

Connections and Online Resources

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As the World Wide Web has developed into a ubiquitous information source, links to on-line information and services have become critical elements in all metadata dialects. Some dialects emerged during the early days of the web when less was known about how it would develop and flourish. URLs were simple and self-explanatory and it was enough to include just the bare URL in the metadata. As URLs have increased in complexity, it has become more important to provide supporting information along with the links.

NASA GCMD Directory Interchange Format

URL's are described in DIF using the [Related_URL](#) field. They have the following properties:

```
<dif:Related_URL uuid="UUID">
  <dif:URL_Content_Type/>
  <dif:URL/>
  <dif:Description/>
</dif:Related_URL>
```

The URL_Content_Type field comes from the URL Content Type [Keywords](#) which provide standard names for a number of data systems and services. Data access URLs can be recognized by the URL_Content_Type = "GET DATA". The Related_URL field is highly recommended and may be repeated.

ECHO

The ECHO model includes several types of URLs, each with a unique set of properties:

```
<OnlineAccessURL>
  <URL/>
  <URLDescription/>
  <MimeType/>
</OnlineAccessURL>

<OnlineResource>
  <URL/>
  <Description/>
  <Type/>
  <MimeType/>
</OnlineResource>

<ProviderBrowseUrl>
  <URL/>
  <FileSize/>
  <Description/>
  <MimeType/>
</ProviderBrowseUrl>
```

ISO

The ISO Standards use [CI_OnlineResources](#) to describe links. They include the following properties:

```
<gmd:CI_OnlineResource>
  <gmd:linkage/>
  <gmd:protocol/>
  <gmd:applicationProfile/>
  <gmd:name/>
  <gmd:description/>
  <gmd:function/>
</gmd:CI_OnlineResource>
```

Connections

All of these approaches to describing online resources include properties that make links more self-explanatory and easier to use. There are some differences that need to be considered when comparing them:

1. Types and Function Codes - All three dialects include a mechanism for classifying online resources. DIF and ISO use shared vocabularies and ECHO uses free text. The DIF vocabulary is hierarchical and includes roughly 35 choices. The ISO codeList includes 11 broad categories. The ECHO Collection metadata currently includes roughly 45 different values with some overlap with the DIF list. Given the variation in these existing approaches, it seems reasonable to map the DIF and ECHO types into the ISO name element, which is free text, rather than into the function element which is a codeList.

Crosswalks

ECHO	DIF	ISO	Note
OnlineAccessURLs /OnlineAccessURL/URL	/DIF/Related_URL/URL	/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:linkage /gmd:URL	
OnlineAccessURLs /OnlineAccessURL /URLDescription	/DIF/Related_URL/Description	/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:description /gco:CharacterString	
OnlineAccessURLs /OnlineAccessURL /MimeType		/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd: applicationProfile/gco:CharacterString	
OnlineResources /OnlineResource/URL	/DIF/Related_URL/URL	/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:linkage /gmd:URL	
OnlineResources /OnlineResource /Description	/DIF/Related_URL/Description	/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:description /gco:CharacterString	
OnlineResources /OnlineResource/Type	/DIF/Related_URL/URL_Content_Type/Type and /DIF/Related_URL/URL_Content_Type /Subtype	/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:name/gco: CharacterString	
OnlineResources /OnlineResource /MimeType		/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd: applicationProfile/gco:CharacterString	
		/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:function /gmd:CI_OnLineFunctionCode	
		/gmi:MI_Metadata/gmd:distributionInfo// gmd:distributor//gmd: distributorTransferOptions//gmd:onLine/ gmd:CI_OnlineResource/gmd:protocol /gco:CharacterString	