

# Appendices to A System of Formal Notation for Scoring Works of Digital and Variable Media Art

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## Appendix 1

### Crosswalks

1) Crosswalk of MANS descriptive metadata to other descriptive metadata standards, Dublin Core (<http://www.dublincore.org>) and Categories for Descriptions of Works of Art ([http://www.getty.edu/research/conducting\\_research/standards/cdwa/](http://www.getty.edu/research/conducting_research/standards/cdwa/))

Note: This crosswalk includes only descriptive metadata elements, not all the elements that comprise MANS (such as core concept elements)

MANS	DC	CDWA
creator	creator	creation-creator
title	title	title
type	type	object/work-type
date	date	creation-date
measurements	format.extent	measurements
subject	subject	subject matter
contributor	contributor	
host	publisher	ownership-owner
identification	identification.number	curr loc-rep number
language	language	
version	relation.version	state
location	identification.location	current location
authorization	rights	copyright/restrict

2) Crosswalk of MANS core concept elements to other conceptual models for structured digital or media art objects, MPEG-21 Digital Item Declaration Language and Capturing Unstable Media Conceptual Model.

Note: This crosswalk includes only high-level conceptual elements, and does not include, for instance, descriptive metadata elements

MANS	MPEG-21/DIDL	CMCM
score	<didl>	
work	<container>	project
version	<item>	occurrence
part	<item><item>	component
descriptor	<descriptor>	document
choice	<choice>	interaction
condition	<condition>	
annotation	<annotation>	
resource	<resource>	component.x

## Appendix 2

### Types

Recommended type classifications or genres for media art. Beginning of a more detailed taxonomy for media art. Developed by the Variable Media Network (<http://www.variablemedia.net>). These type terms are implemented in MANS within either the Type descriptive metadata element or as a Choice within a Part that defines the type of that Part. Implemented in the Type element, these terms would not be exclusive and any number of them could be combined to describe the whole Work. However, when indicating the type of a Part via a Choice, they should be used exclusively as they describe a specific sub-component Part of the Work.

### Contained

Even "self-contained" art forms like paintings and sculptures can provoke prickly questions when some aspect of their construction alters or requires an intervention. Such works or components are "contained" within their materials or a protective framework that encloses or supports the artistic material to be viewed. Contained works or components require no infrastructure or apparatus beyond the human senses to be perceptible. These forms are the least variable among the types listed here, but can include some variance over time or under different conditions nonetheless. To account for these alterations in otherwise stable media, choices related to these forms might include what lighting is allowed for a work on paper, whether a protective coating is appropriate, whether surface qualities such as brushwork or gloss are essential to the work, or whether an artist-made frame can be replaced.

### Installed

To say that a work or component must be "installed" implies that its physical installation is more complex than simply hanging it on a nail. Works or components that include physical objects would be described with "contained" or "installed", in possible combination with other descriptors. Examples of works with this behavior are works that scale to fill a given space or make use of unusual placement such as the exterior of a building or a public plaza. For such works, choices may track issues of site-specific placement as well as scale, public access, and lighting.

### Performed

"Performed" works or aspects of works include not only dance, music, theater, and performance art, but also works for which the process is as important as the product. For such works, choices may ascertain instructions that actors, curators, or installers must follow to complete the work, in addition to more conventional performance considerations such as cast, set, and props. "Performed" indicates explicit actions that are allowed or required of the artist, agents of the artist, or the audience (thus including "interactive" works) to realize, manipulate, or engage with the work. Additional choices for such works or components might include who is authorized to perform specific actions, how such actions are recorded, or the duration and impact of such actions.

## **Reproduced**

A recording medium is "reproduced" if any copy of the original master of the artwork results in a loss of quality. Such "lossy" media include analog photography, film, audio, and video.

## **Duplicated**

To say that some aspect of a work can be duplicated implies that a copy could not be distinguished from the original by an independent observer. This behavior applies to artifacts that can be perfectly cloned, as in digital media, or to artifacts comprising readymade, industrially fabricated, or mass-produced components.

## **Encoded**

To say that a work is encoded implies that part or all of it is written in computer code or some other artificial language that requires interpretation (e.g. musical or dance notation would be another form of encoding, but not theatrical scripts which are written in natural languages and could be considered along with other texts associated with the work).

## **Networked**

"Networked" describes distributed simultaneity; a work or aspect of a work that makes the work potentially present in more than one physical location within a given time span. A digital networked work is designed to be viewed on an electronic communication system, whether a cell phone region or the Internet. Networked media include Web sites, e-mail, and streaming audio and video. A non-digital networked work might include coordinated performances that are triggered by natural phenomenon like an eclipse to occur at several different physical locations simultaneously, or mail art. Networked does not include works which simply travel from one exhibition venue to another, but works in which physical distribution is a key part of the work.

## Appendix 3

### Preservation Strategies

Following is a recommended list of strategies for preserving works or parts of works, along with descriptive terms and notes. These are described in MANS using a Descriptor accompanying a Resource that is the object of preservation. Developed by the Variable Media Network (<http://www.variablemedia.net>). Preservation approaches should be indicated at this level of description because it is applied at this level. For instance a work that included a QuickTime movie file and a physical prop like a table might opt to Migrate the digital movie, but Store the table. It would not be accurate to describe the whole work as being Migrated or Stored.

#### **Storage**

The most conservative collecting strategy-the default strategy for most museums-is to store a work physically, whether that means mothballing dedicated equipment or archiving digital files on disk. Storing one of Donald Flavin's fluorescent light installations simply means buying a supply of the out-of-production bulbs and putting them in a crate. The major disadvantage of storing obsolescent materials is that the artwork will expire once these ephemeral materials cease to function.

#### **Emulation**

To emulate a work is to devise a way of imitating the original look of the piece by completely different means. Emulating a Flavin fluorescent light installation would require custom-building fluorescent bulbs that produce the same light as and resemble the physical appearance of the original bulbs. Possible disadvantages of emulation include prohibitive expensive and inconsistency with the artist's intent. For example, Flavin deliberately chose to use ordinary off-the-shelf components rather than esoteric materials or techniques.

#### **Migration**

To migrate an artwork involves upgrading equipment and source material. The obsolete fluorescent bulbs of Flavin's light installation could be upgraded to fluorescent or halogen lights of comparable hue and brightness. The major disadvantage of migration is the original appearance of the artwork will probably change in its new medium. Even if state-of-the-art fixtures cast similar light to Flavin's originals, the actual fixtures are likely to look different.

#### **Reinterpretation**

The most radical preservation strategy is to reinterpret the work each time it is re-created. To reinterpret a Flavin light installation would mean to ask what contemporary medium would have the metaphoric value of fluorescent light in the 1960s. Reinterpretation is a dangerous technique when not warranted by the artist, but it may be the only way to re-create performance, installation, or networked art designed to vary with context

## Appendix 4

### Media Art Notation System Implementation Examples.

Following are examples of the Media Art Notation System using MPEG-21 DIDL XML markup used to create a Score, or description of a work of media art. The media artwork described here is taken from the real world. It is the Chimera Obscura, by Richard Rinehart and Shawn Brixey, 2000, [http://www.coyoteyip.com/project\\_archive/chimera](http://www.coyoteyip.com/project_archive/chimera). There are two separate MANS Scores below. Both examples describe the same work, and both include comments, but one demonstrates a very simple implementation of MANS, while the second demonstrates a much more detailed, granular description. The detailed example shows how to describe sub-component resources in detail and link to relevant files. In one section, the detailed score goes beyond linking to files and shows how to use Choice to model the behavior of a sub-component part completely within the Score, without invoking a separate file (using the score as a standardized modeling language to replace the functionality of software-dependent files). The detailed score here includes a description of the Work with two Versions, first the real version as it was installed in Berkeley and Seattle, and second a possible future version, including relevant choices, conditions, and variables outlined by the artists to consider when re-installing or re-creating the work.

#### MANS Example 1 - Simple Score

```
<DIDL
<!--This is the outermost element that represents the Score as a whole. These attributes declare external
namespaces that may be used within this document, such as Dublin Core. -->
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
  xmlns:profile="http://www.mpeg.org/mpeg21/Profile-Specs"
  xsi:noNamespaceSchemaLocation="http://www.mpeg.org/mpeg21/schemas/didl.xsd">
<DECLARATIONS>
  <DESCRIPTOR>
    <!--This section describes the Score document itself. -->
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/xml">
      <dc:title>Chimera Obscura Score</dc:title>
      <dc:date>2004</dc:date>
      <dc:creator>Richard Rinehart</dc:creator>
      <dc:format>Media Art Notation System 1.0</dc:format>
      <dc:language>English</dc:language>
      <dc:rights>Public domain</dc:rights>
    </STATEMENT>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
      This document uses the Media Art Notation System, an implementation of MPEG-
      21 DIDL XML, to describe the work of art indicated in the Container below.
    </STATEMENT>
  </DESCRIPTOR>
</DECLARATIONS>
<CONTAINER>
<!--This element represents the logical Work or project as a whole. Note that descriptive metadata
elements are repeatable as there may be several creators, versions, subjects, applicable types, etc. -->
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/xml">
      <dc:title>Chimera Obscura</dc:title>
```

```

    <dc:date>2000</dc:date>
    <dc:creator>Richard Rinehart</dc:creator>
    <dc:creator>Shawn Brixey</dc:creator>
    <dc:contributor>Jesse Rankin</dc:contributor>
    <dc:subject>Genetics</dc:subject>
    <dc:subject>Genomics</dc:subject>
    <dc:type>Installed</dc:type>
    <dc:type>Encoded</dc:type>
    <dc:type>Performed</dc:type>
    <dc:type>Duplicated</dc:type>
    <dc:type>Networked</dc:type>
    <dc:format.extent>8 by 10 feet, largest component</dc:format.extent>
    <dc:publisher>The artists</dc:publisher>
    <dc:language>English</dc:language>
    <dc:identification.location>University of Washington Library</dc:identification.location>
    <dc:relation.version>2000, Seattle</dc:relation.version>
    <dc:relation.version>2003, Berkeley</dc:relation.version>
    <dc:rights>All rights the artists</dc:rights>
  </STATEMENT>
</DESCRIPTOR>
<ITEM>
  <DESCRIPTOR>
    <!--This section includes a picture and caption that represent the Work. -->
    <COMPONENT>
      <RESOURCE
        REF="http://www.coyoteyip.com/project_archive/chimera/rinehart_chimera3.jpg"
        TYPE="image/jpeg"/>
      <DESCRIPTOR>
        Completed robot installed Henry Art Gallery, Seattle, 2000
      </DESCRIPTOR>
    </COMPONENT>
  </DESCRIPTOR>
<DESCRIPTOR>
  <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
    Chimera Obscura is a net-based tele-robotic work inspired by the historical anxieties,
    eugenic fantasies, and emerging realities evolving from the frontier of contemporary genetics
    research. The project is envisioned as an exploration into the nature of human discovery and
    the social behavior of collaboration/competition as exemplified by the Human Genome
    Project. Crossing the boundary between gallery installation and Internet art, the work is
    constructed around a tele-robotic agent that Internet visitors use to navigate and decode a
    highly complex maze designed from a human thumbprint located in the museum gallery. The
    online visitor becomes a hybrid cyborg sojourner through the maze -- the webcam acting as
    their eyes, the robot as their legs as they transmit their agency across the Internet and into
    the gallery, remotely controlling the robot that navigates the maze. The project employs a
    mutative game structure, allowing online visitors to leave a virtual trail of media memes
    (video, audio, text, etc.) behind for others to read, duplicate, or delete in the search for a
    unique sequence that will decode the maze. The ghost of the minotaur roams the maze in the
    form of random mathematical algorithms that yield mutative forces to the memes in the
    database, frustrating attempts at an easy, linear solution.
  </STATEMENT>
</DESCRIPTOR>
<COMPONENT>
  <!--This section describes the Resources that comprise the Work. In this simple description, sub-
  component Parts of the Work have not been broken out separately. -->
  <RESOURCE>
    The sub-component parts of the Chimera include:

```

```

        electro-mechanical robot (8x10ft)
        physical maze
        robot controller box
        robot controller server computer
        web-camera
        web-camera server computer
        viewing monitor
        database and web server computer
        database files
        online interface files (Flash, HTML, scripts)
        other website files (HTML, Flash, images, scripts)
        user-contributed files (images, audio, video)
    </RESOURCE>
</COMPONENT>
</ITEM>
</CONTAINER>
</DIDL>

```

## MANS Example 2 - Detailed Score

```

<DIDL
<!-- This is the outermost element that represents the Score as a whole. These attributes declare external
namespaces that may be used within this document, such as Dublin Core. -->
    xmlns:dc="http://purl.org/dc/elements/1.1/"
    xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
    xmlns:profile="http://www.mpeg.org/mpeg21/Profile-Specs"
    xsi:noNamespaceSchemaLocation="http://www.mpeg.org/mpeg21/schemas/didl.xsd">
<DECLARATIONS>
<DESCRIPTOR>
    <!-- This section describes the Score document itself. -->
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/xml">
        <dc:title>Chimera Obscura Score</dc:title>
        <dc:date>2004</dc:date>
        <dc:creator>Richard Rinehart</dc:creator>
        <dc:format>Media Art Notation System 1.0</dc:format>
        <dc:language>English</dc:language>
        <dc:rights>Public domain</dc:rights>
    </STATEMENT>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
        This document uses the Media Art Notation System, an implementation of MPEG-21 DIDL
        XML, to describe the work of art indicated in the Container below.
    </STATEMENT>
    </DESCRIPTOR>
</DECLARATIONS>
<CONTAINER>
<!-- This element represents the logical Work or project as a whole. Note that descriptive metadata
elements are repeatable as there may be several creators, versions, subjects, applicable types, etc. -->
    <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/xml">
        <dc:title>Chimera Obscura</dc:title>
        <dc:date>2000</dc:date>
        <dc:creator>Richard Rinehart</dc:creator>
        <dc:creator>Shawn Brixey</dc:creator>
        <dc:contributor>Jesse Rankin</dc:contributor>
        <dc:subject>Genetics</dc:subject>
    </STATEMENT>
    </DESCRIPTOR>
</CONTAINER>

```

```

    <dc:subject>Genomics</dc:subject>
    <dc:type>Installed</dc:type>
    <dc:type>Encoded</dc:type>
    <dc:type>Performed</dc:type>
    <dc:type>Duplicated</dc:type>
    <dc:type>Networked</dc:type>
    <dc:format.extent>8 by 10 feet, largest component</dc:format.extent>
    <dc:publisher>The artists</dc:publisher>
    <dc:language>English</dc:language>
    <dc:identification.location>University of Washington Library</dc:identification.location>
    <dc:relation.version>2000, Seattle</dc:relation.version>
    <dc:relation.version>2003, Berkeley</dc:relation.version>
    <dc:relation.version>Possible Future Version</dc:relation.version>
    <dc:rights>All rights the artists</dc:rights>
  </STATEMENT>
</DESCRIPTOR>
<ITEM>
<!--This section represents a Version of the Work. -->
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/xml">
      <dc:relation.version>2000, Seattle; 2003, Berkeley</dc:relation.version>
    </STATEMENT>
  </DESCRIPTOR>
  <DESCRIPTOR>
    <!--This section includes a picture and caption that represent the Work. -->
    <COMPONENT>
      <RESOURCE
        REF="http://www.coyoteyip.com/project_archive/chimera/rinehart_chimera3.jpg"
        TYPE="image/jpeg"/>
      <DESCRIPTOR>
        Completed robot installed Henry Art Gallery, Seattle, 2000
      </DESCRIPTOR>
    </COMPONENT>
  </DESCRIPTOR>
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
      Chimera Obscura is a net-based tele-robotic work inspired by the historical anxieties,
      eugenic fantasies, and emerging realities evolving from the frontier of contemporary genetics
      research. The project is envisioned as an exploration into the nature of human discovery and
      the social behavior of collaboration/competition as exemplified by the Human Genome
      Project. Crossing the boundary between gallery installation and Internet art, the work is
      constructed around a tele-robotic agent that Internet visitors use to navigate and decode a
      highly complex maze designed from a human thumbprint located in the museum gallery. The
      online visitor becomes a hybrid cyborg sojourner through the maze -- the webcam acting as
      their eyes, the robot as their legs as they transmit their agency across the Internet and into the
      gallery, remotely controlling the robot that navigates the maze. The project employs a
      mutative game structure, allowing online visitors to leave a virtual trail of media memes
      (video, audio, text, etc.) behind for others to read, duplicate, or delete in the search for a
      unique sequence that will decode the maze. The ghost of the minotaur roams the maze in the
      form of random mathematical algorithms that yield mutative forces to the memes in the
      database, frustrating attempts at an easy, linear solution.
    </STATEMENT>
  </DESCRIPTOR>
  <DESCRIPTOR>
    <!--This section includes a video of an artist talk that documents the Work. -->
    <COMPONENT>

```

```

    <RESOURCE
    REF="http://www.bampfa.berkeley.edu/conversations/movies/rickshawn-postr.mov"
    TYPE="video/quicktime"/>
    <DESCRIPTOR>
    Artists talk with Richard Rinehart and Shawn Brixey. Art, Technology and Culture
    Colloquium at UC Berkeley, November 15, 2003
    </DESCRIPTOR>
  </COMPONENT>
</DESCRIPTOR>
<ITEM>
<!--This section describes a logical or functional sub-component of the Work (the physical on-
site installation of Chimera Obscura). -->
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
    Robot and physical site installation.
    </STATEMENT>
  </DESCRIPTOR>
<!--This section describes the Resources that comprise the this Part of the Work (the robot
and physical installation on site). In this detailed description, sub-component Resources of
the Work are broken out separately, but far more detail could still be added. -->
  <COMPONENT>
    <RESOURCE>
    electro-mechanical x-y plotter robot that can navigate over surface of maze to any point.
    robot must have resolution of movement to allow at least 4000 points in relation to maze
    </RESOURCE>
    <DESCRIPTOR>
      <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
      Robot. Robot navigates over surface of maze to any point. Robot has
      resolution of movement to allow at least 4000 points in relation to maze
      </STATEMENT>
    </DESCRIPTOR>
  </COMPONENT>
  <COMPONENT>
    <RESOURCE>
    robot controller. This hardware switch box connects robot to power and computer input
    commands
    </RESOURCE>
  </COMPONENT>
  <COMPONENT>
    <RESOURCE>
    Dell Dimension 2400 computer running Windows XP Home Edition
    </RESOURCE>
    <DESCRIPTOR>
      <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
      Robot controller and server. Computer runs robot controller software. Software
      modified to accept cgi commands over Internet and send commands to robot.
      Computer is networked to Internet.
      </STATEMENT>
    </DESCRIPTOR>
  </COMPONENT>
  <COMPONENT>
    <RESOURCE>
    15 24 inch square panels, glossy printed paper bonded to 1/4 inch masonite, arranged
    into 5 x 3 grid that assembles the thumbprint image
    </RESOURCE>
    <DESCRIPTOR>

```

```

    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
    Maze. Maze should depict a human thumbprint. Thumbprint may be slightly modified
    to allow passage through furrows.
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
<COMPONENT>
  <RESOURCE>
  Canon - Optura 20 Mini DV Digital Video Camcorder
  </RESOURCE>
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
    Camera. Camera is mounted on movable arm of robot at target point, so that the
    camera can be aligned with any point specified in the maze. Camera is mounted close
    enough to maze panels that it does not reveal more than 1/100 surface area of maze in
    field of vision. The camera should allow an + or x registration in center of image. It
    should enable video output to allow web video streaming out of image in real-time.
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
<COMPONENT>
  <RESOURCE>
  Apple Macintosh G3 Computer, running Mac OS 9.2 and SiteZap 4.0 web streaming
  software
  </RESOURCE>
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
    Web video streamer. Computer accepts real-time video input from camera mounted
    on robot. Sends out video stream over the Internet, using video streaming software, at
    fixed URL to allow video stream to be included in online interface.
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
<COMPONENT>
  <RESOURCE>
  NEC AccuSync 91VM flat panel 19-inch lcd monitor
  </RESOURCE>
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
    Onsite viewing monitor. Allows visitors on site at physical installation to see video
    stream coming from camera (same video seen online). Optionally, allows onsite
    visitors to view online interface in real-time.
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
</ITEM>
<ITEM>
<!--This section describes a logical or functional sub-component of the Work (the virtual, online
interface of Chimera Obscura). -->
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did/statement-types/text/plain">
    Virtual aspects of Chimera and online interface.
    </STATEMENT>
  </DESCRIPTOR>
  <!--This section describes the Resources that comprise the this Part of the Work (the virtual
Parts and online interface). -->

```

```

<COMPONENT>
  <RESOURCE>
    Apple Macintosh G3 Computer, running Mac OS 9.2 and FileMaker Pro 5.0 Unlimited
    software
  </RESOURCE>
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
      Database and Webserver. This networked computer served the Chimera Obscura
      website documentation, online interface to the Chimera Work, and back-end database.
      It was not stored or installed in the same place as the robot controller or web
      streaming server.
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
<COMPONENT>
  <RESOURCE REF="http://chimera.berkeley.edu/memes.fp5"
  TYPE="application/filemaker" />
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
      This database stores and manipulates variables and data that run the Chimera
      online interface in real-time. This database creates and stores the association between
      files uploaded/contributed by viewers and the specific point of the maze that they
      were at when they contributed the file. This database tracks viewers' requests to
      control the robot, limiting one user per 8-minute session. This database contains an
      algorithm (the minotaur) that will randomly copy or delete viewer-contributed files,
      every one out of 5 times a viewer contributes .
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
<COMPONENT>
  <RESOURCE REF="http://chimera.berkeley.edu/interface.html"
  TYPE="text/html" />
  <RESOURCE REF="http://chimera.berkeley.edu/interface1.swf"
  TYPE="application/x-shockwave-flash" />
  <RESOURCE REF="http://chimera.berkeley.edu/interface2.swf"
  TYPE="application/x-shockwave-flash" />
  <RESOURCE REF="http://chimera.berkeley.edu/interface3.swf"
  TYPE="application/x-shockwave-flash" />
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
      Online Interface. These flash files present the Chimera online as well as accept user
      interaction and track certain variables in real-time. The HTML page displays the real-
      time video stream from the robot camera. The Flash files accept button commands
      from users as directional commands sent to the robot controller server. They track the
      point of the maze the viewer is at and display all user-contributed files associated with
      that spot. They allow users to contribute/upload new files to associate with that spot.
    </STATEMENT>
  </DESCRIPTOR>
</COMPONENT>
<COMPONENT>
  <RESOURCE REF="http://chimera.berkeley.edu/usercontribution1.jpg"
  TYPE="image/jpeg" />
  <RESOURCE REF="http://chimera.berkeley.edu/usercontribution2.gif"
  TYPE="image/gif" />
  <RESOURCE REF="http://chimera.berkeley.edu/usercontribution3.mpg"
  TYPE="video/mpeg" />

```

```

    <!-- etc. -->
    <DESCRIPTOR>
      <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
        Viewers are encouraged to upload digital files as a marker at any point in the maze.
        They must first navigate to the desired point in the maze, then upload files of types:
        jpg, gif, mpg, mov, or mp3. The files are stored on the database/web server and are
        displayed to others using the online interface files.
      </STATEMENT>
    </DESCRIPTOR>
  </COMPONENT>
</ITEM>
</ITEM>
</ITEM>
<!--This section represents a Version of the Work. -->
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/xml">
      <dc:relation.version>Possible Future Version of Chimera Obscura</dc:relation.version>
    </STATEMENT>
  </DESCRIPTOR>
  <DESCRIPTOR>
    This Version describes a more abstracted work, including the choices, conditions, and
    variables defined by the artists that should be considered when re-creating the work for
    future installations.
  </DESCRIPTOR>
  <ITEM>
    <!--This section describes a logical or functional sub-component of the Work (the physical on-
    site installation of Chimera Obscura). Only Choices applicable to the Part are included (this Part
    is installed, so space and light choices are included). Choice ID attribute indicates the type of
    Choice, and Choice Default attribute includes the (possibly multiple) default values or initial
    choices. The Choices and Selections below are abbreviated versions of Choices from the
    recommended list located in the following Appendix. One could also include a full description in
    a Descriptor for each choice. One could also choose to keep the recommended list of Choices in
    a separate DIDL document and just Reference or link to them from here, thus eliminating any
    redundancy. -->
    <DESCRIPTOR>
      <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
        Robot and physical site installation. In the Chimera, the robot may vary greatly in
        size, technology used, and appearance, but it is important that the robot always remain
        physical, not virtual.
      </STATEMENT>
    </DESCRIPTOR>
    <!--This Choice describes what Type this Part is. This Part is Installed. -->
    <CHOICE ID=type DEFAULT=installed>
      <SELECTION ID=installed />
      <SELECTION ID=performed />
      <SELECTION ID=encoded />
      <SELECTION ID=reproduced />
      <SELECTION ID=networked />
      <SELECTION ID=duplicated />
      <SELECTION ID=contained />
    </CHOICE>
    <CHOICE ID=space DEFAULT=museum, indoor, rural, urban>
      <CONDITION REQUIRE=installed />
      <DESCRIPTOR>
        <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
          The space should allow viewers to move around the robot in three dimensions.

```

```

    </STATEMENT>
    </DESCRIPTOR>
    <SELECTION ID=museum />
    <SELECTION ID=indoor />
    <SELECTION ID=theater />
    <SELECTION ID=viewing.room />
    <SELECTION ID=outdoor.rural />
    <SELECTION ID=outdoor.urban />
    <SELECTION ID=multiple.locations />
</CHOICE>
<!--This section describes who is authorized to choose the selections indicated by the
Condition Require attribute. Note there may be several authorized agents. -->
<CHOICE ID=authorization DEFAULT=artist, agent, host>
    <CONDITION REQUIRE=museum, indoor, rural, urban, theater, room, multiple />
    <SELECTION ID=artist />
    <SELECTION ID=agent />
    <SELECTION ID=host />
    <SELECTION ID=presenter />
    <SELECTION ID=public />
</CHOICE>
<CHOICE ID=lighting DEFAULT=specialized>
    <CONDITION REQUIRE=installed />
    <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
    Lighting should allow round the clock viewability of the maze both on site and via the
    web camera. Lighting should not cast shadows on the maze that confuses viewers about
    what is a shadow and what is a maze path.
    </STATEMENT>
    </DESCRIPTOR>
    <SELECTION ID=dark />
    <SELECTION ID=standard.museum />
    <SELECTION ID=natural />
    <SELECTION ID=specialized />
</CHOICE>
<!--This section describes who is authorized to make the Choice indicated by the Condition.
Note there may be several authorized agents. -->
<CHOICE ID=authorization DEFAULT=artist, agent, host>
    <CONDITION REQUIRE=dark, museum, natural, specialized />
    <SELECTION ID=artist />
    <SELECTION ID=agent />
    <SELECTION ID=host />
    <SELECTION ID=presenter />
    <SELECTION ID=public />
    <SELECTION ID=duplicated />
    <SELECTION ID=contained />
</CHOICE>
</ITEM>
<ITEM>
<!--This section describes a logical or functional sub-component of the Work (the virtual, online
interface of Chimera Obscura). -->
<DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
    Virtual aspects of Chimera and online interface. In the Chimera, the appearance of the
    interface and technology used to implement this Part of the Chimera Obscura may vary
    greatly as long as the function described for each Resource is maintained. Online
    interface may be viewable, but should not be performable by visitors while on-site.

```

```

    </STATEMENT>
  </DESCRIPTOR>
  <CHOICE ID=type DEFAULT=performed, encoded, duplicated, networked>
    <SELECTION ID=installed />
    <SELECTION ID=performed />
    <SELECTION ID=encoded />
    <SELECTION ID=reproduced />
    <SELECTION ID=networked />
    <SELECTION ID=duplicated />
    <SELECTION ID=contained />
  </CHOICE>
  <CHOICE ID=network.type DEFAULT=Internet>
    <CONDITION REQUIRE=networked />
    <SELECTION ID=Internet />
    <SELECTION ID=Internet2 />
    <SELECTION ID=LAN />
    <SELECTION ID=internal />
    <SELECTION ID=other />
  </CHOICE>
  <!--This section describes who is authorized to make the Choice indicated by the Condition.
  Note there may be several authorized agents. -->
  <CHOICE ID=authorization DEFAULT=artist, agent, host>
    <CONDITION REQUIRE=Internet,Internet2,LAN,other />
    <SELECTION ID=artist />
    <SELECTION ID=agent />
    <SELECTION ID=host />
    <SELECTION ID=presenter />
    <SELECTION ID=public />
  </CHOICE>
  <CHOICE ID=viewer.interacts DEFAULT=work.synchronous, others.asynchronous>
    <CONDITION REQUIRE=performed />
    <SELECTION ID=work.asynchronous />
    <SELECTION ID=work.synchronous />
    <SELECTION ID=others.asynchronous />
    <SELECTION ID=others.synchronous />
    <SELECTION ID=performer.asynchronous />
    <SELECTION ID=performer.synchronous />
  </CHOICE>
  <!--This section describes who is authorized to make the Choice indicated by the Condition.
  Note there may be several authorized agents. -->
  <CHOICE ID=authorization DEFAULT=artist>
    <CONDITION REQUIRE=work,others,performer/>
    <SELECTION ID=artist />
    <SELECTION ID=agent />
    <SELECTION ID=host />
    <SELECTION ID=presenter />
    <SELECTION ID=public />
  </CHOICE>
  <ITEM>
  <!--For purposes of demonstration, this section shows a much more granular use of Choice,
  in which one could model the behavior of one of the online interface Flash files completely
  within the Score, without reference to the Flash file. This Choice allows users to pick a
  direction for the robot to travel in. The Components are directions sent to the robot when a
  specific selection is made. -->
  <DESCRIPTOR>
    <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">

```

```

    Online Interface. Robot Navigator.
    </STATEMENT>
  </DESCRIPTOR>
  <CHOICE ID=navigation.direction>
    <SELECTION ID=north />
    <SELECTION ID=east />
    <SELECTION ID=south />
    <SELECTION ID=west />
  </CHOICE>
  <CHOICE ID=authorization DEFAULT=public>
    <CONDITION REQUIRE=north,south,east,west/>
    <SELECTION ID=artist />
    <SELECTION ID=agent />
    <SELECTION ID=host />
    <SELECTION ID=presenter />
    <SELECTION ID=public />
  </CHOICE>
  <COMPONENT>
    <CONDITION REQUIRE=north />
    <RESOURCE REF="http://maze.berkeley.edu/?direction=north"
      TYPE="application/x-www-form-urlencoded" />
  </COMPONENT>
  <COMPONENT>
    <CONDITION REQUIRE=east />
    <RESOURCE REF="http://maze.berkeley.edu/?direction=east"
      TYPE="application/x-www-form-urlencoded" />
  </COMPONENT>
  <COMPONENT>
    <CONDITION REQUIRE=south />
    <RESOURCE REF="http://maze.berkeley.edu/?direction=south"
      TYPE="application/x-www-form-urlencoded" />
  </COMPONENT>
  <COMPONENT>
    <CONDITION REQUIRE=west />
    <RESOURCE REF="http://maze.berkeley.edu/?direction=west"
      TYPE="application/x-www-form-urlencoded" />
  </COMPONENT>
</ITEM>
<COMPONENT>
  <RESOURCE REF="http://chimera.berkeley.edu/usercontribution1.jpg"
    TYPE="image/jpeg" />
  <RESOURCE REF="http://chimera.berkeley.edu/usercontribution2.gif"
    TYPE="image/gif" />
  <RESOURCE REF="http://chimera.berkeley.edu/usercontribution3.mpg"
    TYPE="video/mpeg" />
  <-- etc. -->
<DESCRIPTOR>
  <STATEMENT TYPE="urn:mpeg:mpeg21:did:statement-types/text/plain">
    Viewers are also encouraged to upload digital files as a marker at any point in the
    maze. They must first navigate to the desired point in the maze, then upload files of
    types: jpg, gif, mpg, mov, or mp3. The files are stored on the database/web server and
    are displayed to others using the online interface files.
  </STATEMENT>
</DESCRIPTOR>
</COMPONENT>
</ITEM></ITEM></CONTAINER></DIDL>

```

## Appendix 5

### Example Choices and Selections

These Choices and selections have been and continue to be developed by the Variable Media Network. The following should not be considered a fixed and final list, but a preliminary list of Choices and Selections. They have been implemented in a FileMaker database called the "Variable Media Questionnaire" that is also under development and testing. They represent variables that govern configuration or installation of a Work or Part of a Work. Choices are relative to specific types of Works or Parts. For instance a Choice about minimum network speed would not make sense in the context of a Work that was a printed photograph. Choices are grouped together below with their relevant Type. A typical group of Choices relevant to a Part of a Work in MANS would include first, the Type of Work or Part, then a Choice about configuration of that particular Part, then an indication of who is authorized to make that Choice. Within each Type, each Choice in all-caps is followed by its list of Selections in lower-case.

#### Contained

##### GLAZING

none  
other  
reflective  
non-reflective

##### COATING

none  
other  
matte  
glossy

##### SUPPORT / STRUCTURE / MOUNTING

none  
generic  
particular

##### FRAME

none  
other  
artists frame  
custom-made  
generic / standard

##### ACCEPTABLE CHANGES IN SURFACE

weathering  
color fading  
color / tonal shifts  
patinization

oxidization

### **Installed**

#### SPACE

fine art or museum gallery  
large-scale movie theater  
small-scale viewing room  
other indoor space  
outdoor urban space  
outdoor rural space  
multiple locations

#### BOUNDARY

defined by physical components  
defined by predetermined viewing space  
occupies an entire room  
can be interpenetrated by other works

#### ACCESS

one viewer at a time  
number of viewers determined by artist  
number of viewers determined by space  
no limit  
viewers cannot enter the space

#### LIGHTING

normal museum lighting  
as dark as code allows  
natural light  
specialized lighting

#### SOUND

allow spillover from other works  
isolate acoustically from other works  
specified volume

#### SECURITY

no security required  
requires stanchion  
requires alarm  
requires guard  
requires base  
requires glazing

#### BASE

none  
standard pedestals

one platform for entire work  
custom-made

#### DISTRIBUTION OF ELEMENTS

other  
equidistant in vertical format  
equidistant in horizontal format  
equidistant in grid  
juxtaposed  
face to face  
abutting / touching / contiguous  
scale to fill room or wall  
random distribution

#### DISPLAY EQUIPMENT FOR INERT ELEMENTS

other  
pedestal  
vitrine  
plinth  
display case  
mannequin

#### ARCHITECTURAL PLACEMENT

other  
fixed hanging height  
fixed distance from wall  
viewers walk around the piece  
viewers walk on the piece  
combination  
directly on the floor  
eye level

#### EQUIPMENT VISIBILITY

conceal all  
conceal some  
leave visible

### **Performed**

#### PROPS

disposable  
unique

#### SET

disposable  
unique

COSTUMES  
disposable  
unique

PERFORMERS  
other  
professional actors  
professional musicians  
museum staff  
volunteers  
the artist  
public

NUMBER OF PERFORMERS  
specific number  
set by variable each time  
indeterminate

FORMAT OF INSTRUCTIONS  
other  
digital transcript  
film, video, or animation  
printed transcript  
combination

INSTRUCTIONS APPLIES TO  
other  
combination  
installation  
exhibition format  
deinstallation

DOCUMENTATION OF NEW PERFORMANCES  
combination  
video  
film  
textual  
digital tracking

AUDIENCE LOCATION  
other  
detached from performance  
physically integrated in performance

BOUNDARY  
occupies an entire room  
defined by physical components or performance  
defined by predetermined viewing space

SYNCHRONIZATION OF PERFORMANCE

other

synchronous in one location

synchronous in multiple locations

asynchronous in one location

asynchronous in multiple locations

USER INPUT

other

combination

physical manipulation

sound input

text input

menu driven

video feed

VIEWER INTERACTS WITH

combination

the work

other viewers

performer

MAINTENANCE

replenish daily

replenish weekly

determined by other criteria

**Reproduced**

RELATIONSHIP TO MASTER

other

master

clone

first-generation copy

LOCATION OF MASTER

archived with work's owner

archived in another location

used for exhibition

STATUS OF MASTER

still viable

re-mastered

AUTHORIZED FABRICATORS AND VENDORS

none

specified by artist

gallery

ACCEPTABLE SUBMASTERS OR EXHIBITION COPY

for exhibition  
for research  
for archive  
for public distribution

PERMISSION TO CREATE SUBMASTER

not required  
required from artist or estate  
required from owner of master  
not given

FATE OF EXHIBITION COPY

require borrower to destroy  
require borrower to return  
distribute freely  
other

PERMISSION TO COMPRESS/DIGITIZE

combination  
not given  
for low-resolution distribution  
for high-resolution migration

**Duplicated**

INERT MATERIAL

combination  
construct according to blueprint  
purchase according to instructions  
gathered according to instructions

PHYSICAL ATTRIBUTES OF INERT MATERIAL

specified by artist

AUTHORIZED FABRICATORS AND VENDORS

none  
artist  
gallery

MATERIALS DUPLICATED ACCORDING TO

product brand or maker  
blue print  
instruction

ELECTRONIC EQUIPMENT AND HARDWARE

none

custom-made  
off-the-shelf

#### FATE OF EXHIBITION COPIES

other  
require borrower to return  
required borrower to destroy  
require borrower to disperse

### **Encoded**

#### SCREEN RESOLUTION

640x480  
800x600  
1040x768  
greater than 1040 x 768  
optimum resolution

#### COLOR PALETTE

8-bit or below / 256 websafe  
16-bit / thousands  
32-bit / millions

#### EXTERNAL DATA SOURCE

combination  
audio files  
video files  
fonts

#### FONTS

indexed  
Web safe  
other  
ASCII

#### SOURCE OPENNESS

other  
open to every user  
open to exhibition venue and its staff  
closed

### **Networked**

#### CAN BE EXHIBITED

over live Internet connection  
as stand-alone copy  
broadcast  
combination

cached, with Internet connection active

EXTERNAL DATA SOURCES

text from external site  
images from external site  
dynamic database feed

MINIMUM BANDWIDTH

14.4kbps or lower  
28.8kbps  
56kbps  
1mbps  
other

NETWORK MODEL

client/server  
server-based (thin-client)  
peer-to-peer