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Guide for XML application in e-government

XML在电子政务中的应用指南

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1 Scope

This guiding technical document draws together and summarizes the common requirements of the different modules at the different levels of the architecture of the standard technical reference model for e-government, gives guidance on the XML techniques that may be adopted in e-government, and analyses and compares the relevant techniques.

This guiding technical document applies to the following: a) e-government business operators; b) system integrators of e-government systems; c) software developers of e-government systems; d) supervisory units for the construction of e-government systems. Other relevant units, manufacturers and individuals may also use it for reference.

2 Terms and definitions, abbreviated terms

2.1 Terms and definitions. The following terms and definitions apply in this guiding technical document.

2.1.1 business model - a description of the division of work, the business processes and the business information of an organization. 2.1.2 directory service - a service providing

directory lookup in a distributed computing environment and on the Internet. 2.1.3 information collection - the process of gathering information from information sources of every kind, including systems, files and users.

2.1.4 information publication - publishing and displaying information properly or with authorization, through the media and the network. 2.1.5 process control - the basic control operations on a business process, including starting, suspending, resuming, abandoning, continuing and destroying. 2.1.6 stylesheet - a description of the presentation style in which document data is displayed on a screen or printed on a printer.

2.1.7 Web service - an interface describing a number of operations - publish, find and bind - which are accessed over the network using a standardized XML message-passing mechanism. 2.1.8 XForms - a Web forms specification drawn up by the W3C that can be used on many platforms, including desktop computers, hand-held devices and information systems.

4 Introduction to XML technology

4.1 XML concepts and core technologies. These fall into three main parts: the basic XML concepts, the related XML concepts, and the XML application-layer concepts and technologies. That is: a) the basic XML concepts include XML, Namespace, XML Base, XML Information Set, Canonical XML and XML Inclusions; b) the related XML concepts include DTD, XML Schema, XLink, XPath, XPointer, DOM, SAX, XSLT, XQuery, CSS, XSL and XForms; c) the XML application-layer concepts and technologies include XHTML, WML, VoiceXML, ebXML, RDF and Web services. Figure 2 sets out the framework of the XML core technologies, grouping XML Namespace, XML Base, XML Information Set, Canonical XML and XML Inclusions; XML Schema, DTD, XPointer, XLink and XPath; SAX, DOM, XQuery and XSLT; and XSL, CSS, XSL-FO and XForms.

4.1.1 Basic XML concepts. XML is a markup language having data description capability, a high degree of structure and verifiability. XML allows the user to define tags and attributes and to develop applications according to the syntax of the tags and attributes defined; XML can describe data through tags, or use attributes to help describe data, and is suited to being a description language for objects or standards; XML can regulate the content and structure of an XML file by means of validation rules, and is suited to being the format for data interchange between government bodies, between government and enterprise, between government and the individual, and between government and commercial bodies.

SGML was the first standardized information structuring technology and became an ISO standard in 1986. HTML simplified SGML greatly and so became the present standard of the Internet. In February 1998 the W3C published the XML 1.0 specification, a simplified subset of SGML that inherits three important characteristics of SGML - extensibility, structure and validity - and has become a standard text format for expressing structured information.

The characteristics of XML: a) organizing data structures. XML is suited to organizing structured material, which includes electronic data tables, address books, configuration parameter tables, financial transactions and technical drawings. XML can design rules, guidelines or conventions for certain text formats, and those rules can help organize the material. XML lets a computer produce and read material very easily and ensures that the data structure is precise and free of ambiguity. XML avoids the shortcomings of general language design; it is extensible, platform-independent, a format supporting internationalization and localization, and fully compatible with the Unicode standard.

b) The form of XML resembles HTML. Like HTML, XML uses tags, text enclosed in angle brackets, and attributes, in the form name = value. HTML specifies the definition of tags and attributes and the form in which they are presented in the browser, whereas XML uses tags only to delimit a block of data, and the specific interpretation of that block is decided entirely by the application when it reads it. For example the p in an XML document does not necessarily mean a paragraph; depending on the context it may be price, parameter or person.