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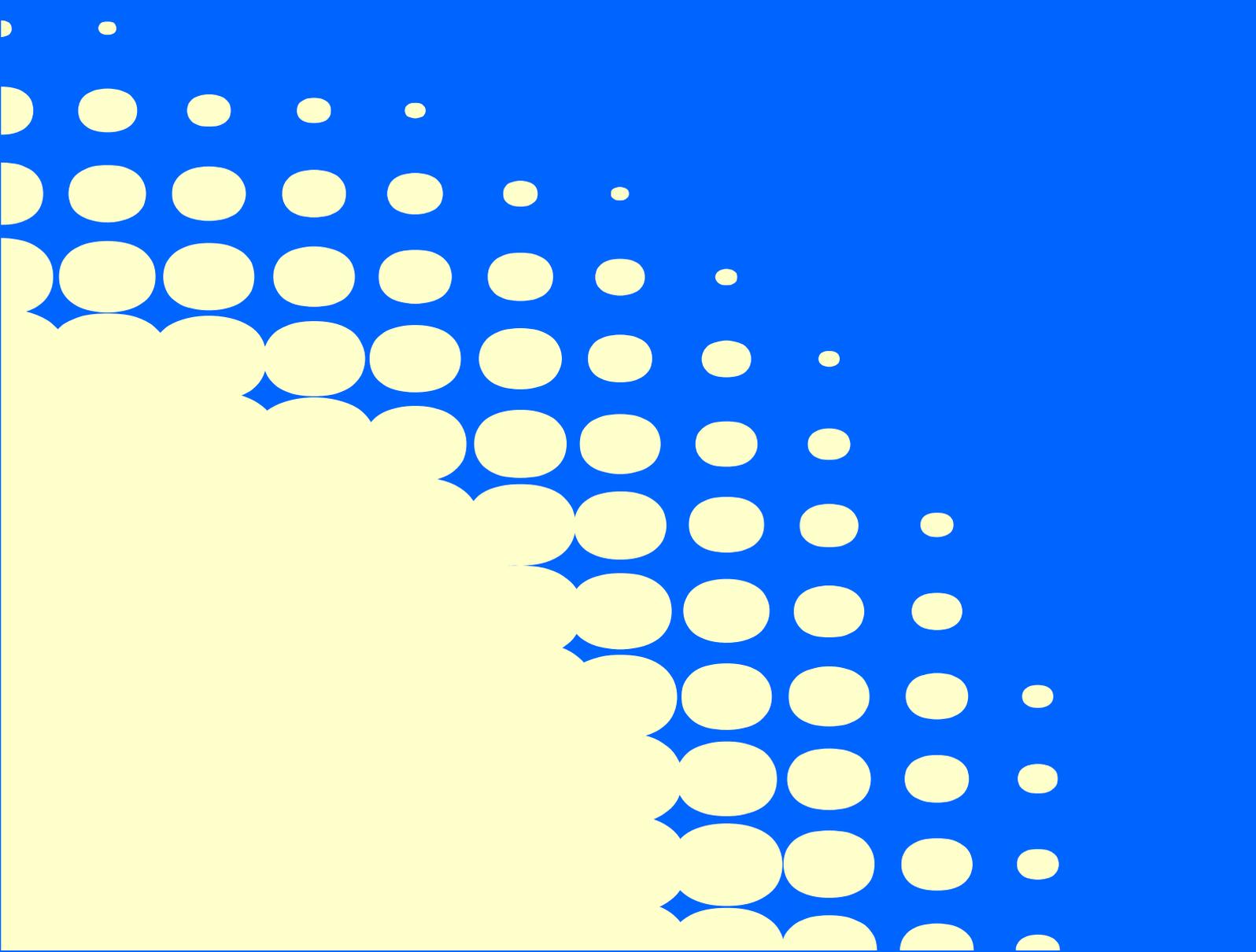
delivering



e-Government Interoperability Framework

Part Two: Technical Policies and Specifications

Version 4.1
31 October 2002



e-government



VERSION 4.1

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1 Introduction

1.1 This section of the e-GIF defines the minimum¹ set of technical policies and specifications that conform to the policies defined in Part 1.

1.2 The current specification for the e-GIF is given below and covers the areas of interconnectivity, data integration, content management and information access via multiple channels. Each area is presented in two parts, in the first the key technical policies are defined for technical standards to meet, the second comprises a table containing the specification 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 web site for the latest version of the e-GIF specification at <http://www.govtalk.gov.uk/interoperability/egif.asp?order=title>

1.3 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 certain requirements; for example the NHS may use DICOM V5 for types of graphic information.

2 Changes to previous version

All significant changes from the previous version of the e-GIF that this version addresses are highlighted, and the main changes are:

- specifications for XML encryption, see Table 2
- specifications for XML key management, see Table 2
- specifications for XML security markup language, see Table 2
- updated specifications for specific business areas, see Table 9
- updated guidance on specifications for WEB based service delivery, see Section 6

3 Issues reviewed, but no current changes

The following aspects have been reviewed; they will remain under review but have not resulted in changes to the e-GIF at this stage:

- specifications for Video Conferencing and IP Telephony; standards and conforming products are still maturing
- specifications for Voice (XML and IP); standards and conforming products are still maturing
- additional remote mailbox access specifications are not mandated, as client software supporting the standards is currently limited
- concepts for the Semantic Web are still maturing
- guidance on specifications for Xforms is still maturing.

4 Issues under review for future versions

The following aspects are under review for future versions of the e-GIF:

- mandating standards and specifying best practice for Web Services
- mandating standards for Xforms
- selection of specific business area related schemas
- guidance on Semantic Web
- ISO / IEC standards for XML schema languages
- wireless LANs; specifications for communications. For connections via GDN, see the GDN specifications.

5 Interconnection technical policies

The technical policies for systems interconnection are:

- departments are to interconnect using IPv4 and plan for migration to IPv6 in due course. See notes on migration to IPv6 below
- interfaces for e-mail systems are to conform to the SMTP/MIME for message transport and POP3 for mailbox retrieval. Within government, the norm will be to use the intrinsic security provided by the GSI to ensure e-mail confidentiality. Outside the GSI and other secure government networks, S/MIME V3 should be used for secure messaging security unless security requirements dictate otherwise
- the GSI Directory schema is to be used to support a range of communication services including message handling, telephone and facsimile services as well as interactive access to a range of other applications, except for WEB based transactions over SOAP when UDDI is to be used
- future WEB based services are to be based on SOAP, UDDI and WSDL
- projects are to follow the UK Government domain naming policy
- DNS is to be used for Internet/intranet domain name to IP address resolution
- FTP should be used where file transfer is necessary within government intranets
- restart and recovery facilities of FTP are to be used when transferring very large files
- web based technology is to be used in applications that previously used Terminal Emulation whenever possible².

² Products exist which can provide browser access to legacy systems without having to change those systems; typically these products can provide either direct access to the legacy screens or complete replacement GUIs. Regard should be given to any security implications arising from their use.

6 Interconnection specifications

6.1 The UK Government specifications for interconnectivity are:

Table 1 Specifications for interconnectivity

Component	Specification
Hypertext transfer protocols	HTTP v1.1 (RFC 2616) Hypertext specifications include on-line wide-area publishing services. RFC 2616, Upgrade mechanism in HTTP/1.1 to initiate Transport Layer Security (TLS) over an existing TCP connection.
E-mail transport	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. NB. E-mail attachments may conform to the file types for browsers and viewers as defined for the specific delivery channel, see section on channels, p.18.
E-mail security	S/MIME V3 shall be used where appropriate for pan government messaging security unless security requirements dictate otherwise. This includes RFC 2630 to RFC 2633.
Mailbox access	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, RFC 2449.
Directory	X.500 core schema as defined in GNC Technical Notice 1/2001 (Populating the GSI Directory). LDAP V3 is to be used for general-purpose directory user access.
Domain name services	DNS (RFC 1035) The UK Government domain naming guidelines are at http://www.ogc.gov.uk/naming/domains.html . 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).
File transfer protocols	FTP (RFC 959) (with restart and recovery) and HTTP (RFC 2616) for file transfer.
Newsgroup services	NNTP (RFC 977) where required, subject to security constraints.
LAN/WAN interworking	IPv4 (RFC 791).

Security

Central government departments should refer to the Manual of Protective Security
Other parts of the public sector should refer to the IAG Security Framework at http://www.e-envoy.gov.uk/publications/frameworks_index.htm

The following specifications are to be used to meet the requirements of the IAG Security Framework where appropriate.

IP security	IP-SEC (RFC2402/2404)
IP encapsulation security	ESP (RFC2406)
Transport security	SSL v3/TLS (RFC 2246)

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:

Encryption algorithms - 3DES, AES, Blowfish
For signing - RSA , DSA
For key transport - RSA , DSA
For hashing - SHA-1, MD5

The above is not exhaustive and is intended as a guide. For advice on specific implementations or specific algorithms please contact the Office of the e-Envoy at security@e-envoy.gov.uk .

Transport

TCP (RFC 793)
UDP (RFC 768) where required, subject to security constraints.

Note: Copies of the IETF RFCs can be found at www.ietf.org/rfc.html

Migration to IPv6

6.2 The e-GIF policy is to migrate to IPv6 when there is competitive support for IPv6 in mainstream network and application products. Current assumptions are that by the end of 2002 newly deployed networks could be IPv6 enabled, and operating system and application vendors could start to support IPv6 soon thereafter. A co-existence approach is recommended and IPv4 will endure for some time, at least 5 years or more. However, our advice is to begin to plan for IPv6 integration in advance of any actual deployment, and to build the need for co-existence of IPv4 and IPv6 into current procurements.

WEB based services

6.3 The OeE supports the activity of the Web Services Interoperability (WS-I) initiative. Future versions of e-GIF will mandate standards for Web based services together with best practice guidance on their use; current guidance is to use the following standards for Web based services:

Web service request delivery

SOAP v 1.2, Simple Object Access Protocol as defined by the W3C, the specifications can be found at:

<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.

For specific guidance on the use of SOAP messaging with the Government Gateway, see “Developer Guide to Authentication and Authorisation Web Services – Secure and Public” at

<http://www.govtalk.gov.uk/interoperability/gateway.asp?order=title>

Web service request registry

UDDI v 3.0 specification, (Universal Description, Discovery and Integration) defined by UDDI Project, the UDDI specification is managed by the OASIS UDDI TC,

<http://www.oasis-open.org/committees/uddi-spec/index.shtml>

The specifications can be found at:

<http://www.uddi.org/specification.html>

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>

7 Data integration technical policies

7.1 The technical policies for systems data integration and transformation are:

- XML and XML schemas for data integration³
- UML, RDF and XML for data modelling and description language
- XSL for data transformation.

7.2 XML products will be written so as to comply with the recommendations of the World Wide Web Consortium (W3C). Where necessary the government will base the work on the recommended W3C specifications but will avoid the use of any product specific XML extensions that are not being considered for open standardisation within the W3C.

7.3 Centrally agreed XML schemas are approved through the UK GovTalk™ processes (see Part 1). To view these go to <http://www.govtalk.gov.uk/interoperability/agreedschema.asp>.

³ Legacy systems which are tightly integrated or systems that are internal to departments (such as batch processing systems) may use other processing environments.



8 Data integration specifications

8.1 The UK Government specifications for data integration and transformation are:

Table 2 Specifications for data integration

Component	Specification
Data Integration Metadata/Meta Language	XML (Extensible Markup Language) as defined by W3C www.w3.org/XML
Data Integration Metadata definition	XMLschema as defined by W3C, the specifications can be found at XML Schema Part 1: Structures XML Schema Part 2: Datatypes . Government XML schemas, for the latest versions see the GovTalk site at: http://www.govtalk.gov.uk/interoperability/agreedschema.asp
Data transformation	XSL (Extensible Stylesheet Language) as defined by W3C www.w3.org/TR/xsl/ XSL Transformation (XSLT) as defined by W3C http://www.w3.org/TR/xslt
Data Modelling and Description Language	UML (Unified Modeling Language) http://www.omg.org/gettingstarted/specsandprods.htm RDF (Resource Description Framework) as defined by W3C www.w3.org/TR/REC-rdf-syntax/
Data definition and schema standardisation process	As per UK GovTalk™ processes in Part 1 Government Data Standards, see http://www.govtalk.gov.uk/interoperability/eservices.asp?order=title
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.
XML signatures	XML-Signature Syntax and Processing (XMLsig) as defined by W3C. http://www.w3.org/TR/2002/REC-xmlsig-core-20020212/

XML encryption	XML-Encryption Syntax and Processing (XMLEnc) as defined by W3C. http://www.w3.org/TR/xmlenc-core/
XML signature and encryption	Decryption Transform for XML Signature as defined by W3C http://www.w3.org/TR/xmlenc-decrypt
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/
XML security mark-up	(SAML) as defined by OASIS. http://www.oasis-open.org/committees/security/index.shtml where a PKI environment is used

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

Forms

8.2 Future versions of e-GIF will mandate standards for XML based forms together with best practice guidance on their use; current guidance is to use the XForms 1.0 standards as defined by W3C, see www.w3.org/TR/xforms/

Notes on XML and middleware:

8.3

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

Note: although the configurations below present potential solutions, it should be clear that new procurements should strive to use the direct XML model as shown.

Figure 1 *Direct XML Model*

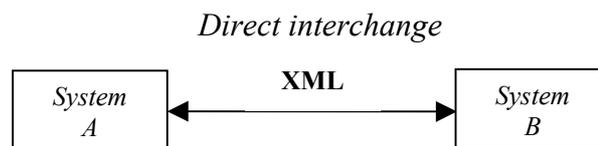
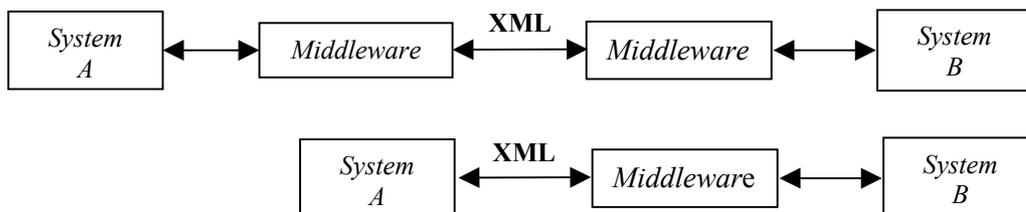


Figure 2 *Interchanges via middleware*



9 Content management metadata technical policies

9.1 The e-Government Metadata Standard will be further developed and maintained according to the following principles. Some of these are necessarily contradictory, and it will be the task of the e-Government Champions' Metadata Working Group to ensure a practical balance is maintained between conflicting requirements.

- It will be Independent. It will not be software, application or project based, but flexible enough to meet the information retrieval and records management needs of any information held in any format
- It will be Simple to use. The standard must be readily applicable by those with widely varying experience of preparing resource descriptions
- It will be Compliant with other UK Government standards and policies, such as the Government Data Standards Catalogue
- It will be Compliant with international standards. Information is an international resource, and the UK aims to remain a leader in the global information revolution. To achieve this, the content management metadata standards must reflect international standards and systems. If an international standard is appropriate and kept up to date it will be incorporated into the e-GIF. Preference will be given to standards with the broadest remit, so appropriate international standards will take preference over EU standards, EU will take preference over UK standards
- It will be Stable. Changes to a standard that will become embedded in all information systems will require considerable effort, time and resources to implement. The e-GMS must therefore be flexible enough to meet future as well as current needs
- It will be Extensible. Additional element refinements can be added where it can be shown that these are essential and the existing set does not make provision for the requirement. A balance will need to be struck between the need for extensibility and the need for stability
- It will be Inclusive, taking into account the many existing content management metadata schemes, with the aim of minimising the need to rework existing products. This will be balanced with the need for maximum interoperability, which requires consistency across all information resource descriptions
- Above all, it will meet the information retrieval and management needs of the citizen and of government.

9.2 The technical policies for content management metadata are:

- the development and adoption of the e-GMS content metadata based on the International Dublin Core model, to meet government's information management and retrieval needs
- the development and maintenance of the GCL (Government Category List).

10 Content management metadata specifications

The UK Government specifications for content management metadata are:

Table 3 Specifications for content management metadata

Component	Specification
Content management metadata definition	XML Schema Government XML metadata Schema will be held at http://www.govtalk.gov.uk/interoperability/xmlschema.asp
Content management metadata elements and refinements	e-GMS which incorporates Dublin Core http://www.govtalk.gov.uk/interoperability/interoperability.asp
Subject element, category refinement	GCL (Government Category List) http://www.govtalk.gov.uk/interoperability/interoperability.asp
Data definition	Government Data Standards Catalogue http://www.govtalk.gov.uk/interoperability/eservices.asp?order=title

11 Information access technical policies

The technical policies for information access are:

- government information systems providing e-government services will be designed so that they are accessible through browser based technology; other interfaces are permitted in addition to browser based ones
- government information systems providing e-government services will aim to provide such services to the user (citizen and business) via a range of delivery channels
- government information systems should be designed so that information content of e-government services can be defined independently of any specific delivery channel
- government information systems providing e-government services will be designed so that the essential information of a service is accessible to the citizen via delivery channels with limited capability where appropriate, using personalisation technologies like transcoders
- government information systems will be designed to meet UK legislation, and to support channels that provide accessibility for disabled people, ethnic minorities and those at risk of social/digital exclusion
- for e-government services aimed at the citizen, government information systems will be designed to be accessible to the citizen via multiple channels to suit the specific needs of the citizen
- when government information systems claim to support a particular delivery channel, then conformance to the listed specifications for that channel is mandatory
- all government information systems providing e-government services will be capable of supporting the Internet as a delivery channel, either directly, or via third party services
- when using the Internet as a delivery channel, government information systems will be designed so that as much information as possible can be accessed and manipulated from minimal functionality browsers as specified in table 8
- some e-government services can make use of the full functionality provided by modern browsers running on personal computers and workstations, see Table 5
- when using the Internet as a delivery channel, additional middleware or plug-ins can be used, when necessary, to enhance browser functionality supported by PC and workstations, provided these can be easily downloaded without incurring a licensing fee
- government information systems will be designed to provide protection against security risks of connection to the Internet, including the ability to protect against the vulnerability of downloading executable content code that is not authenticated.

12 Information access delivery channels

12.1 The full range of services to be delivered to the citizen will dictate the specifications required. Content management techniques and personalisation technologies can be used to support various delivery channels e.g. low function web browsers, public kiosks, Digital TV, WAP phones, etc.

12.2 Transcoding services, as an example of personalisation technologies, can deliver web content to a variety of destination environments within greatly reduced timescales and at significantly reduced cost. The principle is that transcoding can be used to dynamically filter, convert and reformat web content to match the requirements and display capabilities of the destination device. Transcoding technology is server-side software that modifies Web page content based on data protocols, markup languages, device and network parameters and user preferences.

12.3 Personalisation technologies may also be used to support groups such as ethnic minorities, or visually impaired or blind people (i.e. by using text translation, larger fonts and graphics, audio, etc. via a transcoder). Such aspects are covered by the Web design guidelines, see http://www.e-envoy.gov.uk/publications/guidelines_index.htm.

12.4 A government channels policy framework was published in September 2002, see [http://www.e-envoy.gov.uk/oe/OeE.nsf/sections/framework-channels/\\$file/Channels-framework-final-version.pdf](http://www.e-envoy.gov.uk/oe/OeE.nsf/sections/framework-channels/$file/Channels-framework-final-version.pdf). Content management techniques, personalisation technologies and transcoding should be used to support the various delivery channels defined in the framework.

13 Information access specifications

Table 4 Specifications for information access – DTV Internet

When the Internet is accessed via DTV, then the standards defined below are to be supported.

Basic Component	Specification
Hypertext interchange formats	HTML v3.2
Document file types	Plain/Formatted Text as (.txt) files Hypertext documents as (.htm) files
Spreadsheet file types	Hypertext documents as (.htm) files
Presentation file types	Hypertext documents as (.htm) files
Character sets and alphabets	UNICODE ISO/IEC 10646-1:2000 Transformation Format for 16 planes of group 00 (UTF-16)
Graphical/still image information exchange specifications	Joint Photographic Experts Group /ISO 10918 (.jpg) Graphics Interchange Format (.gif) Portable Network Graphics (.png)
Scripting	ECMA 262 Script
NOTE: THE STANDARDS FOR DIGITAL TV MEDIA ARE STILL MATURING, LISTED BELOW ARE SPECIFIC DTV STANDARDS UNDER CONSIDERATION FOR THE E-GIF.	
Format	MHEG-5
Content movement	MHP Multimedia Home Platform ETSI TS 102 812

Table 5 Specifications for information access – Computer Workstations

When the information access device is considered to be a reasonably powerful computer workstation less than two years old, such as a Pentium II or III PC or Apple Mac, then the standards defined below are to be supported. For older or less powerful workstations, see Table 8.

Basic Component	Specification
Hypertext interchange formats	Those parts of HTML v4.01 and XHTML v1.0 commonly implemented by Netscape Navigator v4 or later, and MS Internet Explorer v4 or later, plus their interoperable extensions.

Document file types	<p>Rich Text Format as (.rtf) files Plain/Formatted Text as (.txt) files Hypertext documents as (.htm) files Adobe Acrobat as (.pdf) minimum viewer version 4 Microsoft Word viewer/reader (.doc), minimum support Word97 format. Lotus Notes Web Access (.nsf)</p>
Spreadsheet file types	<p>Hypertext documents as (.htm) files Delimited file as (.csv) files</p>
Presentation file types	<p>Hypertext documents as (.htm) files</p>
Character sets and alphabets	<p>UNICODE ISO/IEC 10646-1:2000 Transformation Format for 16 planes of group 00 (UTF-16)</p>
Graphical/still image information exchange specifications	<p>Joint Photographic Experts Group /ISO 10918 (.jpg) Graphics Interchange Format (.gif) Portable Network Graphics (.png) For images that will not tolerate information loss use Tag Image File format (.tif) When highly compressed imaging is required use Enhanced Compressed Wavelet (.ecw)</p>
Scripting	<p>ECMA 262 Script</p>
Vector Graphics	<p>Scalable Vector Graphics (.svg) Vector Markup Language (vml)</p>
Moving Image and audio/visual information exchange specifications	<p>Moving Picture Experts Group (.mpg) MPEG-1/ISO 11172 Conversion is provided by most mainstream packages</p>
Audio/video streaming data	<p>RealAudio/RealVideo (.ra, .ram, .rm, .rmm) Shockwave (.swf) Windows media formats (.asf, .wma, .wmv) Apple Quicktime (.avi, .mov, .qt) Waveform Audio File Format (.wav) 8μ Law H263</p>
Animation	<p>Macromedia Flash (.swf) Apple Quicktime (.avi, .mov, .qt) Macromedia Shockwave (.swf)</p>
Extended Programming	<p>Java Virtual Machine – for browser enhancements as a minimum conforming to the Java™ Virtual Machine Specification issue 1 Note: A restricted rights copy of the JVM specifications can be found at: http://java.sun.com/docs/books/vmspec/html/VMSpecTOC.doc.html</p>
General purpose files and compression	<p>File types (.zip), (.gz), (.tgz) and (.tar)</p>

13.1 The specifications for the delivery of services to the citizen via mobile phones are dependent upon the evolution and availability of new technologies like 3G. If there is a need for current service provision via mobile phone then the WAP Specification Suite published by the WAP Forum is appropriate.

13.2 The OeE is undertaking a wider mobile communications study and the outcome of this will be reflected in future versions of this framework.

13.3 The issues of security relating to transactions undertaken through mobile phones are complex and depend on emerging industry specifications. Work in this area will be undertaken in due course. In the meantime the lack of specifications does not imply that security issues can be ignored. Decisions will need to be made on a case by case basis depending on the nature of the transaction in question.

Table 6 Specifications for information access - Mobile Phones

Component	Specification
WAP specifications	The specifications to be used are defined by the WAP Forum, see www.wapforum.org/what/technical.htm

Table 7 Specifications for information access – Games Consoles

Component	Specification
Hypertext interchange formats	HTML v3.2
Document file types	Plain/Formatted Text as (.txt) files Hypertext documents as (.htm) files
Spreadsheet file types	Hypertext documents as (.htm) files
Presentation file types	Hypertext documents as (.htm) files
Character sets and alphabets	UNICODE ISO/IEC 10646-1:2000 Transformation Format for 16 planes of group 00 (UTF-16)
Graphical/still image information exchange specifications	Joint Photographic Experts Group /ISO 10918 (.jpg) Graphics Interchange Format (.gif) Portable Network Graphics (.png)
Scripting	ECMA 262 Script

Table 8 Specifications for information access – PDA and other devices

Component	Specification
Hypertext interchange formats	HTML v3.2
Document file types	Rich Text Format as (.rtf) files Plain/Formatted Text as (.txt) files Hypertext documents as (.htm) files
Spreadsheet file types	Hypertext documents as (.htm) files
Presentation file types	Hypertext documents as (.htm) files
Character sets and alphabets	UNICODE ISO/IEC 10646-1:2000 Transformation Format for 16 planes of group 00 (UTF-16)
Graphical/still image information exchange specifications	Joint Photographic Experts Group /ISO 10918 (.jpg) Graphics Interchange Format (.gif) Portable Network Graphics (.png)
Scripting	ECMA 262 Script

14 Specifications for business areas

14.1 There are various standards bodies, business communities and other groups working on XML based and other specifications for the exchange of specific content related information. They fall into two broad classes, one represents particular business objects, such as invoices or resumes, the other class defines a transaction, for example the submission of an invoice or a deposit into a particular account. Some specifications focus on common business objects and some on standardising complex transactions. Further, some proposed specifications include a single schema for a single business object, while others are frameworks that propose rules and structure for classes of schemas and may include more than a hundred individual schemas.

14.2 Specifications generated by these groups are at a wide range of maturity levels. While some are now mature specifications they must be widely supported by implementations in the market and be the clear market leader for the transaction type before they are included within the e-GIF.

14.3 Table 9 is a list of specifications that are designed to meet specific business areas' requirements, the specifications are at various levels of maturity and the list is not exhaustive. Ad-hoc working groups are being set up to study maturing business specific specifications with the view to making recommendations as to their applicability and inclusion into future versions of the e-GIF. For example the e-procurement Interoperability Working Group is to examine the available XML specifications for e-commerce and e-procurement.

14.4 There are, or will be, vertical international market schemas that contain fragments that will conflict with standards or schemas laid down in the e-GIF. For example ebXML uses the international address standard whereas the UK has its own address standard.

Clearly where this happens it makes sense to use the vertical international standards in their entirety without trying to unpick them and substitute any UK specifications. However departments need to be conscious that when they are exchanging data within UK government sectors they will have to do so using the UK specifications, so some mapping may become necessary. As the e-GIF follows international standards wherever possible this should not become a serious problem.

14.5 It is recommended that any organisation considering adopting one of the standards listed but not yet marked as "Adopted" should consult the appropriate working group before proceeding. The contact details for all e-GIF working groups can be found on GovTalk. Not all standards under consideration will become "Adopted".

Table 9 Specifications for specific business areas

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-envoy office http://www.govtalk.gov.uk	e-government	A	Mandatory e-GIF schema.
XBRL (eXtensible Business Reporting Language) Sponsor: American Institute of Certified Public Accountants. http://www.xbrl.org	Finance	R	Used for financial reporting, likely to be adopted by the Inland Revenue for XML based forms and corporation tax taxonomy.
RIXML Research Information Exchange Markup Language www.rixml.org	Finance	U	Applicability to e-GIF to be studied. A financial content format, essentially financial analysis and reports report.
MDDL Market Data Definition Language www.mddl.org	Finance	U	Applicability to e-GIF to be studied. Financial markets and report.
IFX (Interactive Financial eXchange) Sponsor: The IFX Forum http://www.ifxforum.org/ifxforum.org/index.cfm	Finance	U	Applicability to e-GIF to be studied. A financial transport and exchange format.
OFX (Open Financial Exchange) Sponsor: CheckFee, Intuit, & Microsoft http://www.ofx.net/ofx/default.asp	Finance	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.
FinXML (Financial XML) Sponsor: FinXML Consortium http://www.finxml.com/	Finance	U	Applicability to e-GIF to be studied.
FIXML (Financial Information Exchange Markup Language) Sponsor: FIX Protocol Organization http://www.fixprotocol.org	Finance	U	Applicability to e-GIF to be studied.
FpML (Financial Products Markup Language) Sponsor: FpML Organization http://www.fpml.org/	Finance	U	Applicability to e-GIF to be studied.
Legal XML Sponsor: OASIS, http://www.legalxml.org	Legal Document Management	R	Applicability to e-GIF to be studied. A content format for legal data. OASIS technical committees for electronic Court Filing, Contracts, Transcripts, Integrated Justice, Legislative Information, and Notorization.
SyncML Sponsor: SyncML http://www.syncml.org/about-intro.htm	Content Syndication & Synchronization	F	Applicability to e-GIF to be studied. SyncML is the common language for synchronizing devices and applications over a network.
HR-XML (Human Resources XML) Sponsor: HR-XML Consortium http://www.hr-xml.org/channels/home.htm	Human Resource Management	F	Applicability to e-GIF to be studied. To be considered for Human Resources Exchange applications.

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status	
		Status	e-GIF area of applicability
NewsML http://www.newsml.org/ Sponsor: International Press Telecommunications Council (IPTC). http://www.iptc.org	e-news	R	Being considered for statistical data by the Office of National Statistics.
CRIS (Common Relational Information Schema) Sponsor: Machinery Information Open Systems Alliance http://www.mimosa.org/	Industrial Automation	F	Applicability to e-GIF to be studied.
eBIS XML Sponsor: BASDA (Business Application Software Developers Association) http://www.basda.org/	e-commerce Purchasing	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
ebXML (Electronic Business XML) Sponsor: OASIS. http://oasis-open.org/committees/ebxml- msg/ http://www.ebxml.org/	e-commerce Purchasing Logistics	R	The e-procurement Interoperability Working Group is considering which standard to adopt for government. OASIS ebXML Messaging Services Specification.
ebXML Registry Information Model and ebXML Registry Services) Sponsor: OASIS. http://www.oasis- open.org/committees/regrep/	e-commerce Purchasing Logistics	R	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
ebXML Collaboration Protocol Profiles (CPPs) and Collaboration Protocol Agreements (CPAs). Sponsor: OASIS. http://oasis-open.org/committees/ebxml- cppa/ http://www.ebxml.org/	e-commerce Purchasing Logistics	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
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 e-procurement Interoperability Working Group is considering which standard to adopt for government.
UN/CEFACT ebXML Core Components Specification Sponsor: UN/CEFACT. http://www.ebtwg.org/ http://www.ebxml.org/	e-commerce Purchasing Logistics	R	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
ebXML (Electronic Business XML) Sponsor: UN/CEFACT. http://www.ebtwg.org/projects/ http://www.ebxml.org/	e-commerce Purchasing Logistics	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
UBL (Universal Business Language) Sponsor : OASIS www.oasis-open.org/committees/ubl	e-commerce Purchasing Logistics	R	The e-procurement Interoperability Working Group is considering which standard to adopt for government. [NOTE: xCBL effort at CommerceOne moved to UBL at OASIS]
BizTalk Sponsor: Microsoft http://www.biztalk.org/home/default.asp	e-commerce Purchasing Logistics	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
BTP (Business Transactions Protocol) Sponsor: OASIS www.oasis-open.org/committees/btp	e-commerce	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status	
		Status	e-GIF area of applicability
Controlled Trade Markup Language Sponsor: OASIS www.oasis-open.org/committees/controlled-trade	e-commerce	R	DTI to consider.
EAN.UCC Simpl-eb Business Message Standards Version 1.0 Sponsor: EAN http://www.ean-int.org/index800.html	e-commerce	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
OAGIS (Open Applications Group Integration Specification) Sponsor: Open Applications Group, Inc. http://www.openapplications.org/	Human Resource Management Finance e-commerce Purchasing Logistics	U	The e-procurement Interoperability Working Group is considering which standard to adopt for government.
Wf-XML (Workflow XML) Sponsor: Workflow Management Coalition http://www.wfmc.org/	Logistics	U	Applicability to e-GIF to be studied. This schema defines a language used to exchange information among Workflow Management Systems.
EML (Election Mark-up Language) Sponsor: OASIS www.oasis-open.org/committees/election	e-Voting	R	Being trialled in UK local government elections.
XLIFF (XML Localization Interchange File Format) Sponsor: OASIS www.oasis-open.org/committees/xliff	localization	U	
IMS Content Packaging Specification (V1.1) Sponsor: IMS Global Learning Consortium, Inc. http://www.imsproject.org	e-learning	U	To be considered by OeE/DfES e-learning Working Groups.
SCORM 1.2 (Sharable Content Object Reference Model) Sponsor: ADL http://www.adlnet.org/index.cfm?flashplugin=1&fuseaction=home	e-learning	U	To be considered by OeE/DfES e-learning Working Groups.
SCORM 1.2 (Runtime API) Sponsor: ADL http://www.adlnet.org/index.cfm?flashplugin=1&fuseaction=home	e-learning	U	To be considered by OeE/DfES e-learning Working Groups.
Learning Object Metadata (IEEE P1484.12 LOM) with sector-specific extensions http://ltsc.ieee.org/doc/wg12/LOM_1484_12_1_v1_Final_Draft.pdf	e-learning	U	To be considered by OeE/DfES e-learning Working Groups.
Question and Test Interoperability (V1.2) Sponsor: IMS Global Learning Consortium, Inc. www.imsproject.org	e-learning	U	To be considered by OeE/DfES e-learning Working Groups.
Health Level Seven (HL7) Sponsor: hl7 http://www.hl7.org	Health	R	To be considered by NHS Information Standards Board.

Industry Standard and Sponsoring Organisation	Areas covered by the standards developed by the organisation	e-GIF status	
		Status	e-GIF area of applicability
NHS Data Dictionary & Manual Version 1.3 Sponsor: NHS Information Authority www.nhs.uk/datastandards/pages/dm/index.htm	Health	R	1. Contains nationally agreed NHS data standards which are mandatory within the NHS 2. This version will be replaced by a UML version in the near future, accessed from the same URL.
Scottish Health and Community Care XML Steering Group http://scotland-xml.uk.eu.org	Health and community care	R	NHS Scotland. To be considered by NHS Information Standards Board.
X3D Final Working Draft Specification Sponsor: web3d http://www.web3d.org/fs_specifications.htm	Virtual Reality	U	
ISO/IEC 14772-1:1997 Sponsor: ISO http://www.web3d.org/technicalinfo/specifications/vrml97/index.htm	Virtual Reality	R	
GML (Geography Markup Language) Sponsor: Open GIS Consortium (OGC) http://www.opengis.org/techno/specs.htm	Geospatial data	A	

15 Appendices

Appendix A: Abbreviations and Acronyms used in e-GIF

3DES	Treble Data Encryption Standard
3G	Third Generation mobile phones
AES	Advance Encryption Algorithm
BS	British Standard
.csv	Comma Separated Value format
DCMI	Dublin Core Metadata Initiative
DICOM	Digital Imaging and Communications in Medicine
DNS	Domain name services
DSA	Digital Signature Algorithm
DTV	Digital Television
.dhtml	Dynamic Hypertext Markup Language
EC	European Commission
ECMA	European Computer Manufactures Association
EGF	Electronic Government Framework
e-GIF	e-Government Interoperability Framework
e-GMF	e-Government Metadata Framework
e-GMS	e-Government Metadata Standard
ESP	Encapsulation Security Protocol
FAQs	Frequently Asked Questions
FTP	File Transfer Protocol
.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
.gz	GZIP compression file format
HTML	Hypertext Markup Language
HTTP	Hypertext transfer protocols
IAG	Information Age Government
IDA	Interchange of Data between Administrations
IETF	Internet Engineering Task Force
ISO/IEC	International Standards Organisation
IP	Internet Protocol
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

MIReG	Managing Information Resources for e-Government
mp3	MPEG (Moving Picture Experts Group) Audio Layer 3
MPEG	Moving Picture Experts Group
.mpg	Moving Picture Experts Group file format
MS	Microsoft
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
OGC	Open GIS Consortium
.pdf	Portable Document Format
.png	Portable Network Graphics
PDA	Personal Digital Assistant
POP	Post Office Protocol
RDF	Resource Description Framework
RFC	Request for Comments
RFP	Request for Proposals
RSA	Rivest-Shamir-Adleman
.rtf	Rich Text Format
SHA-1	Secure Hash Algorithm 1
S/MIME	Secure Multipurpose Internet Mail Extensions
SMTP/MIME	Simple Message Transfer Protocol/Multipurpose Internet Mail Extensions
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
URL	Uniform Resource Locator
UTF	Universal Transformation Format
VML	Vector Markup Language
WAN	Wide Area Network
XHTML	Extensible Hypertext Markup Language
XML	Extensible Markup Language
XSL	Extensible Stylesheet Language
WAP	Wireless Access Protocol
.wma	Window Media Audio
.wmf	Windows Metafile Format
.wmv	Window Media Video
WSDL	Web Services Description Language
WS-I	Web Services Interoperability Organisation
W3C	World Wide Web Consortium

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.

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 sub-set 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.

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.

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 Schemes’. 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’.

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 easily able to refine their searches to locate information easily
- * users do not need to be familiar with technical or local terminology.

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