



**MedBiquitous
Healthcare Professional Profile Implementation
Guidelines**

Version 1.0

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MedBiquitous Professional Profile Working Group**

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Healthcare Professional Profile Implementation Guidelines

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2. Overview

The exchange of data about healthcare professionals is essential to protecting public safety and enabling the practice and education of healthcare professionals. Yet often the organizations that collect and maintain data about healthcare professionals have difficulty in integrating data from multiple sources effectively and efficiently. Standards are essential to facilitate data integration and credentialing.

The Healthcare Professional Profile technology standard allows data collectors to keep their data up-to-date more quickly and effectively. The XML format can also be used for credentialing Web services, potentially aggregating data from several umbrella organizations. The standard allows licensing boards, certifying boards, education certifiers, and research databases to use a common language for data exchange within their own domains and with one another.

This implementation guide provides general guidance for common implementations of the Healthcare Professional Profile version 1.0. Specific adaptations for your environment may be necessary.

3. General Guidelines for Exchanging Profile Data

The Healthcare Professional Profile can be used independently or as part of a larger data exchange process. Some general guidelines on the steps to take in exchanging profile data follow.

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3.1 Determine Approach for Identifying Individuals

In some cases there are unique identifiers for an individual that are widely accepted across a particular domain for profession. For example, the US Center for Medicare and Medicaid Services (CMS) uses a National Provider Identifier (NPI) for administrative and financial transactions related to covered healthcare providers. The NPI is a 10-position, intelligence-free numeric identifier (10-digit number).

The Association of American Medical Colleges (AAMC) has a unique identifier for all medical students, medical faculty and all physicians in the US. The following example shows how the UniqueID element would be used to identify an individual using their AAMC id.

```
<UniqueID domain="AAMC">21556222</UniqueID>
```

Certified surgeons in the US have a unique identifier form the American Board of Surgery.

```
<UniqueID domain="ABS">888880</UniqueID>
```

In US nursing organization, the state license number may be used to identify nurses. The following example shows a license number obtained from the California Board of Registered Nursing.

```
<UniqueID domain="California Board of Registered Nursing">
  21556222
</UniqueID>
```

For information exchange within or related to a single organization, the organization's own identifier may be used. The following example shows an American Heart Association unique identifier.

```
<UniqueID domain="American Heart Association">
  21556222
</UniqueID>
```

Other potential sources of professional identifiers in the US for other health professions include:

- American Registry of Radiologic Technologists
- Board of Registered Polysomnographic Technologists
- National Board for Respiratory Care
- National Commission on Certification of Physician Assistants
- Nuclear Medicine Technology Certification Board

Many countries outside of the US provide national identifiers for health providers that can be used for data exchange.

3.2 Determine What Profile Data Needs to Be Exchanged

The Healthcare Professional Profile includes a broad range of profile information about a healthcare professional, including:

- Identifiers
- Name
- Address
- Education data
- Professional training data
- Specialty certification data
- Licensure data

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- Disciplinary actions data
- Academic appointment data
- Occupation data
- Personal data
- Organizational membership data

There may be several data points that comprise each of these profile components. The data that needs to be exchanged will vary depending on how the data is intended to be used. For example, an organization that compiles specialty certification data will likely need all of the specialty certification data but may not need other data outside of a unique identifier. Confer with partner organizations to determine what data is necessary.

3.3 Schema Locations

In order to validate professional profile instance documents, you may wish to store all of the associated schemas on a local server and reference those local copies for validation. To use local copies, the schema locations of the name and address schemas must be changed within the member.xsd schema document. Change the schemaLocation attribute of the import element to change the location used for validation. The following example shows import statements that have been changed to use local versions of the schemas. In this example, the name.xsd and address.xsd files are in the same directory as the member.xsd. The schemaLocation attribute may use relative referencing, so the example schemaLocation references the file name since the file is in the same directory.

```
<xsd:import namespace="http://ns.medbiq.org/name/v1/"
schemaLocation="name.xsd"/>
<xsd:import namespace="http://ns.medbiq.org/address/v1/"
schemaLocation="address.xsd"/>
```

XML professional profile instance documents may then reference the local copy of the member.xsd schema in the schemaLocation attribute of the root element as in the example below. In this example, the member.xsd schema is in the same directory as the instance document.

```
<Members xmlns="http://ns.medbiq.org/member/v1/"
xmlns:a="http://ns.medbiq.org/address/v1/"
xmlns:n="http://ns.medbiq.org/name/v1/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://ns.medbiq.org/member/v1/ member.xsd">
```

Please note that changing the location of the schemas used for validation does not affect the conformance status of Professional Profile instance document.

3.4 Declaring Imported Schema

The member.xsd schema imports name.xsd and address.xsd. Professional profile instance documents must declare the name and address namespaces if name and address elements are included in the profile. In the following example, the name and address namespaces are declared in the root Members element and assigned a prefix of n and a respectively. Name and address elements are then referenced using the prefix label.

```
<Members xmlns="http://ns.medbiq.org/member/v1/"
xmlns:a="http://ns.medbiq.org/address/v1/"
xmlns:n="http://ns.medbiq.org/name/v1/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://ns.medbiq.org/member/v1/ member.xsd">
  <Member>
```

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```

<Name>
  <n:GivenName>Christopher</n:GivenName>
  <n:FamilyName>Smart</n:FamilyName>
</Name>
<Address>
  <a:StreetAddressLine>Kammakargatan 39</a:StreetAddressLine>
  <a:City>Stockholm</a:City>
  <a:PostalCode>SE-111 81 </a:PostalCode>
  <a:Country>
    <a:CountryName>Sweden</a:CountryName>
  </a:Country>
</Address>
</Member>
</Members>

```

3.5 Match Identities Across Organizations

The duplication of names within databases makes it difficult to resolve an individual's identity across organizations with different identity schemas. The ideal solution for this would be to have a single unique identifier for each clinician to be used by all organizations that track their professional data. Without such an identifier in wide use, it is necessary for organizations that wish to work together to undergo an identity resolution process. Identity resolution typically consists of the following steps.

1. Establish of match points
Together the organizations involved identify what combinations of professional profile elements constitute a match. For example, the organizations may decide that the following elements, when matched across organizations or systems, constitute an identity match:
 - GivenName
 - FamilyName
 - BirthDate
 - TaxNumber
 - GraduationDate
2. Exchange profile data.
Organization A sends Organization B a subset of its member/professional database using the Professional Profile standard format. The subset must include the data used as match points as well as the unique identifier for the individual used by Organization A.
3. Compare data to determine matches
Organization B writes a program to compare received data with data in their database. The program maps data records from one database to the other based on the match points identified in step 1. If there are near matches, staff from Organization B may work with staff from Organization A to resolve those identities. Some records will likely go unmatched.
4. Record unique ids of data partners
For those matches considered a match, Organization B records the unique identifier used by Organization A in its database. Organization B then sends Organization A Professional Profile data indicating both the Organization A unique identifier and the Organization B unique Identifier, allowing Organization A to save the Organization B identifier in its database.
5. Web services resolution

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Once the initial matching has been achieved, the organizations may choose to use Web services to match individual identity records on an as needed basis. For more information, see Professional Profile Web Services Description (pending) or contact Valerie Smothers (valerie.smothers@medbiq.org).

3.6 Adapt the Schema to Meet Your Requirements

If an analysis of the professional profile shows a gap between the data the profile addresses and the data required for exchange, the schema may be extended to incorporate new data. To extend the professional profile, take the following steps.

1. **Write a new XML schema for new data elements and declare a targetNamespace.**

Develop a new XSD schema that defines the data elements that are missing from the professional profile. All new elements must be associated with a namespace. This can be achieved by using the XSD targetNamespace attribute. The following example defines an element called TestScore that can be used to send the name and score of a particular test taken by an individual. The schema defines <http://ns.myurl.com/testscore/> as the targetNamespace, so the TestScore element is associated with that namespace.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="http://ns.myurl.com/testscore/"
xmlns="http://ns.myurl.com/testscore/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="TestScore">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="TestName" type="xs:string"/>
        <xs:element name="Score" type="xs:integer"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

2. **Place new namespace qualified elements in the XtensibleInfo element in the XML instance document.**

The XtensibleInfo element of the professional profile was designed to enable extension of the profile. When creating an instance document of the professional profile, declare the namespace of the schema with new data elements in the instance document. Usually this is done by declaring the namespace in the root element and assigning a prefix to the namespace. Then the prefix can be used when referencing the new elements. You may also declare a default namespace for an element and its subelements by declaring the namespace in the uppermost element belonging to that namespace.

In the example below, the prefix t is declared for the <http://ns.myurl.com/testscore/> namespace within the Members root element. The t prefix is then used to label the TestScore element and its subelements, which are referenced within XtensibleInfo.

```
<?xml version="1.0" encoding="UTF-8"?>
<Members xmlns="http://ns.medbiq.org/member/v1/"
xmlns:a="http://ns.medbiq.org/address/v1/"
xmlns:n="http://ns.medbiq.org/name/v1/"
xmlns:t="http://ns.myurl.com/testscore/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://ns.medbiq.org/member/v1/ member.xsd">
  <Member>
```

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```

<Name>
  <n:GivenName>Christopher</n:GivenName>
  <n:FamilyName>Smart</n:FamilyName>
</Name>
<EducationInfo>
  <Degree>MD</Degree>
  <InstitutionInfo>
    <InstitutionName>University of Cincinnati</InstitutionName>
  </InstitutionInfo>
  <StartDate>2001-08-01</StartDate>
  <GraduationDate>2005-05-01</GraduationDate>
</EducationInfo>
<XtensibleInfo>
  <t:TestScore>
    <t:TestName>USMLE Step 1</t:TestName>
    <t:Score>200</t:Score>
  </t:TestScore>
</XtensibleInfo>
</Member>
</Members>

```

4. References

MedBiquitous Address Specifications and Description Document v1.0,
http://www.medbig.org/working_groups/professional_profile/AddressSpecification.pdf

MedBiquitous Name Specifications and Description Document v.1.0,
http://www.medbig.org/working_groups/professional_profile/NameSpecification.pdf

MedBiquitous Healthcare Professional Profile Specifications and Description Document v1.0,
http://www.medbig.org/working_groups/professional_profile/ProfessionalProfileSpecification.pdf