JSP 602 Instruction	1012	**Applicability**	Applications, Infrastructure
Configuration Identity	Version: 02.01 Amended: 2009-03-02 Reviewed: 2006-06-16	**Epoch Applicability**	2005 - 2009

JSP 602: 1012 - Information Interchange

Outline

Description: This policy leaflet covers the standards and formats that support the interchange of information across the GII. Specifically it covers: Business-transaction-oriented data interchange standards, military data interchange standards, office automation interchange standards, character sets and alphabets, and data encoding standards.

Reasons for Implementation: The use of open standards for the exchange of information is an essential step towards achieving interoperability and information sharing between systems, both internally within MOD and externally with partner organisations.

Issues: Where possible, open non-proprietary standards have been mandated. Where such standards do not exist or are not widely supported, de facto standards that are supported by the market leading product(s)have been mandated.

Guidance: This policy is consistent with the e-GIF with the following exceptions:

- The e-GIF does not cover geographic information interchange.

This policy is consistent with the NC3TA with the following exception:

- The NC3TA mandates DIGEST v2.0, v2.1 is given as an emerging standard because it is awaiting ratification by the NATO nations.

Policy

Strategic

1012.01: Business-transaction-oriented data interchange standards

1012.01.01 All systems and/or projects required to exchange business transaction messages shall do so using the following standards

> **1012.01.01.01** ebXML Technical Architecture Specification v1.0.4, EBXML ebTA:2001 – as sponsored by UN/CEFACT and OASIS
>
> *This is the standard mandated in both the MOD XML policy (see JSP602: 1031 - XML) and the e-GIF. The ebXML family of standards is a suite of de facto standards that enable businesses adopting them to exchange information and services in an automated manner.*
>
> *Comment:* ebXML has been designed to enable a global electronic marketplace where businesses of any size and in any geographical location can meet and conduct business with each other through the exchange of XML based messages.

1012.01.02 Additionally, where product data is to be exchanged the mandated standard is:

> **1012.01.02.01** STEP, ISO 10303 - 239 (2005) PLCS

1012.01.03 Additionally, where materiel flow transactional data is to be exchanged the mandated standard is:

> **1012.01.03.01** OAGIS 9.0

1012.01.04 Where technical documentation is to be exchanged the mandated standard is:

> **1012.01.04.01** ASD S1000D

1012.02: Military data interchange standards

1012.02.01 The policy for the exchange of military data is contained within JSP602: 1016 – Messaging Services.

1012.03: Data Link Message Interchange standards

1012.03.01 The policy for the exchange of Tactical Data Link messages is contained within JSP602: 1006 - Data Link Services.

1012.04: Office Automation interchange formats

1012.04.01 All systems and/or projects required to provide office automation applications shall be able to create and read documents using the following standards:

> **1012.04.01.01** MS Office 2000 interchange formats
>
> **1012.04.01.02** RTF, Microsoft Specification, Version 1.5, Microsoft Application Note GC0165:1997 - for documents if MS Office format not available

Strategic (continued)

Comment: RTF provides a neutral format for the interchange of textual documents between computer platforms. Documents are able to retain more of their original structure and format than documents saved as plain text only.

1012.04.01.03 ASCII (TXT) for constrained environments

1012.04.02 All systems and/or projects providing office automation applications shall be able to read documents using the following standards:

1012.04.02.01 PDF - Portable Document Format, Adobe Systems Incorporated, version 1.4, Adobe Systems Incorporated ISBN 0 200 175839 3:2003

Although pdf was developed as a proprietary standard, it is now publicly available and extensively used for document distribution.

Comment: PDF is a file format used to represent a document in final form independent of the application software, hardware, and operating system used to create it. Documents may contain any combination of text, graphics, and images in a device independent and resolution independent form.

<u>1012.05: Hypertext interchange formats</u>

1012.05.01 All systems and/or projects exchanging information using hypertext formats shall do so using the following standards:

1012.05.01.01 HTML, Version 4.0.1, Reference Specification, W3C REC-html401-19991224:1999 (Dynamic HTML)

Comment: HTML is the dominant rendering language and XHTML is an XML-based version. WML is the de facto standard for distributing web content toWAP enabled mobile telephones. Some HTML/XML extensions are not supported through IGS or SMI gateways.

1012.05.01.02 Extensible HyperText Markup Language, version 1, W3C RECxhtml1-20020801:2002

1012.05.01.03 XML version 1.0 (Second Edition), W3C REC-xml-20001006:2000 - this standard is only mandated where meta-language data definitions are required

1012.05.01.04 WML version 2, WAP Forum WAP-238-WML-20010911-a:2001 - this standard is only mandated where information is exchanged over constrained bearer networks

These are the open industry standards for rendering web pages.

<u>1012.06: Character sets and alphabets</u>

1012.06.01 All systems and/or projects exchanging character-based information shall implement the following standards:

1012.06.01.01 IRA5 ITU-T Recommendation T.50 - (formerly known as IA5 ISO 646)

1012.06.01.02 7-bit Coded Character-set for Info Exchange (ASCII) (ISO 646:1991)

Strategic (continued)

1012.06.01.03 8-Bit Single Byte Coded Graphic Character Sets, Parts 1-15, ISO/IEC 8859:1998

1012.06.01.04 UCS - Part 1 (ISO 10646-1-3:2000)

1012.06.01.05 Representation of Dates and Times (ISO 8601:2000)

These are the de facto standards with almost universal support.

<u>1012.07: Data Encoding Standards</u>

1012.07.01 All systems and/or projects required to send or receive email messages shall support the following standards:

1012.07.01.01 Internet Message Format **-** RFC 2822:2001

1012.07.01.02 UUENCODE, The Open Group Unix98

1012.07.01.03 MIME - Part One: Format of Internet Message Bodies, IETF RFC 2045:1996; Part Two: Media Types, IETF RFC 2046:1996; Part Three: Message Header Extensions for Non-ASCII Text, IETF RFC 2047:1996; Part Four: Registration Procedures, IETF RFC 2048:1996; Part Five: Conformance Criteria and Examples, IETF RFC 2049:1996

Comment: Base64 is used by some email products to encode attachments. It is part of the MIME standard.

1012.07.01.04 SMIME Version 3 **-** Certificate Handling, IETF RFC 2632:1999; Message Specification, IETF RFC 2633:1999

These are the de facto open standards for data encoding and are ubiquitous in their use.

<u>1012.08: File Compression & Archiving</u>

1012.08.01 All systems and/or projects required to send or receive compressed files shall implement the following standard:

1012.08.01.01 Zip - DEFLATE Compressed Data Format Specification version 1.3, IETF RFC 1951:1996; GZIP file format specification version 4.3, IETF RFC 1952:1996

De facto standards for data encoding and are ubiquitous in their use.

Comment: An open standard for compression and decompression used widely for PC download archives, ZIP was developed by Phil Katz for his DOS-based program PKZip, and it is is now widely used on Windows-based programs such as WinZip, Drag and Zip. The file extension given to ZIP files is .zip.

1012.08.02 For XML compression applied to formatted military messages (such as DatP-3) nothing is mandated in addition to the standards already mandated in this policy category. (For additional guidance see comment).

Strategic (continued)

Comment: A market leading military messaging product (IRIS produced by Systematic) has implemented a knowledge-based compression engine (based on UK MOD research work undertaken by QinetiQ and referenced within MOD's XML Policy). This is specifically designed to improve the efficient use of low bandwidth bearers. Systems and/or projects providing formatted military messaging services that use low bandwidth bearers should consider using the IRIS API.

1012.09: Bar Codes

1012.09.01 The policy for the use of Bar codes is defined within JSP602: 1028 - Asset Identification.

1012.10: Voice Encoding and Interchange

1012.10.01 The policy for voice encoding and interchange is contained within JSP602: 1029 – Voice Interchange

1012.11: Secure fax

1012.11.01 All systems and/or projects providing secure facsimile services shall provide a terminal interface that complies with the following standard:

> **1012.11.01.01** STANAG 5000/MIL-STD-188-161D - STU-IIB compliant equipment
>
> *Secure telephone standard commonly used by UK, US and European Governments.*
>
> *Comment:* Later equipments (e.g. STU III) are compliant with the STU-II standard.

1012.12: Insecure fax

1012.12.01 All systems and/or projects providing open (insecure) facsimile services shall do so using the following standards:

> **1012.12.01.01** Standardization of group 3 facsimile terminals for document transmission, ITUT T.4:2003
>
> **1012.12.01.02** Facsimile coding schemes and coding control functions for group 4 facsimile apparatus, ITU-T T.6:1988

De facto standards for Group 3 and Group 4 faxes and are ubiquitous in their use.

1012.13: Video conferencing

1012.13.01 The policy for Video Conferencing is contained within JSP602: 1005 - Collaboration Services.

1012.14: Graphical/still image data interchange standards

1012.14.01 All systems and/or projects required to exchange graphical and still imagery shall support the following standards:

> **1012.14.01.01** JPEG File Interchange Format v1.02 - Digital Compression and Coding of Continuous Tone Still Images, JPEG, ISO/IEC 10918:1994
>
> **1012.14.01.02** SVG 1.0 Specification, W3C RECSVG-20010904:2001

Strategic (continued)

1012.14.01.03 GIF Version 89a, CompuServe gif89a:1990

1012.14.01.04 PNG Specification, Version 1.0, World W3C, 1 October 1996., IETF RFC 2083:1997

1012.14.01.05 NITFS 2.1 (MIL-STD 2500B/STANAG 4545)

1012.14.01.06 STANAG 3764:2002 Exchange of Imagery, ed.4

Comment: This STANAG establishes guidelines for the exchange of imagery for use in Imagery Interpretation Keys and to standardise the layout of a form to be used by NATO nations making requests for imagery and related material.

De facto and widely supported standards for storing image data.

1012.15: Geospatially referenced data interchange standards

1012.15.01 All systems and/or projects exchanging geospatial data shall do so using the following common geodetic reference standard:

1012.15.01.01 WGS-84, MIL-STD-2401

The de facto geodetic reference standard that is widely used; it is the one also used by GPS.

Comment: WGS 84 is an earth fixed global reference frame, including an earth model, which is defined by a set of primary and secondary parameters. The primary parameters define the shape of an earth ellipsoid, its angular velocity, and the earth mass which is included in the ellipsoid reference. The secondary parameters define a detailed gravity model of the earth.

1012.15.02 All systems and/or projects exchanging geospatial data shall do so using the following interchange format standards:

1012.15.02.01 GML 2.0, OGIS OGC 01-029:2001

1012.15.02.02 DIGEST v2.1 - Digital Geographic Information Exchange Standard, Digest DIGEST ed. 2.1:2000

Comment: DIGEST 2.1 cancels and replaces DIGEST 2.0. It includes an indication of the increased level of alignment between DIGEST and other external standards, in particular, the International Hydrographic Organization S-57 standard, the ISO/TC211 suite of Geographic Information/Geomatics standards and the ISO JTC1 SC24 Image Processing Standards.

1012.15.02.03 IHO S-57 edition 3

Comment: S-57 edition 3 is the IMOs standard for hydrographic chart data used for navigational purposes and has been harmonised with DIGEST.

The de facto standards for handling geospatial data.

Strategic (continued)

<u>1012.16: Moving image and audio/visual data interchange standards</u>

1012.16.01 All systems and/or projects required to exchange moving image and audio/visual data shall do so using the following standards (for audio-only data see Audio Data Interchange below):

> **1012.16.01.01** CDFS - Volume and file structure of CD-ROM for information interchange, ISO/IEC DIS 9660:1999
>
> *CDFS is the defining standard of CD-ROM file systems*
>
> **1012.16.01.02** MPEG1 - Coding of Moving Pictures and Associated Audio for Digital Storage Media at up to about 1.5 Mbit/s, ISO/IEC11172:1993
>
> **1012.16.01.03** MPEG2 - Generic Coding of Moving Pictures and Associated Audio, ISO/IEC 13818:2000
>
> **1012.16.01.04** MPEG4 - Coding of Moving Pictures and Audio, ISO/IEC 14496:1999
>
> *MPEG1/2/4 are common standards for video compression and transmission.*

1012.16.02 For multimedia standards see JSP602: 1005 - Collaboration Services.

<u>1012.17: Audio data interchange standards</u>

1012.17.01 All systems and/or projects required to exchange audio data shall do so using the following standards:

> **1012.17.01.01** PCM - coding of moving pictures and associated audio for digital storage media at up to about 1, 5 Mbit/s; part 3: audio, ISO/IEC 11172-3:1993 PCM is a common and well supported standard for audio data.

<u>1012.18: Page description</u>

1012.18.01 All systems and/or projects required to exchange page description data shall do so using the following standards:

> **1012.18.01.01** PostScript Level 1(1985), Level 2 (1990), Level 3 (1995), Adobe Systems Incorporated ISBN 0-201-37922-8:1999
>
> **1012.18.01.02** EPS - Encapsulated PostScript File Format Specification, Adobe Systems Incorporated Version 3.0 1992
>
> **1012.18.01.03** PDF - Portable Document Format, Adobe Systems Incorporated, version 1.4, Adobe Systems Incorporated ISBN 0 200 175839 3:2003

De facto standards for page description and are ubiquitous in their use.

> *Comment:* Exchange of page description data is used where users cannot share information between applications and must rely on sharing information in a printable form.

Deployed

As for Strategic domain.

Tactical
As for Strategic domain.

Remote
As for Strategic domain.

Responsibility for Implementing the Policy

Implementation of this policy shall be the responsibility of all MOD systems and/or projects that are required to exchange information with other systems and/or projects (i.e. this policy has universal applicability).

Procedure

Not Applicable.

Relevant Links

JSP602: 1031 - XML Policy

JSP602: 1006 - Data Link Services

JSP602: 1016 - Messaging Services

JSP602: 1029 - Voice Interchange

JSP602 1005 - Collaboration Services

JSP602 1028 - Asset Identification

The e-GIF can be found here (http://www.govtalk.gov.uk/schemasstandards/egif.asp)

The NATO C3 Technical Architecture can be found here (http://194.7.80.153/website/home.asp)

ISO standards can be purchased from the ISO web site here.
(http://www.iso.org/iso/en/CatalogueListPage.CatalogueList)

A glossary of terms and abbreviations used within this document is available here.

Instructions on how to read a JSP602 leaflet are available here.

Compliance

Stage	Compliance Requirements
Initial Gate/DP1	MOD Projects shall submit a formal declaration that they have read and understood the policy and sought guidance from the SME(s).
Main Gate/DP2	MOD Projects shall reference in their SRD (and MODAF technical views) the specific policy elements contained within this leaflet that are applicable to the system, equipment or application they are procuring or updating.
Release Authority/DP5	MOD Projects (supported by their equipment suppliers) shall provide evidence of their compliance with the elements of this policy defined within the SRD (and MODAF technical views). Evidence of conformance with standards shall be presented; sources of evidence may include: conformance/compliance certificates provided by equipment suppliers (e.g. under type approval or other assessment regimes), demonstrations, inspection, analysis, tests carried out by suppliers (e.g. Factory Acceptance Tests) and tests carried out at Defence Test and Reference Facilities.