INTERNATIONAL STANDARD

ISO/IEC 24752-4

Second edition
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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.

Information technology — User interfaces — Universal remote console —

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.

6.8.5 The <extension> element

The <locator> element may have one or more <extension> subelements with each being a container for vendor-specific extension elements from any namespace other than the namespace "http://openurc. org/ns/targetdesc-2". This International Standard does not define the processing of these elements.

NOTE 1   By restricting vendor-specific extensions to specified elements, target descriptions can be strictly validated against an XML Schema Definition (see Annex A).

NOTE 2   Vendors are strongly discouraged from using the <extension> 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.

6.9   The <resSheet> element

6.9.1   General

The <target> element may have any number of <resSheet> subelements, each giving a reference to a resource sheet provided by the target manufacturer, and available within a local network.

NOTE 1   Resource sheets are collections of atomic resources, as defined in part 5 of this International Standard.

A resource sheet referenced in this way may contain atomic resources for one or more sockets of the target, as well as for the target itself (e.g. target label).

EXAMPLE

```
<resSheet about="http://openurc.org/res/devices/basic-thermostat.en.rsheet">
    <dcterms:conformsTo>http://openurc.org/isoiec24752-5/2013</dcterms:conformsTo>
    <dc:title xml:lang="en">English resource sheet for Thermostat connected via
Wi-Fi</dc:title>
    <dc:publisher>OpenURC Alliance</dc:publisher>
        <retrieveFrom>basic-thermostat1.0.en.rsheet</retrieveFrom>
    <scents>
        <dc:type>Text</dc:type>
        <forDomain>http://openurc.org/res/devices/basic-thermostat.uis</forDomain>
        <forLang>en</forLang>
    </scents>
</resSheet>
```

NOTE 2   The <resSheet> element offers a possibility for a target manufacturer to provide "default" resource sheets in a local network. Other resource sheets — which are possibly more suitable for specific use contexts — can be retrieved from a resource server (see 6.12) provided by the target manufacturer or by third parties.

6.9.2   The 'about' attribute

The <resSheet> element shall have an 'about' attribute specifying an unambiguous identifier of the resource sheet. This shall be a globally unique identifier in the form of a Uniform Resource Identifier (URI, as specified in IETF RFC 3986), with no fragment identifier appended. This URI may or may not be resolvable.

NOTE 1   The 'about' attribute corresponds to the 'about' attribute on the <ResSheet> element in a resource sheet (see ISO/IEC 24752–5), although of a different namespace.

NOTE 2   The URI provided by the 'about' attribute may or may not be resolvable. In any case, use the URI provided by <retrieveFrom> (see 6.9.6) for retrieving the resource sheet.

NOTE 3   The identifier as a value of the 'about' attribute conforms to the Dublin Core metadata element identifier, http://purl.org/dc/elements/1.1/identifier

6.9.3   The <dcterms:conformsTo> element

The <resSheet> element shall have one or more <dcterms:conformsTo> subelements, each specifying a reference to an established standard to which the resource sheet and its contents (atomic resource

descriptions) conform. The value of each <dcterms.conformsTo> element shall be a URI (as specified in IETF RFC 3986), and shall be provided as element content.

EXAMPLE   The following code specifies that the resource sheet complies with part 5 of this International Standard, of 2013:

  <dcterms:conformsTo>http://openurc.org/isoiec24752-5/2013<dcterms:conformsTo/>

NOTE 1   The <dcterms.conformsTo> element corresponds to the <dcterms:conformsTo> element as subelement of <ResSheet> in a resource sheet (see ISO/IEC 24752–5).

NOTE 2   The value of the <dcterms:conformsTo> element can be used when testing for conformance of a resource sheet.

NOTE 3   <dcterms:conformsTo> conforms to the Dublin Core metadata element refinement conformsTo, http://purl.org/dc/terms/conformsTo which is a refinement of the Dublin Core element http://purl.org/dc/elements/1.1/relation

6.9.4   Other resource sheet properties from DCMI

The <resSheet> element may have any number of elements and element refinements from Dublin Core Metadata Terms (see ISO 15836) as subelements, if appropriate, to describe the resource sheet. Each of them may occur multiple times.

In particular, the following Dublin Core Metadata terms may occur:

— <dc:creator>

— <dc:publisher>

— <dc:contributor>

— <dc:rights>

— <dc:title> (with optional 'xml:lang' attribute)

6.9.5   The <scents> element

The <resSheet> element may have a <scents> subelement.

If present, the <scents> element may have any number of subelements, providing hints as to what the resource sheet contains. The presence of each of these scent elements indicates that the scent value applies to at least one atomic resource in the resource sheet. The same scent elements may hereby occur multiple times, but with different values.

Applicable scent elements are the subelements of the <scents> element under <ResSheet> in a resource sheet, with their pertinent values given as element content (see ISO/IEC 24752–5). However, subelements of the namespace "http://openurc.org/ns/rsheet-2" are hereby imported into the namespace "http://openurc.org/ns/targetdesc-2". Subelements of other namespaces keep their original namespace.

Applicable scent elements include:

— <dc:type>

— <dc:format>

— <forDomain> (namespace "http://openurc.org/ns/targetdesc-2")

— <forLang> (namespace "http://openurc.org/ns/targetdesc-2")

— <dcterms:audience>

— <role> (of namespace "http://openurc.org/ns/targetdesc-2")

— Other resource sheet scents from DCMI

6.9.6 The <retrieveFrom> element

The <resSheet> element shall have one or more <retrieveFrom> subelements.

Each <retrieveFrom> element specifies a URI (as specified in IETF RFC 3986), given as element content, that can be used to retrieve a copy of the referenced resource sheet, either from a server in a local or global network environment.

If multiple <retrieveFrom> elements are given, their order is significant for retrieving the resource sheet. At runtime, the URIs will be tried in the order of the <retrieveFrom> elements, and after a URI has been found that successfully retrieves a document, the remaining URIs will be ignored.

NOTE 1   The target vendor/integrator can choose whether they want to serve resource sheets from a local or global server. Local serving has the advantage of being independent of Internet connectivity. Global serving usually involves a Web server dedicated to a vendor's products, which can be easily updated. It is recommended to provide both a global URI (for latest updates) and a local URI (as a fallback for offline situations).

Each URI may be relative, in which case it is based on a URI that is explicitly provided by the target in a platform-specific way, or based on the URI of the containing document.

NOTE 2   When used in a target description (TD), relative URIs keep the TD clean of dependencies on a particular networking platform and transport mechanism for retrieving the documents. The only part that has to be platform specific is the fetch mechanism (URI) for the TD.

6.10 The <grpSheet> element

6.10.1 General

The <target> element may have any number of <grpSheet> subelements, each giving a reference to a grouping sheet provided by the target manufacturer, and available within a local network.

NOTE 1   A grouping sheet is a collection of grouping resources, as defined in part 5 of this International Standard.

A grouping sheet referenced in this way may contain groupings for one or more sockets of the target.

EXAMPLE

```
<grpSheet about="http://openurc.org/res/devices/basic-thermostat.gsheet">
    <dcterms:conformsTo>http://openurc.org/isoiec24752-5/2013</dcterms:conformsTo>
    <dc:title xml:lang="en">Grouping sheet for Thermostat connected via Wi-Fi</dc:title>
    <dc:publisher>URC Consortium</dc:publisher>
        <retrieveFrom>basic-thermostat1.0.gsheet</retrieveFrom>
    <scents>
        <forDomain>http://openurc.org/res/devices/basic-thermostat.uis</forDomain>
        <forLang></forLang>
    </scents>
</grpSheet>
```

NOTE 2   The <grpSheet> element offers a possibility for a target manufacturer to provide "default" grouping sheets in a local network. Other grouping sheets — which are possibly more suitable for specific use contexts — can be retrieved from a resource server (see 6.12) provided by the target manufacturer or by third parties.

6.10.2 The 'about' attribute

The <grpSheet> element shall have an 'about' attribute, specifying an unambiguous identifier of a grouping sheet. This shall be a globally unique identifier in the form of a Uniform Resource Identifier (URI), as specified in IETF RFC 3986, with no fragment identifier appended.

NOTE 1   The 'about' attribute corresponds to the 'about' attribute on the <GrpSheet> element in a grouping sheet (see ISO/IEC 24752–5), although of a different namespace.

NOTE 2   The URI provided by the 'about' attribute may or may not be resolvable. In any case, use the URI provided by <retrieveFrom> (see 6.10.6) for retrieving the grouping sheet.

NOTE 3   The identifier as a value of the 'about' attribute conforms to the Dublin Core metadata element identifier, http://purl.org/dc/elements/1.1/identifier

6.10.3   The <dcterms:conformsTo> element

The <grpSheet> element shall have one or more <dcterms:conformsTo> subelements, each specifying a reference to an established standard to which the grouping sheet and its contents (groupings) conform. The value of each <dcterms.conformsTo> element shall be a URI (as specified in IETF RFC 3986), and shall be provided as element content.

EXAMPLE   The following code specifies that the grouping resource complies to part 5 of this International Standard, as of 2012:

  <dcterms:conformsTo>http://openurc.org/ns/gsheet-2/isoiec24752-5-2013</dcterms:conformsTo>

NOTE 1   The <dcterms.conformsTo> element corresponds to the <dcterms:conformsTo> element as subelement of <GrpSheet> in a grouping sheet (see ISO/IEC 24752–5).

NOTE 2   The value of the <dcterms:conformsTo> element can be used when testing for conformance of a grouping sheet.

NOTE 3   <dcterms:conformsTo> conforms to the Dublin Core metadata element refinement conformsTo, http://purl.org/dc/terms/conformsTo which is a refinement of the Dublin Core element http://purl.org/dc/elements/1.1/relation

6.10.4   Other grouping sheet properties from DCMI

The <grpSheet> element may have any number of elements and element refinements from Dublin Core Metadata Terms (see ISO 15836) as subelements, if appropriate, to describe the resource sheet. Each of them may occur multiple times.

In particular, the following Dublin Core Metadata terms may occur:

— <dc:creator>

— <dc:publisher>

— <dc:contributor>

— <dc:rights>

— <dc:title> (with optional 'xml:lang' attribute)

6.10.5   The <scents> element

The <grpSheet> element may have a <scents> subelement.

If present, the <scents> element may have any number of subelements, providing hints as to what the grouping sheet contains. The presence of each of these scent elements indicates that the scent value applies to at least one grouping in the grouping sheet. The same scent elements may hereby occur multiple times, but with different values.

Applicable scent elements are the subelements of the <scents> element under <GrpSheet> in a grouping sheet, with their pertinent values given as element content (see ISO/IEC 24752–5). However, subelements of the namespace "http://openurc.org/ns/gsheet-2" are hereby imported into the namespace "http://openurc.org/ns/targetdesc-2". Subelements of other namespaces keep their original namespace.

Applicable scent elements include:

— <forDomain> (namespace "http://openurc.org/ns/targetdesc-2");

— <forLang> (namespace "http://openurc.org/ns/targetdesc-2");

— other grouping sheet scents from DCMI.

6.10.6 The <retrieveFrom> element

The <grpSheet> element shall have one or more <retrieveFrom> subelements.

Each <retrieveFrom> element specifies a URI (as specified in IETF RFC 3986), given as element content, that can be used to retrieve a copy of the referenced grouping sheet, either from a server in a local or global network environment.

If multiple <retrieveFrom> elements are given, their order is significant for retrieving the grouping sheet. At runtime, the URIs will be tried in the order of the <retrieveFrom> elements, and after a URI has been found that successfully retrieves a document, the remaining URIs will be ignored.

NOTE 1   The target vendor/integrator can choose whether they want to serve grouping sheets from a local or global server. Local serving has the advantage of being independent of Internet connectivity. Global serving usually involves a Web server dedicated to a vendor's products, which can be easily updated. It is recommended to provide both a global URI (for latest updates) and a local URI (as a fallback for offline situations).

Each URI may be relative, in which case it is based on a URI that is explicitly provided by the target in a platform-specific way, or based on the URI of the containing document.

NOTE 2   When used in a target description (TD), relative URIs keep the TD clean of dependencies on a particular networking platform and transport mechanism for retrieving the documents. The only part that has to be platform specific is the fetch mechanism (URI) for the TD.

6.11 The <uiid> element

6.11.1 General

The <target> element may have any number of <uiid> subelements, each giving a reference to a user interface implementation description (UIID) provided by the target manufacturer, and available within a local network.

NOTE 1   UIIDs are instances of a broad range of file formats, some of which may be proprietary.

A UIID referenced in this way may apply to one or more sockets of the target.

EXAMPLE

```
<uiidDesc about="http://example.com/thermometer/interface.html">
   <retrieveFrom>interface.html</retrieveFrom>
</uiidDesc>
```

NOTE 2   The <uiid> element offers a possibility for a target manufacturer to provide "default" UIIDs in a local network. Other UIIDs — which are possibly more suitable for specific use contexts — can be retrieved from a resource server (see 6.12) provided by the target manufacturer or by third parties.

6.11.2 The 'about' attribute

The <uiid> element shall have an 'about' attribute, specifying an unambiguous identifier of the referenced UIID. This shall be a globally unique identifier in the form of a Uniform Resource Identifier (URI), as specified in IETF RFC 3986, with no fragment identifier appended.

NOTE 1   The 'about' attribute corresponds to a globally unique identifier, as used by the UIID. This URI may or may not be resolvable. In any case, use the URI provided by <retrieveFrom> (see 6.11.6) for retrieving the UIID.

NOTE 2   The identifier as a value of the attribute 'about' conforms to the Dublin Core metadata element identifier, http://purl.org/dc/elements/1.1/identifier

6.11.3 The <dcterms:conformsTo> element

The <uiid> element may have one or more <dcterms:conformsTo> subelements, each specifying a reference to an established standard to which the UIID conforms. The value of each <dcterms:conformsTo> element shall be a URI (as specified in IETF RFC 3986), and shall be provided as element content.

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

NOTE 2   <dcterms:conformsTo> conforms to the Dublin Core metadata element refinement conformsTo, http://purl.org/dc/terms/conformsTo which is a refinement of the Dublin Core element http://purl.org/dc/elements/1.1/relation

6.11.4 The <forLang> element

The <uiid> element may have any number of <forLang> subelements.

The <forLang> element specifies (as element content) which language context the UIID can be applied to. Language contexts shall be 3-letter codes as for the <xml:lang> element of XML 1.0. An empty <forLang> element indicates that the UIID is not language-specific.

EXAMPLE   <forLang>en</forLang>

NOTE   If UIIDs are defined in a language independent way, <forLang></forLang> is recommended.

6.11.5 Other UIID properties from DCMI

The <uiid> element may have any number of elements and element refinements from Dublin Core Metadata Terms (see ISO 15836) as subelements, if appropriate. Each of them may occur multiple times.

In particular, the following Dublin Core Metadata terms may occur:

— <dc:creator>

— <dc:publisher>

— <dc:contributor>

— <dc:rights>

— <dc:title> (with optional 'xml:lang' attribute)

— <dcterms:audience>

6.11.6 The <retrieveFrom> element

The <uiid> element shall have one or more <retrieveFrom> subelements.

Each <retrieveFrom> element specifies a URI (as specified in IETF RFC 3986), given as element content, that can be used to retrieve a copy of the referenced UIID, either from a server in a local or global local network environment.

If multiple <retrieveFrom> elements are given, their order is significant for retrieving the UIID. At runtime, the URIs will be tried in the order of the <retrieveFrom> elements, and after a URI has been found that successfully retrieves a document, the remaining URIs will be ignored.

NOTE 1   The target vendor/integrator can choose whether they want to serve UIIDs from a local or global server. Local serving has the advantage of being independent of Internet connectivity. Global serving usually involves a Web server dedicated to a vendor's products, which can be easily updated. It is recommended to provide both a global URI (for latest updates) and a local URI (as a fallback for offline situations).

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Each URI may be relative, in which case it is based on a URI that is explicitly provided by the target in a platform-specific way, or based on the URI of the containing document.

NOTE 2   When used in a target description (TD), relative URIs keep the TD clean of dependencies on a particular networking platform and transport mechanism for retrieving the documents. The only part that has to be platform specific is the fetch mechanism (URI) for the TD.

6.12 The <resSvc> element

6.12.1 General

The <target> element may have any number of <resSvc> subelements, each giving a reference to a resource service that can be queried for any types of resources, including:

— atomic resources such as labels, help texts, keywords, and access keys (as defined by part 5 of this International Standard);

— grouping resources (as defined by part 5 of this International Standard);

— UIIDs (format not specified by this International Standard).

A resource service may provide resources from target manufacturers and any third parties, beyond the (default) resources that are provided by a target in its local network environment.

EXAMPLE   The following is an example for a resource service description. The resource service conforms to the OpenURC's Resource Server HTTP Interface 1.0 specification (as specified at http://openurc.org/TR/res-serv-http1.0), and its interface description is available at http://res.openurc.org

```
<resSvc about="http://res.openurc.org">
   <dcterms:conformsTo>http://openurc.org/TR/res-serv-http1.0/</dcterms:conformsTo>
   <dc:publisher>OpenURC Alliance</dc:publisher>
   <dc:title xml:lang="en">Resource Server of the OpenURC Alliance</dc:title>
</resSvc>
```

NOTE   The <resSvc> element is meant to provide public resources ("guest" access) rather than private resources (credential-based access).

6.12.2 The 'about' attribute

The <resSvc> element shall have an 'about' attribute, specifying an unambiguous identifier of a resource service. This shall be a globally unique identifier in the form of a Uniform Resource Identifier (URI), as specified in IETF RFC 3986.

This URI shall be globally resolvable and shall deliver a description file for the resource service.

The format of an external description file for a resource service is beyond the scope of this International Standard. If existing, interface description formats as defined by other standards, may be employed. If standardized, the contained <dcterms:conformsTo> element and/or the MIME type and/or the file extension of the resource service description file may induce its format.

NOTE   The identifier as a value of the 'about' attribute conforms to the Dublin Core metadata element identifier, http://purl.org/dc/elements/1.1/identifier

6.12.3 The <dcterms:conformsTo> element

A <resSvc> element may have a <dcterms:conformsTo> subelement, specifying a reference (as URI, as specified in IETF RFC 3986) to an established standard to which the resource service conforms. The URI shall be specified as element content.

NOTE   <dcterms:conformsTo> conforms to the Dublin Core metadata element refinement conformsTo, http://purl.org/dc/terms/conformsTo which is a refinement of the Dublin Core element http://purl.org/dc/elements/1.1/relation

6.12.4 Other Resource Server properties from DCMI

The <resSvc> element may have any number of elements and element refinements from Dublin Core Metadata Terms (see ISO 15836) as subelements, if appropriate, to describe the resource server and its contents. Each of them may occur multiple times.

In particular, the following Dublin Core Metadata terms may occur:

— <dc:publisher>

— <dc:rights>

— <dc:title> (with optional 'xml:lang' attribute)

— <dcterms:audience>

6.13 The <socket> element

6.13.1 General

The <target> element shall have one or more <socket> subelements. The <socket> element specifies a socket of the target. A socket provides access to a functional unit of a target that is distinct from other sockets of the same target, regarding its function. Examples include a telephone-fax combination as target, consisting of a phone and a fax as separate sockets. Refer to part 2 of this International Standard for the specification of a socket.

In general, a socket inherits a target's properties. If specified both on target and socket levels, the socket property overrides the target's property.

The <socket> element contains the information that is needed for a URC to understand a socket's purpose, and to open a session with the socket.

EXAMPLE   A simple socket for an ATM.

```
<socket id="socket"
    name="http://example.com/ATM-2003/socket"
    type="location-dependent"
hidden="false">
<socketDescriptionRetrieveFrom>socket/socketdescription.xml</
socketDescriptionRetrieveFrom>
</socket>
```

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

6.13.2 The 'id' attribute

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

NOTE   This is necessary to specify resources for the <socket> element.

6.13.3 The 'name' attribute

The <socket> element shall have a 'name' attribute, specifying a URI (see IETF RFC 3986) that identifies the socket globally. The URI shall not contain a fragment identifier.

The URI may or may not be resolvable. It is recommended to derive this URI from the target's URI by concatenation, e.g. http://example.com/target/socket if the target's URI is http://example.com/target.

NOTE   The name of a socket is an important global identifier and is used to specify the binding of resources that are provided in separate files. The same URI should be the used in the corresponding socket description ('about' attribute of <uiSocket> element). Refer to part 2 of this International Standard for details on the socket description.

6.13.4 The 'type' attribute

The <socket> element may have a 'type' attribute. Allowed values are "location-dependent" (default), "location-informative", and "location-free".

The meaning of the type value shall be as follows:

— "location-dependent": Location-dependent sockets have a defined location, and require the user to be close to the target and its socket;

— "location-informative": Location-informative sockets have a defined location, but can be controlled from anywhere;

— "location-free": Location-free sockets have no meaningful location, i.e. they exist in a virtual space.

EXAMPLE 1   An ATM is location-dependent.

EXAMPLE 2   A home security system is location-informative.

EXAMPLE 3   A currency rate information socket is location-free.

6.13.5 The 'hidden' attribute

The <socket> element may have a 'hidden' attribute, specifying whether a socket is intended to be shown to a URC's user when discovered by the URC. The default value is "false".

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

The syntax and meaning of the 'hidden' attribute for a socket is the same as for the <target> element (see 6.4).

The 'hidden' attribute may 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.

6.13.6 The 'maxSessions' attribute

The <socket> element may have a 'maxSessions' attribute, providing a hint to the URC as to how many sessions the target socket can maintain simultaneously. This number is just a hint by the target according to its best knowledge prior to runtime, and the actual behaviour may vary.

The value of 'maxSessions' shall be an integer equal to or greater than "1". There is no default value for 'maxSessions'. The value "unbounded" indicates that the target allows for more than one simultaneous session, but cannot provide an exact upper limit. If the 'maxSessions' attribute is not present, no information about the maximum number of sessions is available.

NOTE   The 'maxSessions' attribute can let a URC make informed guesses ahead of time that can help to increase usability and avoid unnecessary network traffic. For example, if maxSessions="1" and the URC has already a session open with the socket, an additional open session request will probably fail.

6.13.7 The 'sharedSessions' attribute

The <socket> element may have a 'sharedSessions' attribute, providing a hint to the URC as to whether multiple sessions with the same target socket will be shared or not. In a shared session, the values of the