4
ISO/IEC 15693-2: 2000 Identification cards - Contactless integrated circuit(s) cards - Vicinity cards {Vicinity integrated circuit(s) cards (VICC)} Part 2: Air interface and initialisation ISO/IEC 15693-2: 2000/Cor 1:2001	U	Vicinity contactless integrated circuit(s) cards	

* These standards have security implications

Table 11d Specifications for smart cards – communication protocols

Specification	e-GIF status A= <i>Adopted</i> R= <i>Recommended</i> U= <i>Under review</i> F= <i>Future consideration</i>		Notes
		Applicable to	
ISO/IEC 7816-3: 1997 Identification cards - Integrated circuit(s) cards with contacts Part 3: Electronic signals and transmission protocols*	R	Integrated circuit(s) cards with contacts	Amd 1/2: 2002 Electrical characteristics and class indication for integrated circuit(s) cards operating at 5 V, 3 V and 1.8 V. Draft Amd 3 USB electrical interface and operating procedures withdrawn and ISO/IEC 7816-12 created in its place. This version of ISO/IEC 7816-3 Amd 1: 2002 and Amd 2: are due to be superseded by a revised version of which a draft copy is due to be submitted to ISO for FDIS ballot
ISO/IEC 14443-3: 2001 Identification cards - Contactless integrated circuit(s) cards - Proximity cards Part 3: Initialisation and anti-collision	R	Proximity integrated circuit(s) cards	This part continues the Type A and Type B duopoly, defining card initialisation, anti-collision procedures and basic communications protocols. Anti-collision procedures are the methods used to identify and select one card when several cards are active within the RF field of the terminal
ISO/IEC 14443-4 2001 Identification cards - Contactless integrated circuit(s) cards - Proximity cards Part 4: Transmission protocols	R	Proximity integrated circuit(s) cards	This contains higher level (message level) data transmission protocol information, equivalent to ISO/IEC 7816's T=1 protocol, and is a bridge across to ISO 7816-4. For Type A cards only, ISO/IEC 14443-4 includes a protocol initialisation procedure
ISO/IEC 15693-3: 2001 Identification cards - Contactless integrated circuit(s) cards - Vicinity cards Part 3: Anti-collision and transmission protocol	U	Vicinity contactless integrated circuit(s) cards	

ISO 8583-1: 2003 Financial transaction card originated message – interchange message specification	R	All	
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* These standards have security implications

Table 11e Specifications for smart cards – physical⁸

Specification	e-GIF status		Notes
	A= <i>Adopted</i>	R= <i>Recommended</i>	
		U= <i>Under review</i>	
		F= <i>Future consideration</i>	
		Applicable to	
Physical characteristics ISO/IEC 7810: 2003 Identification cards Physical characteristics	R	All contact and combination cards	To ensure that they can be read in a standard reader, all cards should be in ID-1 format as defined in this standard
Embossing ISO/IEC 7811-1: 2002 Identification cards Recording technique Part 1: Embossing.	R	Any card where embossing is required	Embossing should be in the standard location as defined for the benefit of the visually impaired and for interoperability reasons and should conform to the standard in other respects such as height and depth of embossing. It should be noted, however, that not all smart card readers can accept embossed cards; the decision to emboss should be taken with care
ISO/IEC 7816-1: 1998 Identification cards – Integrated circuit(s) cards with contacts Part 1: Physical characteristics*	R	Integrated circuit(s) cards with contacts	This part supplements ISO/IEC 7810, setting out the particular physical characteristics of IC cards with contacts. Amd 1:2003 Maximum height of IC contact surface

⁸ Physical and interface standards cover card's dimensions; location and layout of contacts.

<p>ISO/IEC 7816-2: 1999 Identification cards – Integrated circuit(s) cards with contacts Part 2: Dimensions and location of the contacts*</p>	R	Integrated circuit(s) cards with contacts	This part has been revised recently to reduce some of its options, especially in the area of embossing (which has been shown to be detrimental to embedded silicon) and phasing out of the original contact positions Amd 1: 2004 Assignment of contacts C4 and C8
<p>ISO/IEC 14443-1: 2000 Identification cards – Contactless integrated circuit(s) cards – Proximity cards Part 1: Physical characteristics</p>	R	Proximity integrated circuit(s) cards	This part supplements the physical characteristics defined in ISO/IEC 7810, a draft Amd 1 under production
<p>ISO/IEC 15693-1: 2000 Identification cards – Contactless integrated circuit(s) cards – Vicinity cards Part 1: Physical characteristics</p>	U	Vicinity contactless integrated circuit(s) cards	
<p>Tactile identifiers BS EN 1332-2 Identification card systems – Man-machine interface Part 2: Dimensions and location of a tactile identifier for ID-1 cards</p>	R	Where embossing is not used and there is a requirement for the user to present the card in a particular orientation, a tactile identifier should be provided as an aid to those with impaired vision	Recommended for contact cards

* These standards have security implications

Table 11f Specifications for smart cards – security⁹

Specification	e-GIF status		Notes
	A= <i>Adopted</i>	R= <i>Recommended</i>	
		U= <i>Under review</i>	
		F= <i>Future consideration</i>	
		Applicable to	
ISO/IEC 7816-8: 2004 Identification cards – Integrated circuit cards Part 8: Commands for security operations	R	All	
ISO/IEC 7816-9: 2004 Identification cards – Integrated circuit cards Part 9: Commands for card management	R	All	
ISO/IEC 7816-11; 2004 Identification cards – Integrated circuit cards Part 11: Personal verification through biometric methods	F	Integrated circuit cards	
ISO/IEC 7816-15 2004 Identification cards – Integrated circuit cards Part 15: Cryptographic information application ISO/IEC 7816-15:2004/Cor 1:2004	F	Integrated circuit cards	Cor 1 is an essential correction to the published standard

⁹ This list of smartcard security standards is not exhaustive and is dynamic in nature. Additional standards with a security implication for smartcards can be found in 'Security Standards for Smart cards, Issue 1.1, dated January 2004', namely CC, ETSI, FIPS and EMVCo, which is located on GovTalk, see http://www.govtalk.gov.uk/schemasstandards/egif_document.asp?docnum=839
Furthermore, NIST IT 6887 2003 Edition, GSC-ISS, Version 2.1 is an architectural model for interchangeable smartcard service provider modules. A life cycle security October 2003 guidelines paper for project managers can also be found on GovTalk, see http://www.govtalk.gov.uk/schemasstandards/egif_document.asp?docnum=824

<p>CEN-ISSS Secure networks and smart cards CWA 14355 Guidelines for the implementation of Secure Signature-Creation Devices CWA 14170 Security Requirements for Signature Creation Systems CWA 14169 Secure Signature-Creation Devices, version 'EAL 4+' CWA 14167 Security Requirements for Trustworthy Systems Managing Certificates for Electronic Signatures Part 1: System Security Requirements Part 2 Cryptographic Module for CSP Signing Operations – Protection Profile (MCSO-PP) CWA 14890-Application Interface for smart cards used as Secure Signature Creation Devices Part 1: Basic Requirements Part 2: Additional Services</p> <p>http://www.cenorm.be/cenorm/businessdomains/businessdomains/iss/cwa/electronic+signatures.asp</p>	U	All	These CWAs have now been submitted to CEN TC224 for development of a into European standards and possible transposition into ISO standards.
<p>ISO 9564-1: 2002 Banking - Personal Identification Number (PIN) management and security Part 1: Basic principles and requirements for online PIN handling in ATM and POS systems ISO 9564-2: Banking - Personal Identification Number management and security Part 2: Approved algorithm(s) for PIN encipherment ISO 9564-3: 2003 Banking - Personal Identification Number management and security Part 3: Requirements for offline PIN handling in ATM and POS systems ISO 9564-4: 2004 Banking - Personal Identification Number management and security Part 4: Guidelines for PIN handling in open networks</p>	U	All	PIN management for online terminals in point-of-sale environments. Part 2 revision under publication

Table 11g Specifications for smart cards – terminal infrastructure

Specifications	e-GIF Status A= Adopted R= Recommended U= Under Review F= For future consideration		Notes
		Applicable to	
EN 1332-3: 1999 Identification card systems – Man machine interface Part 3: Key pads	R	All	
PC/SC Standards Consortium standards PC/SC Workgroup Interoperability Specification for ICCs and Personal Computer Systems Part 1 Introduction and Architecture Overview Part 2 Interface Requirements for Compatible IC Cards and Interface Devices Part 3 Requirements for PC-Connected Interface Devices Part 4 IFD Design Considerations and Reference Design Information Part 5 ICC Resource Manager Definition Part 6 ICC Service Provider Interface Definition Part 7 Application Domain/Developer Design Considerations Part 8 Recommendation for Implementation of Security and Privacy ICC Devices Part 9 IFDs with Extended Capabilities Version 1 http://www.pcscworkgroup.com/specifications/specdownloadV1.php Public review of version 2 http://www.pcscworkgroup.com/specifications/specdownload.php	U	All	For terminal equipment via personal computer systems with MS Windows operating system
MUSCLE Movement for the Use of Smart Cards in a Linux Environment http://www.linuxnet.com/index.html	U	All	For terminal equipment via personal computer systems with other operating system

Unified POS Retail Peripheral Architecture Version 1.8 June 30, 2003 Association for Retail Technology Standards www.nrf-arts.org	U	Point-of-sale terminals	For point-of-sale terminal equipment via personal computer systems and point-of-sale systems
GSC-IS V2.1 The US Government Smart Card Interoperability Specification http://smartcard.nist.gov/gscis.html	U	Authenticatio n	Also referred to as NISTIR 6887
OCF OpenCard Framework http://www.opencard.org/	U		

Table 12 Specifications for biometric data interchange

Specification	e-GIF status A= <i>Adopted</i> R= <i>Recommended</i> U= <i>Under review</i> F= <i>For future consideration</i>		Notes
		Applicable to	
OASIS XCBF 1.1 Specification	F	Secure XML encoding for exchanging biometric data	Secure XML encodings for the patron formats specified in CBEFF, the Common Biometric Exchange File Format (NISTIR 6529).
ISO/IEC 19785-1 Information Technology -- Common Biometric Exchange Formats Framework -- Part 1: Data element specification	F	Data element specification	Evolving international standards for biometric data interchange format based on CBEFF, the Common Biometric Exchange File Format (NISTIR 6529)
ISO/IEC 19785-2 Information Technology -- Common Biometric Exchange Formats Framework -- Part 2: Procedures for the Operation of the Biometric Registration Authority	F	Registration authority procedures	Evolving international standards for procedures for the operation of the biometric registration authority
ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 1: Framework	F	Interchange Formats	Evolving international standards for biometric data interchange format
ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 2: Finger minutiae data:	F	Interchange Formats	Evolving international standards for biometric data interchange format

ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 3: Finger pattern spectral	F	Interchange Formats	Evolving international standards for biometric data interchange format
ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 4 :Finger image data	F	Interchange Formats	Evolving international standards for biometric data interchange format
ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 5 :Face image data	F	Interchange Formats	Evolving international standards for biometric data interchange format
ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 6 :Iris image data	F	Interchange Formats	Evolving international standards for biometric data interchange format
ISO/IEC 19794 :Information Technology Biometric data interchange formats – Part 7: Signature/sign behavioural data .	F	Interchange Formats	Evolving international standards for biometric data interchange format
ISO/IEC 10918-1:1994 Information technology -- Digital compression and coding of continuous- tone still images: Requirements and guidelines ISO/IEC 10918-1:1994/CD Cor 1 ISO/IEC 10918-2:1995 Information technology -- Digital compression and coding of continuous- tone still images: Compliance testing ISO/IEC 10918-3:1997 Information technology -- Digital compression and coding of continuous- tone still images: Extensions ISO/IEC 10918-3:1997/Amd 1:1999 ISO/IEC 10918-4:1999 Information technology -- Digital compression and coding of continuous- tone still images: Registration of JPEG profiles, SPIFF profiles, SPIFF tags, SPIFF colour spaces, APPn markers, SPIFF compression types and Registration Authorities (REGAUT)	F	Graphical/still image information exchange specifications	JPEG is an ISO image compression standard which may be appropriate for some image compression requirements for use in biometric data exchanges using JFIF option

<p>ISO/IEC 15444-1: 2004 Information technology -- JPEG 2000 image coding system -- Part 1: Core coding system</p> <p>ISO/IEC 15444-2: 2004 Information technology -- JPEG 2000 image coding system: Extensions</p> <p>ISO/IEC 15444-4: 2004 Information technology -- JPEG 2000 image coding system: Conformance testing</p> <p>ISO/IEC 15444-12: 2004 Information technology -- JPEG 2000 image coding system -- Part 12: ISO base media file format (available in</p>	F	Graphical/still image information exchange specifications	JPEG 2000 (JP2) is an ISO image compression standard supported by biometrics data exchange standards for image compression, providing superior performance as compared to JPEG for the compression of facial images. In addition, JP2 provides several features useful for the capture and storage of facial images for biometrics applications
ISO/CD 19092-1 Financial Services - Biometrics -- Part 1: Security Framework	F		Evolving ISO standard
ISO/CD 19092-2 Financial services -- Biometrics -- Part 2: Cryptographic techniques	F		Evolving ISO standard
ISO/IEC FCD 19784-1.2 Information technology -- Biometric application programme interface -- Part 1: BioAPI specification	F		
Common Biometric Exchange File format (CBEFF) April 5, 2004 http://www.itl.nist.gov/div893/biometrics/documents/NISTIR6529A.pdf	F		Also a US standard published by National Institute of Standards and Technology (NIST) as NISTIR 6529-A
ANSI X9.84-2003 Biometric Information Management and Security for the Financial Services Industry http://webstore.ansi.org/ansidocstore/financial.asp?	F		This is a US standard for safeguarding the security and privacy of all biometric data in the financial services industry
Biometric Device Protection Profile (BDPP) http://www.cesg.gov.uk/site/iacs/itsec/media/protection-profiles/bdpp082.pdf	F		A UK Government Common Criteria Biometric Device Protection Profile, being validated.
Biometric Security Guidance	R	Security	For security guidance Central government departments should refer to the Manual of Protective Security. Other parts of the public sector should refer to the e-Government strategy framework and guidelines on security at http://www.govtalk.gov.uk/policydocs/consult_subject_document.asp?docnum=649

Table 13 Specifications for smart travel documents

Specification	e-GIF status A= <i>Adopted</i> R= <i>Recommended</i> U= <i>Under review</i> F= <i>For future consideration</i>		Notes
		Applicable to	
ISO/IEC 7501-1: Identification cards – Machine readable travel documents Part 1 : Machine readable passport	R	Travel documents	This document is equivalent to ICAO 9303 part 1 for Passports. Currently under revision
ISO/IEC 7501-2: Identification cards – Machine readable travel documents Part 2 : Machine readable visas	R	Travel documents	This document is equivalent to ICAO 9303 part 2 for Visas. Currently under revision
ISO/IEC 7501-3: Identification cards – Machine readable travel documents Part 3 : Machine readable official travel documents	R	Smart cards	This document is equivalent to ICAO 9303 part 3 for Official Travel Documents (Cards). Currently under revision

For the latest version of Machine Readable Travel documents, see

<http://www.icao.int/mrtd/Home/index.cfm>

Table 14 Specifications for accessibility and usability⁴

Component	Specification	Status
	A = Adopted R = Recommended U = Under review F = For future consideration	
Human Computer Interfaces	ISO/TS 16071:2003 Ergonomics of human-system interaction -- Guidance on accessibility for human-computer interfaces	R
	ATAG10 (Authoring Tool Accessibility Guidelines version 1.0) as defined by W3C http://www.w3.org/TR/ATAG10/	A
	ATAG20 (Authoring Tool Accessibility Guidelines version 2.0) as defined by W3C http://www.w3.org/TR/ATAG20/	F
	UAAG10 (User Agent Accessibility Guidelines, version 1.0) as defined by the W3C Web http://www.w3.org/TR/UAAG10/	A

Standard developers	CEN/CENELEC Guide 6 : January 2002- Guidelines for standards developers to address the needs of older persons and persons with disabilities http://www.cenorm.be/cenorm/businessdomains/businessdomains/iss/activity/cclcgd006.pdf	R
	ISO/IEC Guide 71:2001 Guidelines for standards developers to address the needs of older persons and persons with disabilities	U
Web content	WCAG 1.0 (Web Content Accessibility Guidelines 1.0) as defined by W3C. http://www.w3.org/TR/WCAG10/ Compliance to level AA is recommended; see the Cabinet Office e-Guidelines for UK Government websites for full interpretation of WCAG.	A
	WCAG (Web Content Accessibility Guidelines version 2.0) as defined by W3C http://www.w3.org/TR/WCAG20/	F
	Cabinet Office-Guidelines for UK Government websites – Illustrative Handbook for web management teams. http://www.cabinetoffice.gov.uk/e-government/wedguidelines	A
	DISelect 1.0 (Content Selection for Device Independence 1.0) as defined by W3C. http://www.w3.org/2001/dihttp://www.w3.org/TR/cselection/	F
Usability	ISO 13407 :1999 Human-centred design processes for interactive systems	U
	IS/TR 18529:2000 Ergonomics -- Ergonomics of human system interaction -- Human-centred lifecycle process	U

8 Specifications for business areas

Technical policies for business areas specifications are outlined in the [e-GIF](#).

Table 15 Specifications for business areas – miscellaneous

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status	
		Status	e-GIF area of applicability
UK GovTalk Sponsor: e-Government Unit http://www.govtalk.gov.uk	e-government	A	Mandatory e-GIF schema
Legal XML Sponsor: OASIS http://www.legalxml.org	Legal Document Management	R	The DCA has not adopted the legal XML schemas as it's standard. This position may change, if equivalent LegalXML schema are developed which are more suitable for use in England and Wales.
HR-XML (Human Resources XML) Sponsor: HR-XML Consortium http://www.hr-xml.org/channels/home.htm	Human Resource Management	R	To be considered for Human Resources Exchange applications
NewsML http://www.newsml.org/ Sponsor: International Press Telecommunications Council (IPTC) http://www.iptc.org/	e-news	R	
OAGIS (Open Applications Group Integration Specification) Sponsor: Open Applications Group, Inc. http://www.openapplications.org/	Business Object Documents	U	The OAGI has developed the largest set of business messages and integration scenarios for enterprise application integration and business-to-business (B2B) integration. OAGI uses ebXML as its implementation architecture
EML (Election Mark-up Language) Sponsor: OASIS http://www.oasis-open.org/committees/election	e-Voting	R	Being trialled in UK local government elections. See EML(UK) http://www.govtalk.gov.uk/schemas/standards/schemalibrary_list.asp?sobjects=21

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status	
		Status	e-GIF area of applicability
MOD Defence Data Repository (ACCORD) Sponsor: MOD Central Data Management Authority (part of MOD Director General Information) http://www.foi.mod.uk/cdma/ro/	Defence	R	A web-enabled system for creating, submitting, reviewing and approving Data Definitions for MOD use. A read-only version of ACCORD is available on the Internet
Draft Extensible (X3D) International Standard Sponsor: web3d and ISO http://www.web3d.org/x3d/specifications/index.html	Virtual Reality	R	See current draft of ISO/IEC FDIS 19775: 200x
ISO/IEC 14772-1:1997 Sponsor: ISO http://www.web3d.org/x3d/specifications/vrml/index.html	Virtual Reality	R	
GML (Geography Markup Language) Sponsor: Open GIS Consortium (OGC) version 2.12 http://www.opengis.org/techno/specs.htm	Geospatial data	R	Currently supported by Ordnance Survey compliant products.
GML (Geography Markup Language) Sponsor: Open GIS Consortium (OGC) http://www.opengis.org/techno/specs.htm	Geospatial data	U	Migration to the latest version of the GML specification depends on product/market support and alignment with the ISO standard for GML.
ISO/CD 19136 Geographic information – Geography Markup Language (GML) http://www.iso.ch/iso/en/ISOOnline.fr/ontpage	Geospatial data	U	Aligned with OGC version 2.1.2
SyncML Sponsor: SyncML http://www.syncml.org/	Content Syndication and Synchronization	R	Applicability to e-GIF to be studied. SyncML is the common language for synchronizing devices and applications over a network

Table 16 Specifications for business areas – e-Learning

Industry Standard and Sponsoring Organisation	e-GIF status	
	A = Adopted; see notes for applicability R = Recommended for consideration U = Under review by an ad-hoc group F = For future consideration	
IMS Content Packaging (V1.1.2) Information Model Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
IMS Content Packaging (V1.1.2) XML Binding Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
SCORM 1.2 Content Aggregation Model application profile Sponsor: ADL http://www.adlnet.org/index.cfm?flashplugin=1&fuseaction=home	U	Under review by eGU/DfES e-learning Working Groups
SCORM 1.2 Runtime API application profile Sponsor: ADL http://www.adlnet.org/index.cfm?flashplugin=1&fuseaction=home	R	Recommended for consideration by eGU/DfES e-learning Working Groups
IEEE 1484.12.1: 2002 LOM Sponsor: IEEE http://www.ieee.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
IMS Meta-data (V1.2.1) XML Binding Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
IMS Question and Test Interoperability (V1.2.1) Information Model Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
IMS Question and Test Interoperability (V1.2.1) XML Binding Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
IMS Enterprise (V1.1) Information Model Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Enterprise (V1.1) XML Binding Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Learner Information Package (V1.0) Information Model Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups

Industry Standard and Sponsoring Organisation	e-GIF status A = Adopted; see notes for applicability R = Recommended for consideration U = Under review by an ad-hoc group F = For future consideration	
IMS Learner Information Package (V1.0) XML Binding Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Reusable Definition of Competency or Educational Objective (V1.0) Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Digital Repositories (V1.0) Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Simple Sequencing (V1.0) Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Learning Design (V1.0) Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	U	Under review by eGU/DfES e-learning Working Groups
IMS Guidelines for Developing Accessible Learning Applications (V1.0) Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
BS7988 A code of practice for the use of IT in the delivery of assessments Sponsor: BSI http://www.bsi-global.com/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
BS8426 A code of practice for e-support in electronic learning systems Sponsor: BSI http://www.bsi-global.com/	R	Recommended for consideration by eGU/DfES e-learning Working Groups
BS8419 Interoperability between Metadata Systems used for Learning, Education and Training Sponsor: BSI http://www.bsi-global.com/	F	This is under development and will be considered in the future by eGU/DfES e-learning Working Groups
BS8788 UK Lifelong Learning Profile – 'UKLeaP' Sponsor: BSI http://www.bsi-global.com/	F	This is under development and will be considered in the future by eGU/DfES e-learning Working Groups

Table 17 Specifications for business areas – e-Health and social care

Industry Standard and Sponsoring Organisation	e-GIF status	
Health Level Seven (HL7) v3 Sponsor: HL7-UK http://www.hl7.org.uk/	A	HL7 is adopted by NHS Information Standards Board as a strategic direction for the NHS. Individual standards will need to be ratified by HL7-UK and by the NHS Information Standards Board for use in NHS England and Wales
NHS Data Dictionary Sponsor: NHS Information Authority http://www.nhsia.nhs.uk/datastandards/pages/ddm/index.htm	A	Contains nationally agreed NHS data standards which are mandatory within the NHS
SNOMED Clinical Terms Sponsor: NHS Information Authority http://www.nhsia.nhs.uk/snomed/pages/ct_snomed.asp	A	SNOMED Clinical Terms creates a single unified terminology to underpin the development of the integrated electronic patient record by providing an essential building block for a common computerised language for use across the world
Schemas supported by the Scottish Health and Community Care XML Steering Group http://www.show.scot.nhs.uk/xml/steeringgrp	R	Adopted by NHS Scotland for use in Scotland

Table 18 Specifications for business areas: Finance

Industry Standard and Sponsoring Organisation	e-GIF status	
XBRL (eXtensible Business Reporting Language) Sponsor: American Institute of Certified Public Accountants. http://www.xbrl.org	A	Used for financial reporting, has been adopted by the Inland Revenue for XML based forms and corporation tax taxonomy
RIXML (Research Information Exchange Markup Language) www.rixml.org	U	Applicability to e-GIF to be studied. A financial content format, essentially financial analysis and reports
IFX (Interactive Financial eXchange) Sponsor: The IFX Forum http://www.ifxforum.org/ifxforum.org/index.cfm	U	Applicability to e-GIF to be studied. A financial transport and exchange format. For example between bank and enterprise

Industry Standard and Sponsoring Organisation	e-GIF status A = Adopted; see notes for applicability R = Recommended for consideration U = Under review by an ad-hoc group F = For future consideration	
OFX (Open Financial Exchange) Sponsor: CheckFee, Intuit and Microsoft http://www.ofx.net/ofx/default.asp	U	Applicability to e-GIF to be studied. Open Financial Exchange is the solution to the financial services industry's need for a simplified way to exchange electronic financial data with consumers and small businesses

Table 19 Specifications for business areas: Commerce, purchasing and logistics

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status A = Adopted; see notes for applicability R = Recommended for consideration U = Under review by an ad-hoc group F = For future consideration	
eBIS XML UKGOV Sponsor: BASDA (Business Application Software Developers Association) http://basda.net/bin/view/Core/DownloadTheSuite http://basda.net/bin/view/Core/DownloadTheSuite	e-commerce Purchasing	R	Recommended, but only for purchase orders and invoicing applications. The eGU is considering the further application of this standard
ebXML (Electronic Business XML) Messaging Sponsor: OASIS http://oasis-open.org/committees/ebxml-msg/ http://www.ebxml.org/	e-commerce Purchasing Logistics	R	The eGU is considering the application of this standard for reliable messaging
ebXML (Registry Information Model and ebXML Registry Services) Sponsor: OASIS http://www.oasis-open.org/committees/regrep/	e-commerce Purchasing Logistics	R	The eGU is considering the application of this standard
ebXML Collaboration Protocol Profiles (CPPs) and Collaboration Protocol Agreements (CPAs). Sponsor: OASIS http://www.oasis-open.org/committees/ebxml-cppa/ http://www.ebxml.org/	e-commerce Purchasing Logistics	U	The eGU is considering the application of this standard
ebXML (Electronic Business XML) UN/CEFACT ebXML Business Process Specification Schema Sponsor: UN/CEFACT http://www.ebtwg.org/ http://www.ebxml.org	e-commerce Purchasing Logistics	U	The eGU is considering the application of this standard

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status A = Adopted; see notes for applicability R = Recommended for consideration U = Under review by an ad-hoc group F = For future consideration	
UN/CEFACT ebXML Core Components Specification Sponsor: UN/CEFACT http://www.unece.org/cefact/ http://www.ebxml.org/	e-commerce Purchasing Logistics	R	The eGU is considering the application of this standard
UBL (Universal Business Language) Sponsor: OASIS http://www.oasis-open.org/committees/ubl	e-commerce Purchasing Logistics	R	The eGU is considering the application of this standard. Note: xCBL effort at CommerceOne moved to UBL at OASIS
EAN.UCC (General EAN.UCC Specifications) Sponsor: EAN.UCC http://www.ean-ucc.org/index.html	e-commerce	R	The EAN.UCC Specifications include standards for the identification of items, such as trade items, logistic units, returnable and individual assets, global location numbers (GLNs), service relationships, special applications, small healthcare items

Table 20 Specifications for business areas – Workflow

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status A = Adopted; see notes for applicability R = Recommended for consideration U = Under review by an ad-hoc group F = For future consideration	
ebXML Business Process Specification Schema Sponsor OASIS http://www.ebxml.org/specs/ebBPSS.pdf	Workflow	U	Applicability to e-GIF to be studied by Workflow Working Group. The XML version of the <i>ebXML Business Process Specification Schema</i> provides the specification for XML based instances of ebXML Business Process Specifications, and as a target for production rules from other representations
OASIS Business Transaction Protocol v1.0 (June 2002) Sponsor OASIS http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=business-transaction	Workflow	U	Applicability to e-GIF work flow to be studied by Workflow Working Group. Designed to allow coordination of application work between multiple participants owned or controlled by autonomous organizations
Wf-XML (Workflow XML) Sponsor: Workflow Management Coalition http://www.wfmc.org/	Workflow	R	This schema defines a language used to exchange information among Workflow Management Systems

9 Appendices

Appendix A: Abbreviations and acronyms used in the e-GIF

3DES	Treble Data Encryption Standard
3G	Third Generation mobile phones
AES	Advance Encryption Algorithm
ARK	Archival Resource Key
BS	British Standard
CESG	Communications Electronics Security Group, part of GCHQ
.csv	Comma Separated Value format
DCMI	Dublin Core Metadata Initiative
dhtml	Dynamic Hypertext Markup Language
DICOM	Digital Imaging and Communications in Medicine
DNS	Domain name services
DOI	Digital object identifier
DSA	Digital Signature Algorithm
DSDL	Document Schema Definition Language
DTV	Digital Television
ebXML	Electronic Business using eXtensible Markup Language
EAN.UCC	European Article Number/Uniform Code Council
EC	European Commission
ECMA	European Computer Manufacturers Association
EGF	Electronic Government Framework
e-GIF	e-Government Interoperability Framework
e-GMS	e-Government Metadata Standard
eGU	e-Government Unit
ESP	Encapsulation Security Protocol
ETSI	European Telecommunications Standard Institute
FAQs	Frequently Asked Questions
FTP	File Transfer Protocol
GCHQ	Government Communications Headquarters
.gif	Graphics Interchange Format
GCL	Government Category List
GDN	Government Data Network
GML	Geography Markup Language
GNC	GSI Nerve Centre
GSI	Government Secure Intranet
GUI	Graphic User Interface
GUID	Globally Unique Identifier
.gz	GZIP Compression File Format

HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocols
IAG	Information Age Government
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IMP	Instant Messaging and Presence
IP	Internet Protocol
IP-SEC	IP Security Protocol Charter
ISBN	International Standard Book Number
ISO/IEC	International Standards Organisation
JPEG	Joint Photographic Experts Group
.jpg	Joint Photographic Experts Group File Format
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
MD5	Message Digest 5
MGCP	Media Gateway Control Protocol
mp3	MPEG (Moving Picture Experts Group) Audio Layer 3
MPEG	Moving Picture Experts Group
.mpg	Moving Picture Experts Group File Format
MS	Microsoft
NBN	National Bibliography Number
NDPB	Non Departmental Public Body
NHS	National Health Service
NNTP	Network News Transfer Protocol
.nsf	Notes Storage File
OASIS	Organization for the Advancement of Structured Information Standards
ODPM	Office of the Deputy Prime Minister
OeE	Office of the e-Envoy
OGC	Open GIS Consortium [not to be confused with the Office of Govt Commerce (OGC)]
OID	Object Identifier
PDA	Personal Digital Assistant
.pdf	Portable Document Format
.png	Portable Network Graphics
POP	Post Office Protocol
PURL	Persistent Uniform Resource Locator
RDF	Resource Description Framework
RFC	Request for Comments
RFID	Radio Frequency Identification
RFP	Request for Proposals
RSA	Rivest-Shamir-Adleman
RSVP	Resource ReSerVation Protocol
RTCP	Real Time Control Protocol
.rtf	Rich Text Format
RTP	Real Time Protocol
RTSP	Real Time Streaming Protocol
SAP	Session Announcement Protocol
SDP	Session Description Protocol
SHA-1	Secure Hash Algorithm 1
SIP	Session Initiation Protocol
S/MIME	Secure Multipurpose Internet Mail Extensions

SMTP/MIME	Simple Message Transfer Protocol/Multipurpose Internet Mail Extensions
SOAP	Simple Object Access Protocol
SSL	Secure Socket Layer
.svg	Scalable Vector Graphics
.tar	Tape Archive File Format
TCP	Transmission Control Protocol
.tif	Tag Image File Format
TLS	Transport Layer Security
UDDI	Universal Description Discovery and Integration
UDP	User Datagram Protocol
UN/ECE	United Nations
UML	Unified Modelling Language
URI	Uniform Resource Identifiers
URL	Uniform Resource Locator
URN	Uniform Resource Name
UTF	Universal Transformation Format
VML	Vector Markup Language
VoIP	Voice over IP
WAN	Wide Area Network
WAP	Wireless Access Protocol
.wma	Windows Media Audio
.wmf	Windows Metafile Format
.wmv	Windows Media Video
WSDL	Web Services Description Language
WS-I	Web Services Interoperability Organisation
W3C	World Wide Web Consortium
XHTML	eXtensible Hypertext Markup Language
XML	eXtensible Markup Language
XRI	OASIS eXtensible Resource Identifier
XSL	eXtensible Stylesheet Language

Appendix B: Glossary of metadata terms

Category List The simplest type of controlled vocabulary is a high-level categorisation (or classification) scheme. At the time of input, one or more categories must be selected from the scheme and added to the document metadata. At the time of seeking information, the user does not have to think of keywords, but simply browses the list of categories and subcategories.

Content Metadata A summary of information about the form and content of a resource. The term 'metadata' has been used only in the past 15 years, but has become particularly common with the popularity of the World Wide Web. The underlying concepts have been in use for as long as collections of information have been organised. Of particular interest to this Framework are the facets of metadata intended to support resource discovery and records management. 'Metadata' can also be used to describe more technical aspects of information resources; the type of information needed to transfer information from one type of computer or software application to another. 'Metadata' of this type is covered in the e-GIF.

DOI (digital object identifier) A type of persistent identifier. A persistent identifier is a way of permanently attaching a unique code (letters or numbers) to a document or any digital object. If the location or URL changes, then searching for the persistent identifier itself will find the exact object, document or original content.

Element One of the items that collectively form a metadata structure. Common elements are 'title', 'creator', 'date' and 'publisher'. Dividing data into elements allows users to carry out more accurate searches by searching on one element only. For instance, when looking for documents by Jennifer Green, searching the 'creator' field only will retrieve items by Jennifer Green only. It avoids items where the word 'green' appears in other contexts, as a subject, location, etc.

Element Refinement A subset of an element, to make the meaning narrower or more specific, e.g. 'Date created', 'Date destroyed' as refinements of 'Date'. A refined element shares the meaning of the unrefined element, but with a more restricted scope. A user who does not understand a specific element refinement term should be able to ignore the refinement and treat the metadata value as if it were the broader element, although this will lose some precision. The definitions of element refinement terms must be freely available.

Encoding Scheme A scheme that controls the content, or 'value' of an element or element refinement, in order to clarify the meaning or improve resource discovery. These schemes include controlled vocabularies and formal notations or parsing rules. A value expressed using an encoding scheme will thus be a token selected from a controlled vocabulary (e.g. a term from a classification system or set of subject headings) or a string formatted in accordance with a formal notation (e.g. '2000-01-01' as the standard expression of a date). Encoding schemes are designed to be interpreted by machines or by human readers. The definitive description of an encoding scheme must be clearly

identified and available for use by those attempting to find information as well as those creating the metadata records.

Field Commonly used in database applications to describe a space in which data of the same type is entered (e.g. 'title' or 'price'), 'field' is a similar concept to 'element'.

Information Retrieval Finding the right information. Good information retrieval methods help ensure users find everything they are looking for, and only what they are looking for.

Metadata Record A full set of structured relevant metadata, comprising all relevant elements, describing one information resource. A metadata record can take many forms:

- as part of the main information resource itself, e.g. the metadata of an XML file
- a completely separate record held apart from the information resource itself and even in a different format, e.g. an automated library catalogue
- an electronic file held as an extension of the main resource, e.g. the 'format' files of a Word document.

Qualifier Term used to refer to both 'Element Refinement' and 'Encoding Scheme'. Use of this term tends to cause confusion, so it is avoided in this document.

Refinement See 'Element Refinement'.

Resource Discovery Finding the right stuff. See 'Information Retrieval'.

RFID (radio frequency identification) An electronic 'label' which transmits metadata to a reader for processing.

Sub-element Term sometimes used to refer to 'Element Refinement'.

Taxonomy The science of classification, traditionally used to describe a hierarchical scheme for classifying plants and animals. More recently it has been borrowed to describe a classification scheme for organising networked resources and supporting user-friendly navigation among them. Some taxonomies incorporate thesaurus features to augment the hierarchical structure.

Thesaurus A controlled vocabulary designed to support information retrieval by guiding both the person assigning metadata and the searcher to choose the same terms for the same concept. A thesaurus conforming to ISO 2788 (= BS 5723) supports navigation and term selection by showing relationships between terms that are close in meaning.

A thesaurus can help to ensure:

- concepts are described in a consistent manner
- experienced users are able to refine their searches to locate information easily
- users do not need to be familiar with technical or local terminology.

e-Government_Gov Unit, Cabinet Office
Stockley House
130 Wilton Road
London SW1V 1LQ
Telephone: 020 7276 3320
Fax: 020 7276 3293
E-mail: govtalk@cabinet-office.gsi.gov.uk
Web address: www.govtalk.gov.uk

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