



NextGRID Naming Profile V1.0

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1 Introduction

This document defines the NextGRID Naming Profile 1.0 (hereafter, "this Profile"), consisting of a set of de facto, institutional or evolving institutional Web services specifications, along with clarifications, refinements, interpretations and amplifications of those specifications that promote interoperability among implementations of those specifications.

Section 1 introduces the Profile, and explains its relationships to other profiles.

Section 2, "Profile Conformance," explains what it means to be conformant to this Profile.

Each subsequent section addresses a component of the Profile, and consists of two parts: an overview detailing the component specifications and their extensibility points, followed by subsections that address individual parts of the component specifications. Note that there is no relationship between the section numbers in this document and those in the referenced specifications.

The NextGRID Generalized Specifications aim at capturing NextGRID architectural concepts in a set of composable profiles. These profiles are specified in such a way that they could be implemented in terms of other well known specifications. While overall consistency is achieved at the conceptual level, and captured through the motivating use cases accompanying each specification, the implementation in terms of other specifications may not be consistent between different profiles. Thus each profile defines an implementable realisation of the underlying concept, but implementers of the full NextGRID architecture may need to support multiple competing underlying specifications.

1.1 Profile Overview

This Profile is intended for use when implementing naming services that are in line with the concepts of NextGRID [1]. It mandates the adherence to a certain set of specifications and clarifies their use. A service implementation that uses those specifications in a manner conformant with this Profile may be said to be an "implementation of the NextGRID Naming Profile 1.0" or, informally, to be a "NextGRID Naming Service."

The primary issues addressed in this Profile are as follows:

- Use of End Point Identifiers in addresses
- Use of Resolvers in addresses
- Resolution of an End Point Identifier
- Resolution of a Renewable Reference
- Creation of End Point Identifiers
- Registering End Point Identifiers
- Registering Human-Oriented Names

Other profiles referred to in this Profile are:

- *NextGRID Basic Profile*. This Profile mandates the use of aspects of the NextGRID Basic Profile [2], in particular those relating to Addressing & Endpoint References.
- *NextGRID Registry Profile*. This Profile mandates the use of aspects of the NextGRID Registry Profile [3].
- *NextGRID Security Profile*. This Profile mandates the use of aspects of the NextGRID Security Profile [4].
- *WS-Naming*. This Profile mandates the use of aspects of the WS-Naming specification [5].
- *Resource Namespace Service*. This Profile mandates the use of aspects of the RNS specification [6].

1.2 Relationships to Other Profiles

This Profile extends the NextGRID Basic Profile Version 1.0 [2] and the NextGRID Registry Profile Version 1.0 [3].

This Profile also mandates composition with the WS-Naming specification [5].

1.3 Relationship to Use Cases

This Profile represents a mapping from the use cases described in the NextGRID Naming & Addressing Use Cases document [7] to the Web Services Resource Framework (WSRF) technology [8]. NextGRID Naming implementations need to adhere to the WS-Naming specification [5] as well as the other specifications and profiles listed in Section 1.1. Particular modifications of those specifications and profiles as well as requirements on implementations are described in this Profile.

1.4 Notational Conventions

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC2119 [9].

Normative statements of requirements in the Profile are presented in the manner detailed in the WS-I Basic Profile 1.1 Conformance Requirements section [10].

Both requirement statements and extensibility statements can be considered namespace-qualified. This specification uses a number of namespace prefixes throughout; their associated URIs are listed below. Note that the choice of any namespace prefix is arbitrary and not semantically significant.

Table 1 Namespaces used by NextGRID Naming Profile 1.0

Prefix	Namespace
wsdl	http://schemas.xmlsoap.org/wsdl
xsd	http://www.w3.org/2001/XMLSchema

wsa	http://www.w3.org/2005/08/addressing
wsrf-sg	http://docs.oasis-open.org/wsrf/sg-2
wsrf-sgw	http://docs.oasis-open.org/wsrf/sgw-2
rns	http://schemas.ogf.org/rns/2006/09/rns
naming	http://schemas.ogf.org/naming/2006/08/naming
ng-naming	http://www.nextgrid.org/namingprofile/v-1

1.5 Profile Identification and Versioning

Profile identification and versioning uses the style described in WS-I Basic Profile 1.1 [10] and abides by the normative descriptions contained therein. The name of this Profile is “NextGRID Naming Profile” and version number is “1.0.”

2 Profile Conformance

Conformance to the Profile is defined normatively in WS-I Basic Profile 1.1 [10]. This Profile abides by those definitions.

2.1 Conformance Targets

Since this Profile is an extension of the WS-I Basic Profile 1.1 [10] and the OGSA WSRF Basic profile [8] it may place further restrictions on conformance targets defined therein.

The following conformance targets are used in this Profile:

- **ENDPOINTREFERENCE** – the serialization of the `wsa:EndpointReference` element and its content, (from OGSA WSRF Basic Profile).
- **INSTANCE** – software that implements a `wsdl:port` (from WS-I Basic Profile 1.1, without “bindingTemplate” from the namespace `urn:uddi-org:api_v2`).
- **CONSUMER** – software that invokes an **INSTANCE** (from WS-I Basic Profile 1.1).
- **SENDER** – software that generates a particular message according to the protocol(s) associated with that message (from WS-I Basic Profile 1.1).
- **RECEIVER** – software that consumes a message according to the protocol(s) associated with that message (e.g., SOAP processors) (from WS-I Basic Profile 1.1).

2.2 Claiming Conformance

Claims of conformance to the Profile and the attachments mechanisms are the same as normatively described in WS-I Basic Profile 1.1.

The conformance claim URI for this Profile is <http://www.nextgrid.org/namingprofile/v-1>.

3 WS-Naming Profile

This section of the Profile incorporates the following specification (or sections thereof) by reference:

- WS-Naming specification [5].

3.1 Endpoint Identifiers

The WS-Naming Profile (Section 4.1) recommends the inclusion within the Endpoint Reference a WS-Naming Endpoint Identifier. This Profile recommends compliance with this requirement:

R0311 *INSTANCES conforming to the NextGRID Naming Profile MAY conform to the WS-Naming Endpoint Identifier definition detailed in WS-Naming Profile, section 4.1.*

In particular, section 4.1 of the WS-Naming Profile states:

“INSTANCES conforming to WS-Naming MAY conform to the Endpoint Identifier Profile.”

“Endpoint Identifiers conforming to the Endpoint Identifier Profile MUST uniquely identify the same endpoint in both space and time.”

“Endpoint Identifiers conforming to the Endpoint Identifier Profile MUST conform to IRI syntax [RFC 3987].”

“For two equal EndpointIdentifiers (as defined by RFC 3987), a client MAY assume that the two EndpointIdentifiers refer to the same endpoint.”

The WS-Naming Profile (Section 4.2) also recommends the use of the WS-Naming “Endpoint Identifier Profile”. This Profile recommends compliance with this requirement:

R0312 *INSTANCES conforming to the NextGRID Naming Profile MAY conform to the WS-Naming Endpoint Identifier Profile, Section 4.2.*

In particular, section 4.2 of the WS-Naming Profile states:

“A SENDER MAY include an EndpointIdentifier element in the SOAP header information for an outgoing message request.”

“The RECIEVER MUST NOT depend on the presence of an EndpointIdentifier [element] to conform to the Unambiguous Web Service Endpoint Profile.”

“If one or more EndpointIdentifiers are included in an ENDPOINTREFERENCE, the ENDPOINTREFERENCE MUST contain the EndpointIdentifiers within the wsa:Metadata element.”

The following shows an example of how an Endpoint Identifier would appear in an Endpoint Reference.

```
<wsa:EndpointReference
  xmlns:wsa="http://www.w3.org/2005/03/addressing"
  xmlns:naming="http://schemas.ogf.org/naming/2006/08/naming">
  <wsa:Address>http://tempuri.org/example</wsa:Address>
  <wsa:Metadata>
    <naming:EndpointIdentifier>urn:guid:AD9C-39DFB8B54388</naming:EndpointIdentifier>
  </wsa:Metadata>
</wsa:EndpointReference>
```

3.2 Resolvers

The WS-Naming Profile (Section 5.2, “Including Resolver EPRs in Application EPRs”) details how endpoint resolvers can be added to an EPR. The process for adding a Resolver EPR to an Application EPR is the same as adding an EndpointIdentifier. The NextGRID Naming Profile recommends including endpoint resolvers in Application EPRs.

R0321 *INSTANCES conforming to the NextGRID Naming Profile SHOULD include two new elements, `naming:EndpointIdentifierResolver` and `naming:ReferenceResolver`, added to the `wsa:Metadata` element of an Application EPR as defined in the WS-Naming Profile, section 5.2.*

Note that the `EndpointIdentifierResolver` and `ReferenceResolver` elements are themselves Endpoint Reference Types and can be as arbitrarily simple or as complex as desired (as shown in the example below), and may themselves contain `EndpointIdentifier`, `EndpointIdentifierResolver` and `ReferenceResolver` elements.

```
<wsa:EndpointReference ...

  <wsa:Metadata>
    ...
    <naming:ReferenceResolver>
      <wsa:Address>http://tempuri.org/resolver1</wsa:Address>
    </naming:ReferenceResolver>
    <naming:EndpointIdentifierResolver>
      <wsa:Address>http://tempuri.org/resolver2</wsa:Address>
    </naming:EndpointIdentifierResolver>
    <naming:EndpointIdentifierResolver>
      <wsa:Address>http://tempuri.org/resolver3</wsa:Address>
    </naming:EndpointIdentifierResolver>
  </wsa:Metadata>
  <naming:EndpointIdentifier>urn:guid:9DCE-4E557AA </naming:EndpointIdentifier>
  <naming:ReferenceResolver>
```

```

        <wsa:Address>http://tempuri.org/resolver4</wsa:Address>
      </naming:ReferenceResolver>
    </wsa:Metadata>
  </naming:EndpointIdentifierResolver>
</wsa:Metadata>
</wsa:EndpointReference>

```

3.3 Name Resolution

3.3.1 Resolution of an EPI

The WS-Naming Profile (Section 5.1.1, “Resolution Port Type :: ResolveEPI”) gives details of the ResolveEPI message that is sent to the resolution portType when a client wishes to resolve a given EPI to a communicable endpoint. This Profile mandates compliance with this message format:

R0331 Resolver INSTANCES conforming to the NextGRID Naming Profile MUST conform to the WS-Naming ResolveEPI port type detailed in the WS-Naming Profile, Section 5.1.1.

In particular, Section 5.1.1 of the WS-Naming Profile states:

“When the ResolveEPI message is sent to the resolution portType the INSTANCE MUST respond with a naming:ResolveResponse message or naming:ResolveFailedFault (or subtype thereof) fault message.”

“The resolver INSTANCE MAY respond with an EPR that is no longer valid. It is up to the client to determine whether or not the EPR returned is still valid.”

The format of the ResolveEPI message is:

```

...
<naming:ResolveEPI>
  <naming:endpoint-identifier>xsd:anyURI</naming:endpoint-identifier>
</naming:ResolveEPI>
...

```

The naming:ResolveResponse message received in response to the ResolveEPI message is a message of the following form:

```

...
<naming:ResolveResponse>
  <naming:resolved-epr>wsa:EndpointReferenceType</naming:resolved-epr>
</naming:ResolveResponse >
...

```

3.3.2 Resolution of a Renewable Reference

The WS-Naming Profile (Section 5.1.2, “Resolution Port Type :: Resolve”) gives details of the Resolve message that is sent to the resolution portType when a client wishes to obtain a new EPR to an Application endpoint using the renewable reference provided in the original Application EPR. This Profile mandates compliance with this message format:

R0332 Resolver INSTANCES conforming to the NextGRID Naming Profile MUST conform to the WS-Naming Resolve port type detailed in the WS-Naming Profile, Section 5.1.2.

In particular, Section 5.1.1 of the WS-Naming Profile states:

“When the Resolve message is sent to the resolution portType the INSTANCE MUST respond with a naming:ResolveResponse message or naming:ResolveFailedFault (or subtype thereof) fault message.”

“The resolver INSTANCE MAY respond with an EPR that is no longer valid. It is up to the client to determine whether or not the EPR returned is still valid.”

The format of the Resolve message is:

```
...
<naming:Resolve/>
...
```

The naming:ResolveResponse message received in response to the Resolve message is a message of the following form:

```
...
<naming:ResolveResponse>
  <naming:resolved-epr>wsa:EndpointReferenceType</naming:resolved-epr>
</naming:ResolveResponse >
...
```

3.3.3 Fault Types for ResolveEPI and Resolve operations

With respect to WS-Naming Section 5.1.3, “Fault Types”, this Profile mandates that the following fault MUST be supported by both the ResolveEPI and Resolve operations.

R0333 Resolver INSTANCES conforming to the NextGRID Naming Profile MUST conform to the WS-Naming Fault Types detailed in the WS-Naming Profile, Section 5.1.3.

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In particular, Section 5.1.3 of the WS-Naming Profile states:

“The naming:ResolveFailedFault (or subtype thereof) MUST be returned when a resolver INSTANCE cannot provide a resolution to the resolution request.”

The format of this fault message is:

```
...  
<naming:ResolveFailedFault/>  
...
```

Section 5.1.3 of the WS-Naming Profile also recommends that the following fault MAY be supported by both the ResolveEPI and Resolve operations.

“The naming:ResolveFailedWithReferralFault MAY be returned by both the ResolveEPI and Resolve operations, as an extension of the naming:ResolveFailedFault, when a resolver INSTANCE cannot provide a resolution to the resolution request.”

The format of this fault message is:

```
...  
<naming:ResolveFailedWithReferralFault>  
  <naming:referral-epr> wsa:EndpointReferenceType </naming:referral-epr>  
</naming:ResolveFailedWithReferralFault>  
...
```

4 Name Creation

From the “Creating a Naming Authority” use case and the getting a unique name step of the second use case [7], the Name Generator component will need to have the following interfaces:

- CreateEPI ([URI]):**EndpointIdentifier**: IRI throws CreateFailedFault
- VerifyEPI (EndpointIdentifier: IRI):**Boolean** throws VerifyFailedFault

4.1 PortType :: CreateEPI

The CreateEPI message is sent to the name generation portType when a client wishes to create an Endpoint Identifier.

The format of the CreateEPI message is:

```
...
<ng-naming:CreateEPI>
  <ng-naming:naming-scheme>xsd:anyURI</ ng-naming:naming-scheme> ?
</ng-naming:CreateEPI>
...
```

The components of the CreateEPI message are further described as follows:

/ng-naming: naming-scheme

An optional URI that identifies the naming scheme that may be used in the creation of the EPI.

The ng-naming:CreateResponse message received in response to the CreateEPI message is a message of the following form:

```
...
<ng-naming:CreateResponse>
  <ng-naming:new-epi> xsd:anyURI </ng-naming:new-epi>
</ng-naming:CreateResponse >
...
```

The components of the CreateResponse message are further described as follows:

/ng-naming: new-epi

An Endpoint Identifier (in the form of an IRI - defined by RFC 3987) created by the name generation INSTANCE.

If for any reason the name generator cannot create a new Endpoint Identifier then that INSTANCE MUST throw a ng-naming:CreateFailedFault.

The format of the fault message is:

```
...
<ng-naming:CreateFailedFault/>
...
```

This Profile mandates compliance with the createEPI message format:

R0411 Name Generation INSTANCES conforming to the NextGRID Naming Profile MUST respond to the `ng-naming:CreateEPI` message with a `ng-naming:CreateResponse` message or a `ng-naming:CreateFailedFault` (or subtype thereof) fault message.

4.2 PortType :: VerifyEPI

The VerifyEPI message is sent to the name generation portType when a client wishes to verify whether an Endpoint Identifier is unique or has been generated already by the name generator.

The format of the VerifyEPI message is:

```
...
<ng-naming:VerifyEPI>
  <ng-naming:endpoint-identifier> xsd:anyURI </ng-naming: endpoint-identifier>
</ng-naming:VerifyEPI>
...
```

The components of the VerifyEPI message are further described as follows:

`/ng-naming: endpoint-identifier`

The Endpoint Identifier (of type IRI) that is to be checked for uniqueness by the name generator.

The `ng-naming:VerifyResponse` message received in response to the VerifyEPI message is a message of the following form:

```
...
<ng-naming:VerifyResponse>
  <ng-naming:is-unique> xsd:boolean </ng-naming:is-unique>
</ng-naming:VerifyResponse >
...
```

The components of the VerifyResponse message are further described as follows:

`/ng-naming: is-unique`

A Boolean indicating that, when true, the supplied Endpoint Identifier was found to be unique by the name generation INSTANCE.

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If for any reason the name generator cannot verify an Endpoint Identifier then that INSTANCE MUST throw a `ng-naming:VerifyFailedFault`.

The format of the fault message is:

```
...  
<ng-naming:VerifyFailedFault/>  
...
```

This Profile mandates compliance with the `VerifyEPI` message format:

R0421 *Name Generation INSTANCES conforming to the NextGRID Naming Profile MUST respond to the `ng-naming:VerifyEPI` message with a `ng-naming:VerifyResponse` message or a `ng-naming:VerifyFailedFault` (or subtype thereof) fault message.*

5 NextGRID Registry Profile

This section of the Profile incorporates the following specification (or sections thereof) by reference:

- NextGRID Registry Profile 1.0 [3].

The storing, updating and deleting of NextGRID names in a registry shall follow the format specified in the NextGRID Registry Profile.

- Add: NextGRID Registry Profile “register” message exchange.
- Delete: NextGRID Registry Profile “remove” message exchange.
- Update: NextGRID Registry Profile “update” message exchange.

5.1 Registering End Point Identifiers

Each registration of a named entity (e.g. service, resource, etc.) is modelled as a ServiceGroupEntry WS-Resource of the Naming Registry. The contact point is modelled as a WS-Addressing Endpoint Reference (EPR) and is stored in the MemberEPR resource property of the registration’s service group entry. Where an End Point Identifier is associated with a named entity, then that End Point Identifier must be stored in the MemberEPI resource property (within the sg:Content resource property) of the registration’s service group entry.

R0511 *A NextGRID Naming Registry INSTANCE MUST support Service Group Registration as defined in the NextGRID Registry Profile, section 5.1 “Service Group Registration”.*

R0512 *A NextGRID Naming Registry wsrf-sgw:ServiceGroupEntry INSTANCE MAY support the ng-naming:MemberEPI WS-ResourceProperty within the wsrf-sg:Content WS-ResourceProperty.*

R0513 *Where a NextGRID Naming Registry INSTANCE is storing End Point Identifiers each EPI MUST be stored in the ng-naming:MemberEPI WS-ResourceProperty.*

I.e. an EPI stored as an entry in a NextGRID Naming Registry has the following form:

```
<wsrf-sg:Entry>
  <wsrf-sg:ServiceGroupEntryEPR>
    wsa:EndpointReferenceType
  </wsrf-sg:ServiceGroupEntryEPR>
  <wsrf-sg:MemberServiceEPR>
    wsa:EndpointReferenceType
  </wsrf-sg:MemberServiceEPR>
  <wsrf-sg:Content>
    <ng-naming:MemberEPI>xsd:anyURI</ng-naming:MemberEPI>
    {any}
  </wsrf-sg:Content>
</wsrf-sg:Entry>
```

```
</wsrf-sg:Content> ?
</wsrf-sg:Entry>
```

Note that the EPR of the NextGRID Naming Registry can then be used within the `< naming:EndpointIdentifierResolver >` element of the entity's EPR if an explicit EPI resolution service is to be provided.

5.2 Registering Renewable References

Registration of a Renewable Reference is modelled as a ServiceGroupEntry WS-Resource of the Naming Registry in a similar manner to registering EPIs. The contact point is again modelled as a WS-Addressing Endpoint Reference (EPR) and is stored in the MemberEPR resource property of the registration's service group entry. But in this case there is no End Point Identifier associated with the named entity, so the MemberEPI resource property (within the Content resource property) of the registration's service group entry is not necessary.

Hence there are no additional requirements beyond those specified previously in Section 5.1 above.

I.e. a Renewable Reference stored as an entry in a NextGRID Naming Registry has the following form:

```
<wsrf-sg:Entry>
  <wsrf-sg:ServiceGroupEntryEPR>
    wsa:EndpointReferenceType
  </wsrf-sg:ServiceGroupEntryEPR>
  <wsrf-sg:MemberServiceEPR>
    wsa:EndpointReferenceType
  </wsrf-sg:MemberServiceEPR>
  <wsrf-sg:Content>
    {any}
  </wsrf-sg:Content> ?
</wsrf-sg:Entry>
```

Here the entry's `wsrf-sg:ServiceGroupEntryEPR` can be used within the `< naming:ReferenceResolver >` element of the entity's EPR if an explicit renewable reference resolution service is to be provided.

5.3 Deleting Names

Removing registered End Point Identifiers and Renewable References from a NextGRID Naming Registry must follow the immediate resource termination message format detailed in the NextGRID Registry Profile. A NextGRID Naming Registry may also wish to support scheduled resource termination, but this may not be applicable for many naming registries where the persistence of names is a key requirement.

R0531 *A NextGRID Naming Registry INSTANCE MUST support Immediate Resource Termination as defined in the NextGRID Registry Profile, Section 6.1 “Immediate Resource Termination”.*

R0532 *A NextGRID Naming Registry INSTANCE SHOULD support Scheduled Resource Termination as defined in the NextGRID Registry Profile, Section 6.2 “Scheduled Resource Termination”.*

5.4 Updating Names

Updating registered End Point Identifiers and Renewable References from a NextGRID Naming Registry must follow the updating of resource properties message format detailed in the NextGRID Registry Profile.

R0541 *A NextGRID Naming Registry INSTANCE MUST support the Update of Resource Properties as defined in the NextGRID Registry Profile, Section 4 “WS-ResourceProperties”.*



6 NextGRID Basic Profile

This section of the Profile incorporates the following specification (or sections thereof) by reference:

- NextGRID Basic Profile 1.0 [2].

The listing (i.e. querying) of End Point Identifiers and Renewable References in a NextGRID Naming Registry must follow the format specified in the NextGRID Basic Profile.

- Lookup: NextGRID Basic Profile “query” message exchange.

6.1 Listing Names

A NextGRID Naming Registry should provide a lookup facility in addition to the name resolution operations.

R0611 *A NextGRID Naming Registry INSTANCE SHOULD support Query Resource Properties message exchange pattern as defined in the NextGRID Basic Profile, section 3.2 “Resource Properties”.*

In particular, the NextGRID Basic Profile states:

“An INSTANCE MAY publish and implement the Query Resource Properties message exchange pattern as defined in OGSA WSRF Basic Profile 1.0, Section 4.3 “Query Resource Properties”.”

Note that this Profile recommends the query operation as an optional requirement, and does not mandate it as defined in the NextGRID Registry Profile.

7 Resource Namespace Service (RNS)

This section of the Profile incorporates the following specification (or sections thereof) by reference:

- Resource Namespace Service (RNS) [6].

The RNS specification describes how to access resources within a Grid by way of a universal name that ultimately resolves to a meaningful address. It places a particular emphasis on the concept of hierarchically managed names that may be used in human interface applications and enables the construction of a uniform, global, hierarchical namespace.

A Resource Namespace Service functions as a Web Services registry that provides name-to-resource (i.e. name-to-EPR) mapping.

The RNS port type has the operations:

- **add** (string: entry_name, EndpointReferenceType: entry_reference)
- **list** (string: entry_name_regexp)
- **move** (EndpointReferenceType: parent, string: entry_name)
- **query** ()
- **remove** (string: entry_name_regexp)

7.1 Registering Human-Oriented Names

A NextGRID RNS Registry MUST provide a method for adding new human-oriented names.

R0711 A NextGRID RNS Registry INSTANCE MUST support the “add” operation as defined in the RNS specification, Section 1.3.1.1 “add”.

The add request message has the following form:

```
<rns:add>
  <rns:entry_name> xsd:string </rns:entry_name>
  {any}*
  <rns:entry_reference>
    wsa:EndpointReferenceType
  </rns:entry_reference>
</rns:add>
```

If the request message is successful then the response contains the EPR of the newly added namespace entry.

Note that if the `rns:entry_reference` in the request message is blank then a *virtual directory* is created. If an EPR, representing the resource that the name is mapping to, is included then this entry is referred to as a *junction*.

Targeting a (sub-)directory within the hierarchical namespace is done by sending an add request message to the EPR of the virtual directory namespace entry.

7.2 Listing Human-Oriented Names

A NextGRID RNS Registry MUST provide a method for listing human-oriented names.

R0721 A NextGRID RNS Registry INSTANCE MUST support the “list” operation as defined in the RNS specification, Section 1.3.1.2 “list”.

The list request message has the following form:

```
<rns:list>
  <rns:entry_name_regexp> xsd:string </rns:entry_name_regexp>
</rns:list>
```

If the request message is successful then the response contains all of the entry names and any associated EPRs for the targeted directory. A subset of entries may be returned when a regular expression pattern is used to identify the entries to be included in the subset.

7.3 Moving Human-Oriented Names

A NextGRID RNS Registry MUST provide a method for moving human-oriented names.

R0731 A NextGRID RNS Registry INSTANCE MUST support the “move” operation as defined in the RNS specification, Section 1.3.1.3 “move”.

The move request message has the following form:

```
<rns:move>
  <rns:entry_parent>
    wsa:EndpointReferenceType
  </rns:entry_parent>
  <rns:entry_name> xsd:string </rns:entry_name>
</rns:move>
```

This operation is used to move or rename an existing entry, which may be a virtual directory or a namespace junction. The parameters used in this operation reflect destination values for the targeted entry.

If the request message is successful then the response contains the EPR of the newly moved/rename namespace entry.

7.4 Querying Human-Oriented Names

A NextGRID RNS Registry MUST provide a method for querying the properties of human-oriented names.

R0741 A NextGRID RNS Registry INSTANCE MUST support the “query” operation as defined in the RNS specification, Section 1.3.1.4 “query”.

The query request message has the following form:

```
<rns:query/>
```

This operation is used to query, or get the properties of, an existing name-to-resource mapping. This operation simply returns all of the registered properties associated with a namespace entry including an endpoint reference to the parent directory entry.

There are no argument elements specified by this operation.

7.5 Deleting Human-Oriented Names

A NextGRID RNS Registry MUST provide a method for removing human-oriented names from the registry.

R0751 A NextGRID RNS Registry INSTANCE MUST support the “remove” operation as defined in the RNS specification, Section 1.3.1.5 “remove”.

The remove request message has the following form:

```
<rns:remove>  
  <rns:entry_name> xsd:string </rns:entry_name>  
</rns:remove>
```

This operation is used to remove, or “unlink”, an existing name-to-resource mapping.



8 Other Considerations

8.1 Addressing

This profile makes no additional requirements on addressing and the use of End Point References (EPRs) that are not already detailed in the NextGRID Basic Profile 1.0 [2]. Therefore, the NextGRID Naming Profile mandates conforming to the addressing requirements detailed in the NextGRID Basic Profile (Section 3 “Addressing”).

8.2 Security

There are many security considerations in naming and addressing, and in the creation and resolution of names. The NextGRID Naming Profile mandates conforming to the security requirements detailed in the NextGRID Basic Profile 1.0 [2] (Sections 4 & 5), and recommends conforming to those given in the NextGRID Security Profile 1.0 [4]. It should be made clear that both the Basic Profile and Security Profile are addressing specific security issues, which are only a subset of the security problems regarding naming and addressing, e.g. the following points should also be addressed.

- Existing NextGRID security profiling does not address naming constraint policies.
- The WS-Addressing recommendations concerning secure use, are not covered by any of this profile.

9 References

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