

FIMS v1.2

MDCF Capabilities in FIMS

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| 13/01/15 | 0.1 DRAFT | Richard Cartwright, Steve Posick | FIMS architecture council |
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# Introduction

This document proposes the introduction the capability description aspects of the SMPTE ST 2071 Media Device Control Framework to FIMS as the basis for a service information interface. Inspired by developments in non-media specific standards associated to the "Internet of Things", the Media Device Control Framework (MDCF) defines interfaces that assist with service discovery and description. The ability for a FIMS client to be able to determine if a service offers sufficient capabilities, where those capabilities may be changing at runtime depending on context, is an aspect that was left incomplete in FIMS v1.07. However, this facet is considered as an important aspect of future media platforms in activities such as the Joint Taskforce for Networked Media.

This document consists of:

* A proposal for providing service information via the MDCF, to include capability description;
* An initial list of open questions that need to be considered by the FIMS technical team;
* An example, kindly provided by Steve Posick from ESPN.

The *general capability* relation elements and operations of the RCR part of FIMS repository service provide some of this information already.

Note that other aspects of MDCF are currently out of scope of this proposal, including MDCF-defined devices, registries, directories, factories, media and query interfaces. Careful adoption of this proposal should not limit - and will hopefully be beneficial to - future integration of these aspects.

# Proposal

Using the ServiceInformation interface of SMPTE ST 2071-1 to provide at runtime description of a FIMS service. A MDCF Capability will describe each separate capability that a service offers. The proposal is that the service information can be exchanged as the body of a FIMS Service resource that can be included as part of a FIMS Profile.

The XML schema of SMPTE ST 2071-2 provides an XML serialization of MDCF interfaces. These schemas can either be referenced from FIMS schemas or the relevant parts included in FIMS schemas.

Note that MDCF allows a service to offer a number of uniquely identified capabilities where each capability describes a unit of functionality. For the repository service, rather than offering a single capability of the combined function of a repository, the repository service may offer one of a number of capabilities based around its operations, such as:

* Add content;
* Cancel add content;
* Unremove content;
* Generate unqiue ID;
* Purge Content; etc.

## XSD definitions

The following XSD definitions from the MDCF XSDs are relevant to this proposal.

*service* namespace (st2071-2q):

<xs:complexType name="ServiceInformation">

<xs:sequence>

<xs:element ref="identity:USN" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:Type" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:State" minOccurs="1" maxOccurs="1" />

<xs:element ref="identity:URLs" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:Attributes" minOccurs="1" maxOccurs="1" />

<xs:element ref="types:Capabilities" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:ValidTill" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:Created" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:CreatedBy" minOccurs="1" maxOccurs="1" />

</xs:sequence>

</xs:complexType>

<xs:element name="ServiceInformation" type="tns:ServiceInformation" />

<xs:element name="State" type="tns:SERVICE\_STATE" />

<xs:simpleType name="SERVICE\_STATE">

<xs:restriction base="xs:string">

<xs:enumeration value="STARTING" />

<xs:enumeration value="STARTED" />

<xs:enumeration value="STOPPING" />

<xs:enumeration value="STOPPED" />

</xs:restriction>

</xs:simpleType>

*types* name space – which includes capabilities (st2071-2a):

<xs:complexType name="Capabilities">

<xs:sequence>

<xs:element ref="tns:Capability" minOccurs="1" maxOccurs="unbounded" />

</xs:sequence>

</xs:complexType>

<xs:complexType name="Capability">

<xs:sequence>

<xs:element ref="identity:UCN" minOccurs="1" maxOccurs="1" />

<xs:element ref="tns:Attributes" minOccurs="1" maxOccurs="1" />

<xs:element ref="identity:URLs" minOccurs="1" maxOccurs="1" />

</xs:sequence>

</xs:complexType>

<xs:element name="Attributes" type="tns:Map" />

<xs:complexType name="Map">

<xs:sequence>

<xs:element ref="tns:Entries" minOccurs="1" maxOccurs="1" />

</xs:sequence>

</xs:complexType>

<xs:complexType name="Entries">

<xs:sequence>

<xs:element ref="tns:MapEntry" minOccurs="0" maxOccurs="unbounded" />

</xs:sequence>

</xs:complexType>

<xs:element name="Entries" type="tns:Entries" />

<xs:complexType name="MapEntry"> <!-- Updated to fix issue as published. -->

<xs:choice minOccurs="0" maxOccurs="1">

<xs:element ref="tns:Boolean"/>

<xs:element ref="tns:String"/>

<xs:element ref="tns:Integer"/>

<xs:element ref="tns:Float"/>

<xs:element ref="tns:DateTime"/>

<xs:element ref="identity:URI"/>

<xs:element ref="tns:Map"/>

<xs:element ref="tns:Blob"/>

<xs:any namespace="##other" processContents="lax"/>

</xs:choice>

<xs:attribute name="key" type="xs:string" use="required"/>

<xs:anyAttribute namespace="##other" processContents="lax"/>

</xs:complexType>

*identity* namespace (st2071-2b):

<xs:complexType name="URLs">

<xs:sequence>

<xs:element ref="tns:URL" minOccurs="0" maxOccurs="unbounded" />

</xs:sequence>

</xs:complexType>

<xs:simpleType name="URL">

<xs:restriction base="tns:URI"

<xs:pattern value="\c+:.\*"></xs:pattern>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="USN">

<xs:restriction base="tns:RNWithAttributes">

<xs:pattern value="urn:smpte:usn:.\*:type=&quot;?.+&quot;?([;,].\*)?"/>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="UCN">

<xs:restriction base="tns:RN">

<xs:pattern value="urn:smpte:ucn:.\*:([\d\w\+\-\_\p{Zs}]+\_v[0-9]+(\.[0-9]+)\*)?"></xs:pattern>

</xs:restriction>

</xs:simpleType>

# Next steps

## Open Questions

The following is a list of questions that need to be considered as part of including MDCF service information in FIMS. This is not an exhaustive list and you are encouraged to add to it or suggest modifications:

* Is embedding the MDCF service information inside the FIMS service resource the correct approach?
* How does the addition of MDCF service information change the existing RCR interfaces and, in particular, GetGeneralCapbilityRequest/Response?
* Do we need to add new operations based around the FIMS Service resource to allow service information to be retrieved?
* MDCF defines its own identity mechanism for entities, including USNs for service instances and UCNs for capabilities. How do these identity schemes fit with current identities in FIMS? Does the FIMS TC want to register operation names with the SMPTE?
* FIMS specifications are openly accessible whereas MDCF specification and schemas are SMPTE specifications for which access requires a fee. Can we copy the relevant sections of MDCF into FIMS and still maintain open access?
* Is the portioning of operations into capabilities shown in the example the correct approach?

## Tasks

The following tasks need to take place before or as part of including MDCF service information into FIMS:

* Choosing how the XSDs elements of ST 2071-2 are to be included into FIMS, maintaining namespace equivalence wherever possible. Is this as additions to baseMediaSerivce\_v1\_2\_0.xsd or separate XSD file(s)?
* Adding documentation to the definitions so that they are self-describing as per other FIMS documentation. Good descriptions are provided in the SMPTE ST 2071-1 documents – can these be copied over?

# Example

Thanks to Steve Posick from ESPN for putting together this example:

<ServiceInformation xmlns="http://www.smpte-ra.org/schemas/st2071/2014/service"

xmlns:identity="http://www.smpte-ra.org/schemas/st2071/2014/identity"

xmlns:types="http://www.smpte-ra.org/schemas/st2071/2014/types"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.smpte-ra.org/schemas/st2071/2014/service

file:/Users/posicks/work/workspaces/standards/MDCP/src/xml/st2071-2q.xsd">

<identity:USN>urn:smpte:usn:com.bloomberg.ny:type="instance";repository=1</identity:USN>

<Type>

<identity:USN>urn:smpte:usn:org.fims:type="template";Repository</identity:USN>

<Attributes>

<types:Entries>

<types:MapEntry key="version"><types:Float>1.1</types:Float></types:MapEntry>

</types:Entries>

</Attributes>

<types:Capabilities>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1

formatProfileMetadataProcessingType - String enum (mustBeProvided, autoGenerated,

autoGeneratedWhenNotProvided)

supportedSourceLocations - Map(index - integer, Map(name - string, path - URI))

supportedDestinationLocations - Map(index - integer, Map(name - string, path - URI))

supportedCustomEventTemplates - Map(event\_type - string, Map(parameter\_name - Map(type,

minOccurs, maxOccurs, default)))

AutoPurge - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="formatProfileMetadataProcessingType">

<types:String>mustBeProvided</types:String>

</types:MapEntry>

<types:MapEntry key="supportedSourceLocations">

<types:Map>

<types:Entries>

<types:MapEntry key="1">

<types:Map>

<types:Entries>

<types:MapEntry key="name">

<types:String>Source</types:String>

</types:MapEntry>

<types:MapEntry key="path">

<identity:URI>http://bloomberg.com/</identity:URI>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

<types:MapEntry key="supportedDestinationLocations">

<types:Map>

<types:Entries>

<types:MapEntry key="1">

<types:Map>

<types:Entries>

<types:MapEntry key="name">

<types:String>Destination</types:String>

</types:MapEntry>

<types:MapEntry key="path">

<identity:URI>http://bloomberg.com/</identity:URI>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

<types:MapEntry key="supportedCustomEventTemplates">

<types:Map>

<types:Entries>

<types:MapEntry key="event\_type">

<types:String>SomeEvent</types:String>

</types:MapEntry>

<types:MapEntry key="Parameters">

<types:Map>

<types:Entries>

<types:MapEntry key="Parameter">

<types:Map>

<types:Entries>

<types:MapEntry key="type">

<types:String>String</types:String>

</types:MapEntry>

<types:MapEntry key="minOccurs">

<types:Integer>1</types:Integer>

</types:MapEntry>

<types:MapEntry key="maxOccurs">

<types:Integer>1</types:Integer>

</types:MapEntry>

<types:MapEntry key="default">

<types:String>Default</types:String>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

<types:MapEntry key="AutoPurge">

<types:Boolean>true</types:Boolean>

</types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#GenerateUniqueID

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#GenerateUniqueID</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#AddContent

ContentVersioning - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#AddContent</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="ContentVersioning">

<types:Boolean>true</types:Boolean></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#CancelAddContent

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#CancelAddContent</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeContent

maxConcurrentPurgeContentProcessing - integer

maxConcurrentPurgeContentQueued - integer

ContentVersioning - boolean

AutoPurge - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeContent</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="maxConcurrentPurgeContentProcessing">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="maxConcurrentPurgeContentQueued">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="ContentVersioning">

<types:Boolean>true</types:Boolean></types:MapEntry>

<types:MapEntry key="AutoPurge"><types:Boolean>true</types:Boolean></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#CancelPurgeContent

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#CancelPurgeContent</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#RemoveContent

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#RemoveContent</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#UnRemoveContent

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#UnRemoveContent</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#ReplaceContent

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#ReplaceContent</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#CancelReplaceContent

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#CancelReplaceContent</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#GetContent

DirtyRead - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#GetContent</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="DirtyRead"><types:Boolean>true</types:Boolean></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#ContentQuery

QueryResultPaging - boolean

DirtyRead - boolean

CaseSensitiveQuery - boolean

maxQueryResults - integer

maxQueryResultsPerPage - integer

maxQueryOperators - integer

maxQueryParameters - integer

queryTimeout - integer

supportedSystemQueries - string

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#ContentQuery</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry

key="QueryResultPaging"><types:Boolean>true</types:Boolean></types:MapEntry>

<types:MapEntry key="DirtyRead"><types:Boolean>true</types:Boolean></types:MapEntry>

<types:MapEntry

key="CaseSensitiveQuery"><types:Boolean>true</types:Boolean></types:MapEntry>

<types:MapEntry

key="maxQueryResults"><types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry

key="maxQueryResultsPerPage"><types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry

key="maxQueryOperators"><types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry

key="maxQueryParameters"><types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="queryTimeout"><types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="supportedSystemQueries">

<types:String>Query1,Query2</types:String></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#UpdateContentProperties

ContentVersioning - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#UpdateContentProperties</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry

key="ContentVersioning"><types:Boolean>true</types:Boolean></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#AddEssencePlaceholder

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#AddEssencePlaceholder</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#AddEssence

maxConcurrentAddEssenceProcessing - integer

maxConcurrentAddEssenceQueued - integer

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#AddEssence</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="maxConcurrentAddEssenceProcessing">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="maxConcurrentAddEssenceQueued">

<types:Integer>10</types:Integer></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#CancelAddEssence

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#CancelAddEssence</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeEssence

maxConcurrentPurgeEssenceProcessing - integer

maxConcurrentPurgeEssenceQueued - integer

AutoPurge - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeEssence</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="maxConcurrentPurgeEssenceProcessing">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="maxConcurrentPurgeEssenceQueued">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="AutoPurge"><types:Boolean>true</types:Boolean></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#CancelPurgeEssence

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#CancelPurgeEssence</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#RetrieveEssence

maxConcurrentRetrieveEssenceProcessing - integer

maxConcurrentRetrieveEssenceQueued - integer

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#RetrieveEssence</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="maxConcurrentRetrieveEssenceProcessing">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="maxConcurrentRetrieveEssenceQueued">

<types:Integer>10</types:Integer></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#CancelRetrieveEssence

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#CancelRetrieveEssence</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#RemoveEssence

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#RemoveEssence</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#UnRemoveEssence

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#UnRemoveEssence</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeEssence

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeEssence</identity:UCN>

<types:Attributes>

<types:Entries/>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#Locking

CascadingLocks - boolean

lockExpiration - time

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1#Locking</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="CascadingLocks">

<types:Boolean>true</types:Boolean></types:MapEntry>

<types:MapEntry key="lockExpiration">

<types:Time>01:00:00</types:Time></types:MapEntry>

</types:Entries>

</types:Attributes>

<identity:URLs/>

</types:Capability>

<!-- TODO

urn:smpte:ucn:org.fims:Repository\_v1.1#EventsAndNotifications

eventListenerEndpoint - rps:EventListenerEndpointType

supportedEventTypes - bms:EventSubType

-->

</types:Capabilities>

</Type>

<State>STARTED</State>

<identity:URLs>

<identity:URL>mdcp://some.server.bloomberg.com:8080/Repository</identity:URL>

<identity:URL>fims\_rest://some.server.bloomberg.com:8080/Repository</identity:URL>

</identity:URLs>

<Attributes>

<types:Entries>

<types:MapEntry key="location"><types:String>New York</types:String></types:MapEntry>

<types:MapEntry key="sub\_map">

<types:Map>

<types:Entries>

<types:MapEntry key="map\_value"><types:String>Value</types:String></types:MapEntry>

<types:MapEntry key="sub\_sub\_map">

<types:Map>

<types:Entries>

<types:MapEntry key="map\_value">

<types:String>Value</types:String></types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</Attributes>

<types:Capabilities>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1

formatProfileMetadataProcessingType - String enum (mustBeProvided, autoGenerated,

autoGeneratedWhenNotProvided)

supportedSourceLocations - Map(index - integer, Map(name - string, path - URI))

supportedDestinationLocations - Map(index - integer, Map(name - string, path - URI))

supportedCustomEventTemplates - Map(event\_type - string, Map(parameter\_name - Map(type,

minOccurs, maxOccurs, default)))

AutoPurge - boolean

-->

<types:Capability>

<identity:UCN>urn:smpte:ucn:org.fims:Repository\_v1.1</identity:UCN>

<types:Attributes>

<types:Entries>

<types:MapEntry key="formatProfileMetadataProcessingType">

<types:String>mustBeProvided</types:String>

</types:MapEntry>

<types:MapEntry key="supportedSourceLocations">

<types:Map>

<types:Entries>

<types:MapEntry key="1">

<types:Map>

<types:Entries>

<types:MapEntry key="name">

<types:String>Source</types:String>

</types:MapEntry>

<types:MapEntry key="path">

<identity:URI>http://bloomberg.com/</identity:URI>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

</types:Entries>

</types:Map>

</types:MapEntry>

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<types:Map>

<types:Entries>

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</types:Entries>

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</types:MapEntry>

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<types:Integer>1</types:Integer>

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<types:String>Default</types:String>

</types:MapEntry>

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urn:smpte:ucn:org.fims:Repository\_v1.1#GenerateUniqueID

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urn:smpte:ucn:org.fims:Repository\_v1.1#AddContent

ContentVersioning - boolean

-->

<types:Capability>

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urn:smpte:ucn:org.fims:Repository\_v1.1#CancelAddContent

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<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeContent

maxConcurrentPurgeContentProcessing - integer

maxConcurrentPurgeContentQueued - integer

ContentVersioning - boolean

AutoPurge - boolean

-->

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<types:MapEntry key="maxConcurrentPurgeContentQueued">

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<types:MapEntry key="ContentVersioning">

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<types:MapEntry key="AutoPurge"><types:Boolean>true</types:Boolean></types:MapEntry>

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urn:smpte:ucn:org.fims:Repository\_v1.1#CancelPurgeContent

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urn:smpte:ucn:org.fims:Repository\_v1.1#RemoveContent

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urn:smpte:ucn:org.fims:Repository\_v1.1#GetContent

DirtyRead - boolean

-->

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</types:Capability>

<!--

urn:smpte:ucn:org.fims:Repository\_v1.1#ContentQuery

QueryResultPaging - boolean

DirtyRead - boolean

CaseSensitiveQuery - boolean

maxQueryResults - integer

maxQueryResultsPerPage - integer

maxQueryOperators - integer

maxQueryParameters - integer

queryTimeout - integer

supportedSystemQueries - string

-->

<types:Capability>

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<types:MapEntry key="DirtyRead">

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<types:MapEntry key="CaseSensitiveQuery">

<types:Boolean>true</types:Boolean></types:MapEntry>

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<types:MapEntry key="maxQueryResultsPerPage">

<types:Integer>10</types:Integer></types:MapEntry>

<types:MapEntry key="maxQueryOperators">

<types:Integer>10</types:Integer></types:MapEntry>

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urn:smpte:ucn:org.fims:Repository\_v1.1#UpdateContentProperties

ContentVersioning - boolean

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urn:smpte:ucn:org.fims:Repository\_v1.1#AddEssencePlaceholder

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urn:smpte:ucn:org.fims:Repository\_v1.1#AddEssence

maxConcurrentAddEssenceProcessing - integer

maxConcurrentAddEssenceQueued - integer

-->

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urn:smpte:ucn:org.fims:Repository\_v1.1#CancelAddEssence

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urn:smpte:ucn:org.fims:Repository\_v1.1#PurgeEssence

maxConcurrentPurgeEssenceProcessing - integer

maxConcurrentPurgeEssenceQueued - integer

AutoPurge - boolean

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<identity:URLs/>

</types:Capability>

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urn:smpte:ucn:org.fims:Repository\_v1.1#RetrieveEssence

maxConcurrentRetrieveEssenceProcessing - integer

maxConcurrentRetrieveEssenceQueued - integer

-->

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urn:smpte:ucn:org.fims:Repository\_v1.1#Locking

CascadingLocks - boolean

lockExpiration - time

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urn:smpte:ucn:org.fims:Repository\_v1.1#EventsAndNotifications

eventListenerEndpoint - rps:EventListenerEndpointType

supportedEventTypes - bms:EventSubType

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