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Information technology — User interfaces — Universal remote console —

Part 4: Target description

Technologies de l'information — Interfaces utilisateur — Console à distance universelle —
Partie 4: Description d'objectifs

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

This second edition cancels and replaces the first edition (ISO/IEC 24752–4:2008), which has been technically revised.

ISO/IEC 24752 consists of the following parts, under the general title *Information technology — User interfaces — Universal remote console*:

— *Part 1: Framework*

— *Part 2: User interface socket description*

— *Part 4: Target description*

— *Part 5: Resource description*

— *Part 6: Web service integration*

Introduction

This is the second edition of this part of the International Standard. The main purpose of the revision is an alignment with recent developments in the Web service area, in particular with the new ISO/IEC 24752-6 on Web service integration, along with an overall simplification of the specified technologies.

A target is a device or service that can be remotely accessed by a universal remote console (URC). All targets provide exactly one target description (TD) through which they advertise their properties to URCs during the discovery phase of a target-URC interaction. The TD provides the information needed by a URC to connect to one of the target's sockets in order to start a control session.

Target properties are network-independent characteristics of a target that are made available to any URC in order to inform the user about the target's purpose, and to provide references to resources and documents that are needed to control the target via its sockets. The target description is independent of a natural language. URCs need to consult the referenced resources in order to present this information to the user.

A target description (TD) is an extensible markup language (XML) document describing a target so that it can be discovered by a URC. A TD contains references to XML documents, pertaining to specific target sockets. These documents are: a user interface socket description (described in ISO/IEC 24752-2), resource sheets (described in ISO/IEC 24752-5), grouping sheets (described in ISO/IEC 24752-5) and user interface implementation descriptions (UIIDs) in any format.

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Part 4: Target description

1 Scope

ISO/IEC 24752 is a multi-part International Standard to facilitate operation of information and electronic products through remote and alternative interfaces and intelligent agents.

This part of ISO/IEC 24752 defines an extensible markup language (XML) based language for the description of targets, as used within the universal remote console framework for discovery purposes. A document conforming to this language is a *target description*.

2 Conformance

An XML file conforms to this part of ISO/IEC 24752 (i.e. is a target description) if it fulfils all of the following requirements:

— it has an MIME type as specified in 5.2, if applicable;

— it is coded in UCS (see 6.1);

— its root element is the <td:target> element (with td representing the namespace "http://openurc.org/ns/targetdesc-2"), as defined in Clause 6;

— it contains all required elements and attributes with their proper values, as specified in Clause 6; and

— if it contains recommended or optional elements or attributes with their values, these are presented as specified in Clause 6.

NOTE 1 Strict language conformance (i.e. no additional elements or attributes allowed) is not required because future versions of this part of ISO/IEC 24752 might add new elements, attributes and values. Therefore, URC manufacturers are encouraged to implement their URCs so that unrecognized markup is ignored without failing.

NOTE 2 Target manufacturers who want to add manufacturer-specific information to a target description beyond the elements, attributes and values specified in this part of ISO/IEC 24752 can do so by externally providing (proprietary) resource descriptions that point into the structure of a target description. Refer to ISO/IEC 24752—5 for details.

3 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10646:2012, *Information technology — Universal Coded Character Set (UCS)*

ISO/IEC 24752-1, *Information technology — User interfaces — Universal remote console — Part 1: Framework*

ISO/IEC 24752-2, *Information technology — User interfaces — Universal remote console — Part 2: User interface socket description*

ISO/IEC 24752-5, *Information technology — User interfaces — Universal remote console — Part 5: Resource description*

ISO 15836:2009, *Information and documentation — The Dublin Core metadata element set*

4 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 24752-1 and ISO/IEC 24752-2 apply.

5 Relation to other standards

5.1 Relation to XML

This specification defines an XML based language. Markup in XML is case sensitive.

Tag names, and attribute names, and values are not localizable, i.e. they are identical for all international languages. However, the text content between tags can be language specific. As with all XML based languages, white space characters immediately surrounding tags are non-significant.

This specification makes use of the XML namespaces concept to enable the import of element and attribute names defined elsewhere.

All element and attribute names used in this International Standard with no namespace prefix are defined by this International Standard and are part of the target description namespace with URI reference "http://openurc.org/ns/targetdesc-2". It is recommended to use the namespace identifier 'td' for it, if not defined as default namespace.

Throughout this International Standard, the following namespace prefixes and corresponding namespace identifiers are used for referencing foreign namespaces:

— dc: The Dublin Core Metadata Element Set V1.1 namespace (http://purl.org/dc/elements/1.1/), as specified in ISO 15836;

— dcterms: The DCMI Metadata Terms namespace (http://purl.org/dc/terms);

— xsd: The XML Schema namespace (http://www.w3.org/2001/XMLSchema);

— xsi: The XML Schema Instance namespace (http://www.w3.org/2001/XMLSchema-instance).

See Annex A for an XML Schema definition for the target description language.

5.2 MIME type

A target description shall have a MIME type of "application/urc-targetdesc+xml", if applicable (as specified in IETF RFC 2046).

The 'charset' parameter (see IETF RFC 3023) should be used to specify the character encoding of the target description. Its value shall be "utf-8" or "utf-16". If the 'charset' parameter is absent, the procedure specified in "Extensible Markup Language (XML) 1.0 (Fifth Edition)", section 4.3.3 shall be followed to determine the character encoding.

6 The <target> element

6.1 General

A target description shall be an XML document, and shall be coded in UCS according to ISO/IEC 10646. For character encoding, "UTF-8" or "UTF-16" shall be used.

It shall have a single root element <target>.

EXAMPLE A simple target description. Ellipses ("…") indicate omissions.

```
<target
   xmlns:td="http://openurc.org/ns/targetdesc-2"
   about="http://example.com/thermostat"
   id="target">
   …
</target>
```

Typically the <target> element has a namespace definition attached to declare the namespace for the target description, which is "http://openurc.org/ns/targetdesc-2". It is recommended to use the identifier 'td' for it, if it is not the default namespace.

NOTE There is no label or other natural-language information contained in <target>. <target> is an "anchor" for attaching language-dependent descriptions that are stored as target resources or supplemental resources. Resources (either referenced in the TD or provided by external resource services) pertaining to a <target> element have specific roles, including: label, help (with arbitrary help categories), access key, keyword, location. Refer to part 5 of this International Standard for details on how to define atomic resources.

See Annex A for a sample target description. The following subsections describe the attributes and elements of <target>.

6.2 The 'about' attribute

The <target> element shall have an 'about' attribute, and its value shall be a Uniform Resource Identifier (URI), as specified in IETF RFC 3986.

The value of the 'about' attribute shall be the globally unique identifier (URI) of the target that is being described in the target description. The URI may or may not be resolvable.

NOTE 1 Target manufacturers are encouraged to make the target descriptions of their products publicly available by posting the target description at the target's name URI.

NOTE 2 The target's URI is provided by the target manufacturer. Typically the same URI is used for a class of identical targets (products), disregarding their specific instance and location.

6.3 The 'id' attribute

The <target> element shall have an 'id' attribute, and its value shall be a string. It shall be unique among all 'id' attributes within the target description.

NOTE 1 The about and 'id' attributes are used to attach resources to the <target> element.

NOTE 2 An atomic resource can be used to provide a location description for a target (see ISO/IEC 24752–5).

6.4 The 'hidden' attribute

The <target> element may have a 'hidden' attribute, and its value shall be a Boolean (i.e. either "true" or "false"). The default value shall be "false".

A value of "true" is a hint to the URC that this target should not be shown to the user. However, it is available to the user if referenced explicitly, for example when another target forwards a URC to the hidden target.

This attribute is motivated by the desire not to overload the user with targets and sockets that they may not need to know about during discovery. Hidden targets are not supposed to be visible to a user, unless the user specifically requests to see them. However, hidden targets can still be accessed by the URC, for example when another socket forwards the URC to the hidden target.

Additionally, during discovery the ‘hidden’ status of a target may be provided by the underlying network in an implementation-dependent fashion. This is to relieve the URCs so that it is not burdened with retrieving and parsing the TD of a ‘hidden’ target that it is not interested in.

NOTE The ‘hidden’ attribute can be specified on target and socket level. The socket inherits the setting from the target. If specified on both levels, the socket’s ‘hidden’ attribute overrides the one of the target.

6.5 The <dcterms:conformsTo> element

The <target> element shall have a subelement <dcterms:conformsTo> that specifies a reference to an established standard to which the target conforms. The value, a URI (as specified in IETF RFC 3986), is provided as element content. The value “http://openurc.org/ns/targetdesc-2/isoiec24752-4-2013” indicates that the described target conforms to this International Standard.

EXAMPLE <dcterms:conformsTo>http://openurc.org/ns/targetdesc-2/isoiec24752-4-2013 </dcterms:conformsTo>

NOTE 1 The value of the <dcterms:conformsTo> element can be used when testing for conformance of a target description.

NOTE 2 The <dcterms:conformsTo> element is taken from the set of Dublin Core Metadata Terms.

6.6 The <dcterms:modified> element

The <target> element may have a subelement <dcterms:modified>, indicating that the TD has been modified from its original version, while still bearing the same target URI (see 6.2). Its content shall be of type xsd:date or xsd:dateTime.

EXAMPLE <dcterms:modified>2003-12-30</dcterms:modified>

NOTE 1 The <dcterms:modified> element is taken from the set of Dublin Core Metadata Terms.

A target description should remain stable wherever possible. A TD that is changed shall be assigned a new URI (see 6.2) or a new value for the <dcterms:modified> element.

NOTE 2 This mechanism supports caching and facilitates the longevity of the target description and supplemental resources.

6.7 Target properties from DCMI

Any element and element refinement from the set of Dublin Core Metadata Initiative (DCMI) Metadata Terms may be used to describe a target, if appropriate (as specified in ISO 15836). Each of them may occur multiple as child of the <target> element. In particular, the following DCMI terms may be applied to a target:

— <dc:identifier> specifying the product code (or instance code) of the target;

— <dc:creator> specifying the manufacturer of the target;

— <dc:publisher> specifying the provider of the target;

— <dc:contributor> specifying co-manufacturers of the target.

The ‘xsi:type’ attribute should be used to identify the coding schema, if appropriate.

EXAMPLE An identifier according to a specific identification schema:

```
<dc:identifier xsi:type=“myComp:companyCode”>0123456</dc:identifier>
```


6.8 The <locator> element

6.8.1 General

The <target> element may have one or more <locator> subelements, each containing functional location information (interpreted by the URC). The purpose is to let the user activate a function on the target that helps them to locate the target.

EXAMPLE Examples include audio functions such as a beep or bell, visual functions such as a flash, and direction based functions such as an "infrared ping" function.

```
<locator type="audio" id="audio-locator" />
<locator type="visual" id="visual-locator" />
<locator type="other" id="irping-locator" />
```

NOTE There is no natural-language information contained in <locator>. This element is just the "anchor" for attaching language-dependent descriptions that are stored as target resources or supplemental resources.

6.8.2 The 'type' attribute

The 'type' attribute shall be present in every <locator> element, and its value shall be either "audio", "visual" or "other".

The meaning of the type value shall be as follows:

— "audio": Audible locator, i.e. the target emits an audible signal (such as a beep or bell) when invoked from the URC;

— "visual": Visual locator, i.e. the target emits a visual signal (such as a flash) when invoked from the URC;

— "other": Other means for localizing a target, e.g. IR pulse.

NOTE For type "other", more specific information can be provided through the <extension> subelement (see section 6.8.5).

6.8.3 The 'id' attribute

The <locator> element shall have an 'id' attribute which shall be unique among all 'id' attributes within the target description. It is used to attach resources to the <locator> element, and to identify the specific locator function when invoked on the target by a URC.

6.8.4 Platform-specific mapping information

The <locator> element may have one or more <mapping> subelements to include platform-specific mapping information.

The <mapping> element shall have a 'platform' attribute whose value is not restricted by this International Standard.

A <mapping> element may have arbitrary element content and subelements. However, subelements shall be from namespaces other than the namespace "http://openurc.org/ns/targetdesc-2".

NOTE 1 Target descriptions that contain platform specific mapping information lose their platform neutrality. Although multiple mappings may be specified in a target description (one for each platform) it is recommended to consider other mechanisms of specifying the binding to platform-specific technologies. For example, mapping information may be provided in an external file with references to the elements of the target description.

NOTE 2 Vendors and platform carriers are strongly discouraged from using the <mapping> element for embedding active or executable content in a target description. This would introduce a security risk for components parsing such a target description, and executing such content.