

Channel Definition Format (CDF)

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1 Introduction

The Channel Definition Format is an open specification that permits a web publisher to offer frequently updated collections of information, or channels, from any web server for automatic delivery to compatible receiver programs on PCs or other information appliances.

Automatic means that the user need only choose the channel once, and thereafter, scheduled deliveries of information to the client will occur without further user intervention.

Standard web server means that any web server that uses the HTTP 1.0 or later protocol can broadcast channels.

Compatible means any program that implements processing and retrieving content as specified by the Channel Definition Format described below.

When downloaded to a client, CDFs act as a local index to its channel's available content. For example, a receiver program can present the implicit hierarchy in a CDF within a channel selector.

2 Element Definitions

The Channel Definition Format is an application of the Extensible Markup Language (XML). Thus its definition consists of the various XML elements defined in this section. See the references section for information on XML work in progress.

The CDF contains the following major elements:

- **Channel** - defined a channel
- **Item** - defines a channel item, a unit of information which is available form a channel
- **UserSchedule** - reference to a client/user specified schedule
- **Schedule** - defines a particular schedule
- **Logo** - defines an image to represent a channel or channel item
- **Tracking** - defines user tracking parameters of a channel
- **CategoryDef** - defines a category, possibly as a child category of another category

For each one of these major elements there are a number of minor elements that a relevant to a major elements. The following sections define the major elements along with the minor elements that are relevant to them. In each section, XML DTD declarations are provided for precise definition of elements and attributes. The collection of XML DTD declarations found in this specification can be arbitrarily extended to add new elements and attributes for new enhancements.

A number or minor elements are used by both the Channel element and the Item element. The following section defines these.

2.1 Common child elements of Channel and Item

The following elements provide basic information about both channels and channel items.

Elements	Description	Type	# allowed	Default
LastMod	Last modified date for this web page	ISO 8601:1988 Date	0 or 1	
Title	Title	String	0 or 1	
Abstract	Short description summarizing the article (200 characters or less recommended)	String	0 or 1	
Author	Author	String	Any	
Publisher	Publisher	String	Any	

Copyright	Copyright	String	0 or 1	
PublicationDate	Publication Date	String	0 or 1	
Logo	Visual Logo for channel	Logo element	Any	
Keywords	Comma delimited keywords that match this channel	String	Any	
Category	A category to which this web page belongs in. The string value is a URI to a CategoryDef element.	Category element	Any	
Ratings	Rating of the channel by one or more ratings services. (String found in PICS label meta tag.)	String	Any	
Schedule	Schedule for keeping channel up to date	Schedule element	0 or 1	
UserSchedule	Reference to a client/user specified schedule	UserSchedule element	0 or 1	

XML DTD

```

<!ELEMENT LastMod EMPTY>
<!ATTLIST LastMod VALUE CDATA #REQUIRED>
<!ELEMENT Title EMPTY>
<!ATTLIST Title VALUE CDATA #REQUIRED>
<!ELEMENT Abstract EMPTY>
<!ATTLIST Abstract VALUE CDATA #REQUIRED>
<!ELEMENT Author EMPTY>
<!ATTLIST Author VALUE CDATA #REQUIRED>
<!ELEMENT Publisher EMPTY>
<!ATTLIST Publisher VALUE CDATA #REQUIRED>
<!ELEMENT Copyright EMPTY>
<!ATTLIST Copyright VALUE CDATA #REQUIRED>
<!ELEMENT PublicationDate EMPTY>
<!ATTLIST PublicationDate VALUE CDATA #REQUIRED>
<!ELEMENT Keywords EMPTY>
<!ATTLIST Keywords VALUE CDATA #REQUIRED>
<!ELEMENT Category EMPTY>
<!ATTLIST Category VALUE CDATA #REQUIRED>
<!ELEMENT Rating EMPTY>
<!ATTLIST Rating PICS-Label CDATA #REQUIRED>

```

2.2 Channel Element

Defines a channel

XML DTD

```
<!ELEMENT Channel ( LastMod | Title | Abstract | Author | Publisher | Copyright | PublicationDate | Keywords | Category | Rating | Channel | Item | Schedule | IntroURI | Authorization | IsClonable | MinStorage | Tracking )* >
```

Attributes

Attribute	Description	Type	# allowed	Default
HREF	URI for the next updated version of this channel	URI	No	
IsClonable	Can channel be copied or moved within the channel changer hierarchy	Boolean	No	

```
<!ATTLIST Channel HREF CDATA #IMPLIED>
<!ATTLIST Channel IsClonable (YES | NO) "NO">
```

Elements shared between Channel elements and Item elements (see above):

LastMod, Title, Abstract, Author, Publisher, Copyright, PublicationDate, Logo, Keywords, Category, Ratings, Schedule

Child elements of the Channel element only:

Elements	Description	Type	# allowed	Default
Channel	One or more subchannels of this channel	Channel element or link	Any	
Item	One or more article profiles, each providing information on a unit of content, usually a web page.	Item Profile	Any	
IntroURI	URI to introductory web page for channel. Can provide general and setup information	URI	0 or 1	
Authorization	Certification of executable content downloadable by this channel ("Authenticode for channels")	URI	0 or 1	
MinStorage	Minimum storage size required, in kilobytes	Number	0 or 1	0

Tracking	Profile providing information on how channel should perform user tracking	Tracking Profile	0 or 1	
----------	---	------------------	--------	--

XML DTD for minor elements

```

<!ELEMENT IntroURI EMPTY>
<!ATTLIST IntroURI VALUE CDATA #REQUIRED>
<!ELEMENT Authorization EMPTY>
<!ATTLIST Authorization VALUE CDATA #REQUIRED>
<!ELEMENT MinStorage EMPTY>
<!ATTLIST MinStorage VALUE CDATA "0">

```

2.3 Item Element

Defines an item of a channel, a unit of information for the user, usually corresponding to a web page.

XML DTD

```

<!ELEMENT Item ( LastMod, Title, Abstract, Author, Publisher, Copyright, PublicationDate, Keywords, Category, Rating, Schedule, Usage )* >

```

Attributes:

Attribute	Description	Type	# allowed	Default
HREF	URI of article contents	URI	Exactly One	N/A
MIMETYPE	MIME Type of article contents	String	0 or 1	
IsVisible	This item should be visible to the user.	Boolean	0 or 1	"YES"
Priority	Priority of this item ("HI", "NORMAL", "LOW")	String	0 or 1	"NORMAL"
Precache	Publisher recommended download behavior. "YES" = do retrieve contents into cache "NO" = do not retrieve contents into cache "DEFAULT" = what ever user has as default	String	0 or 1	"DEFAULT"

```
<!ATTLIST Item HREF CDATA #REQUIRED>
<!ATTLIST Item MIMEType CDATA #IMPLIED>
<!ATTLIST Item IsVisible (YES, NO) "YES">
<!ATTLIST Item Priority (HI, NORMAL, LOW) "NORMAL">
<!ATTLIST Item Precache (YES, NO, DEFAULT) "DEFAULT">
```

Elements shared between Channel elements and Item elements (see above):

LastMod, Title, Abstract, Author, Publisher, Copyright, PublicationDate, Logo, Keywords, Category, Ratings, Schedule

Child Element of the Item element only:

Element	Description	Type	# allowed	Default
Usage	Start tag should have VALUE= <i>usage</i> where <i>usage</i> indicates how this item should be used. Children elements can specify more parameters.	Any profile	0 or 1	

XML DTD for minor elements

```
<!ELEMENT Usage ANY>
<!ATTLIST Usage VALUE CDATA #REQUIRED>
```

2.4 UserSchedule Element

The UserSchedule element specifies a client side user defined schedule.

Attribute	Description	Type	# allowed	Default
UserSchedule	ID/name for predefined/client defined schedule	String	0 or 1	

XML DTD

```
<!ELEMENT UserSchedule EMPTY>
<!ATTLIST UserSchedule VALUE (DAILY, WEEKLY, HOURLY) #REQUIRED>
```

2.5 Schedule Element

The Schedule element defines a bounded repeating interval of time.

XML DTD

<!ELEMENT Schedule (StartDate?, EndDate?, IntervalTime?, EarliestTime?, LatestTime?) >

Child Elements:

Child Element	Description	Type	# allowed	Default
Start	This is the day upon which the schedule will start to apply.	ISO 8601:1988 Date	0 or 1	Start immediately
End	This is the day upon which the schedule expires and no longer applies.	ISO 8601:1988 Date	0 or 1	Never end
IntervalTime	The interval of time that the schedule should repeat over	IntervalTime element	0 or 1	Only perform once (infinity)
EarliestTime	Earliest time during the schedule interval that the schedule applies to.	EarliestTime element	0 or 1	At the beginning of the interval
LatestTime	Latest time during the schedule interval that the schedule applied to. If it is not equal to EarliestTime, then the time is randomly chosen in range.	LatestTime element	0 or 1	At the beginning of the interval

XML DTD for minor elements

<!ELEMENT StartDate EMPTY>
<!ATTLIST StartDate VALUE CDATA #REQUIRED>
<!ELEMENT EndDate EMPTY>
<!ATTLIST EndDate VALUE CDATA #REQUIRED>
<!ELEMENT IntervalTime EMPTY>
<!ATTLIST IntervalTime DAY CDATA "0">
<!ATTLIST IntervalTime HOUR CDATA "0">
<!ATTLIST IntervalTime MIN CDATA "0">
<!ATTLIST IntervalTime SEC CDATA "0">

```
<!ELEMENT EarliestTime EMPTY>
<!ATTLIST EarliestTime DAY CDATA "0">
<!ATTLIST EarliestTime HOUR CDATA "0">
<!ATTLIST EarliestTime MIN CDATA "0">
<!ATTLIST EarliestTime SEC CDATA "0">
<!ELEMENT LatestTime EMPTY>
<!ATTLIST LatestTime DAY CDATA "0">
<!ATTLIST LatestTime HOUR CDATA "0">
<!ATTLIST LatestTime MIN CDATA "0">
<!ATTLIST LatestTime SEC CDATA "0">
```

2.6 Logo Element

The Logo element defines an image that can be used to represent a channel or channel item.

Attribute Name	Description	Type	# allowed	Default
HREF (Required)	URL to the image for the logo	URI	Exactly One	N/A
Type	String indicating what context image should be used. ("BIG", "WIDE", "SMALL", "REGULAR")	String	Any	"REGULAR"

XML DTD

```
<!ELEMENT Logo EMPTY>
<!ATTLIST Logo HREF CDATA #REQUIRED>
<!ATTLIST Logo TYPE (BIG WIDE SMALL REGULAR) "REGULAR">
```

2.7 Tracking Element

The Tracking element indicated how a channel can or should support user tracking.

Child Element	Description	Type	# allowed	Default
PostURL	The URL to post tracking results to	URL	Exactly One	N/A

XML DTD

```
<!ELEMENT Tracking (PostURL?)>
```



```
<!ELEMENT PostURL EMPTY>
<!ATTLIST PostURL HREF CDATA #REQUIRED>
```

2.8 CategoryDef Element

This profile provides a generic container for properties of a category. Item profiles (used by channel and article profiles) can reference to these category elements using the URI "*#foo*" when ID="*foo*" is a parameter in the Category tag.

Child Element	Description	Type	# allowed
CategoryName	Name of category	String	Exactly One
Description	Textual description of category	String	0 or 1
CategoryDef	Sub-categories	Category element	Any

XML DTD

```
<!ELEMENT Tracking (PostURL?)>
<!ELEMENT PostURL EMPTY>
<!ATTLIST PostURL HREF CDATA #REQUIRED>
```

4 Example

```
<!DOCTYPE Channel SYSTEM "http://www.w3c.org/Channel.dtd" >

<Channel HREF="http://www.foosports.com/foosports.cdf" IsClonable=YES >

  <IntroUrl
VALUE="http://www.foosports.com/channel-setup.html" />
  <LastMod VALUE="1994.11.05T08:15-0500" />
  <Title VALUE="FooSports" />
  <Abstract VALUE="The latest in sports and atheletics from
FooSports" />
  <Author VALUE="FooSports" />

  <Schedule>
    <EndDate VALUE="1994.11.05T08:15-0500" />
    <IntervalTime DAY=1 />
    <EarliestTime HOUR=12 />
```

```
<LatestTime HOUR=18 />
</Schedule>

<Logo HREF="http://www.foosports.com/images/logo.gif"
Type="REGULAR" />

<Item HREF="http://www.foosports.com/articles/a1.html"
>
    <LastMod VALUE="1994.11.05T08:15-0500" />

    <Title VALUE="How to get the most out of your mountain
bike" />
    <Abstract VALUE="20 tips on how to work your mountain-bike
to the bone and come out on top." />
    <Author VALUE="FooSports" />
</Item>

<Channel IsClonable=NO >
    <LastMod VALUE="1994.11.05T08:15-0500" />
    <Title VALUE="FooSports News" />
    <Abstract VALUE="Up-to-date daily sports news from
FooSports" />
    <Author VALUE="FooSports" />

    <Logo
HREF="http://www.foosports.com/images/newslogo.gif"
Type="REGULAR" />

    <Logo
HREF="http://www.foosports.com/images/newslogowide.gif"
Type="WIDE" />

    <Item
HREF="http://www.foosports.com/articles/news1.html" >
        <LastMod VALUE="1994.11.05T08:15-0500" />
        <Title VALUE="Michael Jordan does it again!"
/>
        <Abstract VALUE="Led by Michael Jordan in scoring, the
Chicago Bulls make it to the playoffs again!" />
        <Author VALUE="FooSports" />
    </Item>

    <Item
HREF="http://www.foosports.com/articles/news2.html" />
        <LastMod VALUE="1994.11.05T08:15-0500" />
        <Title VALUE="Islanders winning streak ends"
/>
        <Abstract VALUE="The New York islanders' 10-game
winning streak ended with a disappointing loss to the Rangers" />
```

```

        <Author VALUE="FooSports" />
    </Item>

</Channel>

<Item
HREF="http://www.foosports.com/animations/scrnsvr.html" />
    <Usage VALUE="ScreenSaver"></Usage>
</Item>

<Item
HREF="http://www.foosports.com/ticker.html" />
    <Title VALUE="FooSports News Ticker" />
    <Abstract VALUE="The latest sports headlines from
FooSports" />
    <Author VALUE="FooSports" />
    <LastMod VALUE="1994.11.05T08:15-0500"
/>

    <!-- This is an example of how Usage can
be used for client enhancements -->
    <Usage VALUE="DesktopComponent">
        <Width VALUE=400 />
        <Height VALUE=80 />
    </Usage>

    <Schedule>
        <StartDate VALUE="1994.11.05T08:15-0500" />
        <EndDate VALUE="1994.11.05T08:15-0500" />
        <IntervalTime DAY=1 />
        <EarliestTime HOUR=12 />
        <LatestTime HOUR=18 />
    </Schedule>
</Item>

</Channel>

```

5 References

The XML W3C Working Draft is at <http://www.w3.org/pub/WWW/TR/WD-xml-961114.html>

[RFC-1738] Berners-Lee, T., Masinter, L., and M. McCahill, Editors, "Uniform Resource Locators (URL)", RFC 1738, CERN, Xerox Corporation, University of Minnesota, December 1994.

[RFC-2045] Freed, N., and N. Borenstein, "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", RFC 2045, Innosoft, First Virtual Holdings, November 1996.

[RFC-2048] Freed, N., Klensin, J., and J. Postel, "Multipurpose Internet Mail Extensions (MIME) Part Four: MIME Registration Procedures", RFC 2048, Innosoft, MCI, ISI, November 1996.