



Liberty ID-SIS Employee Profile Service Specification

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Abstract:

The Liberty ID-SIS Employee Profile (ID-SIS-EP) specifies a web service. It offers profile information regarding employees. ID-SIS-EP provides basic employee information. ID-SIS-EP is an instance of data-oriented identity web service. ID-SIS-EP is characterized by the ability to query and update attribute data and incorporates mechanisms from other specifications for access control and conveying data validation information and usage directives. Readers of this document should be familiar with SOAP, SAML and XML. Readers may also wish to familiarize themselves with the Liberty ID-SIS Personal Profile (ID-SIS-PP).

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Contents

31		
32	1. Introduction	4
33	1.1. Notational conventions	4
34	1.2. Derivation of ID-SIS-EP from DST and WSF	4
35	1.3. Conformance	5
36	1.4. Namespaces	5
37	1.5. Extension and Namespace Reservation	6
38	2. Discovery and Queries	7
39	2.1. Discovery Option Keywords	7
40	2.2. Supported XPATH Expressions for Queries	7
41	2.3. Supported XPATH Expressions for Modifies	8
42	3. Processing Rules and Other Considerations	10
43	3.1. Repeated Queries Not Required to Report the Same Data	10
44	3.2. Support of Multiple Modifications Not Required	10
45	4. Containers and Attributes of the ID-SIS-EP	11
46	4.1. EP	11
47	4.2. EmployeeID	11
48	4.3. AltEmployeeID	11
49	4.4. DateOfHire	11
50	4.5. JobStartDate	11
51	4.6. EmployeeStatus	12
52	4.7. EmployeeType	12
53	4.8. InternalJobTitle	12
54	4.9. LInternalJobTitle	12
55	4.10. OU	13
56	4.11. LOU	13
57	4.12. CorpCommonName	13
58	4.13. CorpLegalIdentity	14
59	4.14. ManagerEmployeeID	15
60	4.15. SubalternateEmployeeID	16
61	5. XML schema for ID-SIS-EP	17
62	6. WSDL for ID-SIS-EP	19
63	References	20

1. Introduction

The Employment Identity Profile is a Liberty identity service that supports identity information regarding the Principal in the context of his or her employment. This document normatively describes an Employment Identity Profile service. For rationale and guidance, please see the companion document Liberty ID-SIS Employee Profile Service Implementation Guidelines [\[LibertyIDEPGuide\]](#). This document is prescriptive, having precedence over any guidelines or XML schema descriptions. Any published errata is hereby incorporated to this document by reference and as such is normative.

1.1. Notational conventions

The key words "MUST," "MUST NOT," "REQUIRED," "SHALL," "SHALL NOT," "SHOULD," "SHOULD NOT," "RECOMMENDED," "MAY," and "OPTIONAL" in this specification are to be interpreted as described in IETF [\[RFC2119\]](#). These keywords are thus capitalized when used to unambiguously specify requirements over protocol and application features and behavior that affect the interoperability and security of implementations. When these words are not capitalized, they are meant in their natural-language sense.

1.2. Derivation of ID-SIS-EP from DST and WSF

The ID-SIS-EP service is an instance of the Data Services Template [\[LibertyDST\]](#) and all stipulations of [\[LibertyDST\]](#) are hereby incorporated unless expressly waived or modified in this document.

The Liberty architectural framework specifications ensure that a service properly represents the Principal or that the Principal has consented to sharing the data. A service that consults an ID-SIS-EP service MUST adhere to the interface defined in this specification to request information about a Principal. Further, a requesting entity MUST ensure security and privacy through the adherence to the Liberty [\[LibertyProtSchema\]](#) and [\[LibertyBindProf\]](#) specifications. A requester MAY, and frequently will, use the [\[LibertySOAPBinding\]](#) specification for information interchange with a Liberty Personal Profile Service. A Liberty Personal Profile Service MUST adhere to the [\[LibertyProtSchema\]](#) and [\[LibertyBindProf\]](#) specifications in its communications with the requestor and other Liberty-enabled entities. Additionally a Personal Profile Service MUST use the [\[LibertyInteract\]](#) and [\[LibertyDisco\]](#) specifications for identity-related interactions with other Liberty-enabled services. Overviews of the application of these specifications are available in [\[LibertyIDFFOverview\]](#) and [\[LibertyIDWSFOverview\]](#).

Table 1. DST Support Level

Parameter	Value
ServiceType	urn:liberty:id-sis-ep:2005-05
Discovery Options	See Section 2.1
Data Schema	See Section 4
SelectType Element	See Section 2.2
Query Language	XPATH subset (see Section 2.2 and Section 2.3), MAY support full XPATH
Multiple Query	MAY
Multiple QueryItem	MUST
Support Modification	MAY
Multiple Modify	MAY
Multiple Modification	MAY
Extension in Query	MUST NOT
Extension in Modify	MUST NOT
Multiple elem uniqueness	Use id XML attribute for AddressCard and MsgContact elements. Use lang and script XML attributes for localizable elements.
Support changedSince and notChangedSince	MAY
Support includeCommonAttributes	MUST
Data Extension Supported	MAY, using Extension element

1.3. Conformance

A **deployment** is an instance of an **implementation**. This specification defines an interface to an ID-SIS-EP service to which an *implementation* and a subsequent **deployment** MUST conform. For an AP implementation to conform to this specification (ID-SIS-EP) it MUST adhere to all mandatory aspects of the specification.

A conforming ID-SIS-EP implementation MAY not support some optional ID-SIS-EP containers, elements or some features; this may be referred to as a "minimally-conforming implementation". Such an implementation may be labeled as an "ID-SIS-EP implementation" provided that publicly available documentation about the implementation discloses the parts of the schema and the features not supported. All other features and schema components may be assumed to be supported. A service that does not support the complete schema SHOULD only register the discovery option keywords that it supports.

An implementation that supports all of the schema and features specified in this document MAY be labeled as a "full ID-SIS-EP implementation." An implementation that is deficient in any feature or part of the schema MUST NOT be labeled as a "full ID-SIS-EP implementation." A "full ID-SIS-EP implementation" deployment may administratively restrict the schema and the features.

A deployment that supports the complete schema and all features specified in this document MAY be labeled as a "full ID-SIS-EP deployment" or a "full ID-SIS-EP service." A full ID-SIS-EP deployment or service MUST support all of the schema and features for all Principals wishing to use them, with the exception of those schema components and features excluded to a Principal as the result of a policy decision.

A deployment that only supports some subset of ID-SIS-EP may be labeled as an "ID-SIS-EP deployment" or "ID-SIS-EP service" provided that the deployment publicly discloses the subset that it supports.

1.4. Namespaces

The namespace for the ID-SIS-EP service is designated by the URI:

113 urn:liberty:id-sis-ep:2005-05

114 The Employee Profile namespace is abbreviated as "ep: " in this document. If the namespace has been omitted at
115 any place in this document, "ep: " is to be considered the default namespace. The namespace URI is also used as
116 ServiceType designator.

117 For enumerator URNs the version number is not usually used. As enumerator URNs are separate from XML, this does
118 not have adverse effects.

119 **Table 2. Referenced XML namespaces**

Prefix	URI	Description
xml:	http://www.w3.org/TR/REC-xml	XML Definition [XML] (for xml:lang)
xs:	http://www.w3.org/2002/XMLSchema	XML Schema Definition [Schema1]

120 1.5. Extension and Namespace Reservation

121 There are six methods for accomplishing extensions:

- 122 1. by adding more enumerators to existing attributes
- 123 2. by adding new attributes to existing containers
- 124 3. by creating new containers
- 125 4. by creating new discovery option keywords
- 126 5. by extending the supported subset of XPATH expressions
- 127 6. by schema extension

128 ID-SIS-EP elements that have enumerated values use URIs as values ("values" may be referred to as "enumerators").
129 Each element's description details the authority for adopting new official enumeration values. See [LibertyReg] for
130 more information.

131 All containers and elements defined in the ID-SIS-EP schema have an Extension element which permits arbitrary
132 schema extension. An implementation MAY support schema extension, but is not required to do so. If an
133 implementation does support schema extension then it MAY register the urn:liberty:dst:can:extend discovery
134 option keyword.

2. Discovery and Queries

2.1. Discovery Option Keywords

ID-SIS-EP defines a number of discovery keywords to be included as `Option` elements in discovery registrations and queries, see [LibertyDisco]. Some keywords express the availability of data; other keywords express the ability to update data. An attribute provider MAY advertise the ability to update data even if it currently does not have a given data item populated for the Principal.

2.1.1. Data availability discovery option keywords

The data availability oriented keywords extract selected components from the profile as if an XPATH expression were applied. An implementation is not required to use XPATH as long as the results are equivalent. Presence of the keyword implies that the corresponding data can be obtained, if queried. However, the data may not be available due to permissions or race conditions between data removal and updates to the discovery service.

Table 3. Data Availability Discovery Option Keywords

Keyword	Equivalent XPATHs	Meaning
urn:liberty:id-sis-ep	/ep:EP	Has some ID-SIS-EP data

An attribute provider MUST NOT register a data availability discovery option keyword if it is *probable* that the data will not be available. For example, if an AP does not yet have the data, it MUST NOT register the keyword with an intent of gathering the data by the time it is requested or with the intent of gathering the data when requested via the Interaction Service protocol [LibertyInteract]. An attribute provider SHOULD NOT register a keyword if the Principal has set such permissions on the data that it can not be released under any plausible circumstances.

2.1.2. Data update discovery option keywords

The data update discovery option keywords express the willingness and ability of the attribute provider to store some data corresponding to the given XPATH expression. These keywords do not imply that the AP currently has any data regarding the containers referenced by the keyword.

Table 4. Data Update Discovery Option Keywords

Keyword	Equivalent XPATHs	Meaning
urn:liberty:id-sis-ep:can	/ep:EP	Can store some ID-SIS-EP data

An implementation MUST NOT register a data update discovery option keyword unless some Modify request regarding the data referenced by the keyword can plausibly succeed. For example, if an AP is read only, it MUST NOT register any data update discovery option keywords. Similarly, if the underlying database is incapable of storing the data, then the keyword MUST NOT be advertised.

An implementation that registers a data update discovery option keyword SHOULD be capable of accepting any Modify request (subject to permissions) regarding that category of data and SHOULD support all elements specified in ID-SIS-EP schema for that category.

An implementation MAY also choose to support a read-only service. A read-only service MUST NOT register any data update discovery option keywords.

2.2. Supported XPATH Expressions for Queries

167 The [\[LibertyDST\]](#) specifies a `Query` element that potentially contains several `QueryItem` elements, which in turn
168 each contain a `Select` element. [\[LibertyDST\]](#) does not define the contents of the `Select` element, `SelectType`.
169 ID-SIS-PP defines `SelectType` as follows:

```
170 <xs:simpleType name="SelectType">  
171 <xs:restriction base="xs:string"/>  
172 </xs:simpleType>
```

173 The `Select` string holds an XPATH expression. An ID-SIS-EP implementation MAY support full XPATH expressions
174 [\[XPATH\]](#) as a `Select` expression. If it does support full XPATH expressions, it MAY advertise the discovery option
175 keyword `urn:liberty:dst:fullXPath`. Conforming implementations of the ID-SIS-EP specification MUST
176 support, at a minimum, the following the XPATH expressions as `Select` expressions:

177 1. slash separated path to any depth. The path is always anchored at the document root and may not contain wild
178 cards or empty nodes. Although ID-SIS-EP may be extended, currently the complete set of all possible slashed
179 paths is as follows:

```
180 /EP  
181 /EP/EmployeeID  
182 /EP/AltEmployeeID  
183 /EP/DateOfHire  
184 /EP/JobStartDate  
185 /EP/EmployeeStatus  
186 /EP/EmployeeType  
187 /EP/InternalJobTitle  
188 /EP/LInternalJobTitle  
189 /EP/OU  
190 /EP/LOU  
191 /EP/CorpCommonName  
192 /EP/CorpCommonName/CN  
193 /EP/CorpCommonName/LCN  
194 /EP/CorpCommonName/AltCN  
195 /EP/CorpCommonName/LAltCN  
196 /EP/CorpLegalIdentity  
197 /EP/CorpLegalIdentity/LegalName  
198 /EP/CorpLegalIdentity/LLegalName  
199 /EP/CorpLegalIdentity/VAT  
200 /EP/CorpLegalIdentity/VAT/IDValue  
201 /EP/CorpLegalIdentity/VAT/IDType  
202 /EP/CorpLegalIdentity/AltID  
203 /EP/CorpLegalIdentity/AltID/IDValue  
204 /EP/CorpLegalIdentity/AltID/IDType  
205 /EP/ManagerEmployeeID  
206 /EP/SubalternateEmployeeID
```

207 XML namespaces MUST be fully supported in the XPATH expressions by all implementations of ID-SIS-EP, including
208 minimal implementations. The XML namespace mechanism provides flexibility that allows any extension attributes
209 to coexist with standard attributes.

210 Subject to permissions and usage directives, the query MUST return a result that matches the XPATH expression and
211 is extracted from the ID-SIS Employee Profile XML document according to the rules specified in [\[XPATH\]](#). The result
212 MAY be empty if no elements match the XPATH expression.

213 2.3. Supported XPATH Expressions for Modifies

214 For Modify requests, the following slashed path MUST be supported in `Select` elements (see [\[LibertyDST\]](#)):

```
215 /ep:EP
```

216 This slashed path defines the minimal granularity of updates that MUST be supported. Updates to the container above
217 SHOULD be atomic whenever feasible.

²¹⁸ An implementation MAY support full XPATH for modifies. In such cases the implementation may restrict the set of
²¹⁹ slashed paths to the list above. If an implementation supports full XPATH for querying, then it MUST also support
²²⁰ full XPATH for modifies.

221 3. Processing Rules and Other Considerations

222 3.1. Repeated Queries Not Required to Report the Same Data

223 An ID-SIS-EP instance is NOT REQUIRED to report the same results to two instances of the same query. An ID-
224 SIS-EP instance SHOULD report the same results to the same query made by the same client, unless an update
225 (Modify or out-of-band) has occurred in the interim. An ID-SIS-EP instance MAY use the Interaction Service protocol
226 [LibertyInteract] or out-of-band means to determine which data to return.

227 An ID-SIS-EP provider is guided by its policies, the permissions the Principal has set, and the interaction with the
228 Principal, in determining the data to be returned in response to a query. Clients should use the data based on the data's
229 semantic meaning as specified here and further qualified by the `acc` (Attribute Collection Context) XML attributes
230 [LibertyDST] that may be present in the query response. A client SHOULD NOT attempt to use ID-SIS-EP as a
231 transparent data store as there may be multiple updates, permission, and policy reasons that impede transparency.

232 3.2. Support of Multiple Modifications Not Required

233 The Modify operation functions as described in [LibertyDST] with the additional relaxation that a minimally
234 compliant ID-SIS-EP implementation MAY refuse a `Modify` request with multiple `Modification` elements provided
235 all processing rules specified in [LibertyDST] are followed regarding failure to support multiple `Modification`
236 elements. Thus a minimally compliant implementation is not required to support multiple `Modification` elements.

237 Implementations SHOULD support multiple `Modification` elements when feasible. If an imple-
238 mentation supports multiple `Modification` elements it MAY register the discovery option keyword
239 `urn:liberty:dst:multipleModification`.

240 As specified in [LibertyDST]], a minimally-compliant ID-SIS-EP implementation MUST support multiple
241 `QueryItem` elements.

242 4. Containers and Attributes of the ID-SIS-EP

243 4.1. EP

244 Synopsis Employer and employment details

245 Cardinality 0-1

246 XML schema:

```
247 <xs:element name="EP" type="EPTYPE" />
248 <xs:complexType name="EPTYPE">
249   <xs:sequence>
250     <xs:element ref="EmployeeID" minOccurs="0" />
251     <xs:element ref="AltEmployeeID" minOccurs="0" maxOccurs="unbounded" />
252     <xs:element ref="DateOfHire" minOccurs="0" />
253     <xs:element ref="JobStartDate" minOccurs="0" />
254     <xs:element ref="EmployeeStatus" minOccurs="0" />
255     <xs:element ref="EmployeeType" minOccurs="0" />
256     <xs:element ref="InternalJobTitle" minOccurs="0" />
257     <xs:element ref="LInternalJobTitle" minOccurs="0" maxOccurs="unbounded" />
258     <xs:element ref="OU" minOccurs="0" />
259     <xs:element ref="LOU" minOccurs="0" maxOccurs="unbounded" />
260     <xs:element ref="CorpCommonName" minOccurs="0" />
261     <xs:element ref="CorpLegalIdentity" minOccurs="0" />
262     <xs:element ref="ManagerEmployeeID" minOccurs="0" />
263     <xs:element ref="SubalternateEmployeeID" minOccurs="0" maxOccurs="unbounded" />
264     <xs:element ref="Extension" minOccurs="0" />
265   </xs:sequence>
266   <xs:attributeGroup ref="commonAttributes" />
267 </xs:complexType>
```

268 4.2. EmployeeID

269 Synopsis Employee ID internal to enterprise (e.g. payroll number)

270 Data type ces

271 Cardinality 0-1

272 4.3. AltEmployeeID

273 Synopsis Alternate Employee ID internal to enterprise

274 Data type ces

275 Cardinality 0-n

276 4.4. DateOfHire

277 Synopsis Date of hiring

278 Data type date

279 Cardinality 0-1

280 4.5. JobStartDate

281	Synopsis	Job effective date
282	Data type	date
283	Cardinality	0-1

284 **4.6. EmployeeStatus**

285	Synopsis	Status of the employee
286	Data type	URI
287	Cardinality	0-1

288 The following enumerators **MUST** be supported. Additional enumerators **MAY** be defined as specified in [[LibertyReg](#)].
289

```
290 urn:liberty:id-sis-ep:employeeestatus:active  
291 urn:liberty:id-sis-ep:employeeestatus:trial  
292 urn:liberty:id-sis-ep:employeeestatus:la id-off  
293 urn:liberty:id-sis-ep:employeeestatus:retired  
294 urn:liberty:id-sis-ep:employeeestatus:stop-pay  
295 urn:liberty:id-sis-ep:employeeestatus:terminated  
296 urn:liberty:id-sis-ep:employeeestatus:deceased
```

297 **4.7. EmployeeType**

298	Synopsis	Type of the employee
299	Data type	URI
300	Cardinality	0-1

301 The following enumerators **MUST** be supported. Additional enumerators **MAY** be defined as specified in [[LibertyReg](#)].
302

```
303 urn:liberty:id-sis-ep:employeetype:contractor-part-time  
304 urn:liberty:id-sis-ep:employeetype:contractor-full-time  
305 urn:liberty:id-sis-ep:employeetype:volunteer-part-time  
306 urn:liberty:id-sis-ep:employeetype:volunteer-full-time  
307 urn:liberty:id-sis-ep:employeetype:trainee-part-time  
308 urn:liberty:id-sis-ep:employeetype:trainee-full-time  
309 urn:liberty:id-sis-ep:employeetype:seasonal-part-time  
310 urn:liberty:id-sis-ep:employeetype:seasonal-full-time  
311 urn:liberty:id-sis-ep:employeetype:temp-part-time  
312 urn:liberty:id-sis-ep:employeetype:temp-full-time  
313 urn:liberty:id-sis-ep:employeetype:regular-part-time  
314 urn:liberty:id-sis-ep:employeetype:regular-full-time
```

315 **4.8. InternalJobTitle**

316	Synopsis	Job title that reflects actual function of the Principal
317	Data type	ces
318	Cardinality	0-1

319 **4.9. LInternalJobTitle**

320	Synopsis	Internal job title in a local language
321	Data type	ces
322	Cardinality	0-n

323 **4.10. OU**

324	Synopsis	Organizational unit, e.g., department, where the employee works
325	Data type	cis
326	Cardinality	0-1

327 **4.11. LOU**

328	Synopsis	Local script version of the organizational unit where the employee works
329		
330	Data type	cis
331	Cardinality	0-n

332 **4.12. CorpCommonName**

333	Synopsis	The name the user likes to be called in everyday situations
334	Cardinality	0-1

335 **XML schema:**

```
336 <xs:element name="CorpCommonName" type="CorpCommonNameType"/>
337 <xs:complexType name="CorpCommonNameType">
338   <xs:sequence>
339     <xs:element ref="CN" minOccurs="0"/>
340     <xs:element ref="LCN" minOccurs="0" maxOccurs="unbounded"/>
341     <xs:element ref="AltCN" minOccurs="0" maxOccurs="unbounded"/>
342     <xs:element ref="LAltCN" minOccurs="0" maxOccurs="unbounded"/>
343     <xs:element ref="Extension" minOccurs="0"/>
344   </xs:sequence>
345   <xs:attributeGroup ref="commonAttributes"/>
346 </xs:complexType>
```

347 **4.12.1. CN**

348	Synopsis	Every day name in the Latin writing system
349	Data type	cis
350	Cardinality	0-1

351 **4.12.2. LCN**

352	Synopsis	Every day name in a local writing system
353	Data type	cis
354	Cardinality	0-n

355 **4.12.3. AltCN**

356 Synopsis Additional every day names in the Latin writing system

357 Data type cis

358 Cardinality 0-n

359 **4.12.4. LAItCN**

360 Synopsis Additional every day name in a local writing system

361 Data type cis

362 Cardinality 0-n

363 **4.13. CorpLegalIdentity**

364 Synopsis Official legal identification of the Principal

365 Cardinality 0-1

366 **XML schema:**

```
367 <xs:element name="CorpLegalIdentity" type="CorpLegalIdentityType" />
368 <xs:complexType name="CorpLegalIdentityType">
369   <xs:sequence>
370     <xs:element ref="LegalName" minOccurs="0" />
371     <xs:element ref="LLegalName" minOccurs="0" maxOccurs="unbounded" />
372     <xs:element ref="VAT" minOccurs="0" />
373     <xs:element ref="AltID" minOccurs="0" maxOccurs="unbounded" />
374     <xs:element ref="Extension" minOccurs="0" />
375   </xs:sequence>
376   <xs:attributeGroup ref="commonAttributes" />
377 </xs:complexType>
```

378 **4.13.1. LegalName**

379 Synopsis Full legal name in the Latin writing system

380 Data type cis

381 Cardinality 0-1

382 **4.13.2. LLegalName**

383 Synopsis Full legal name in a local writing system

384 Data type cis

385 Cardinality 0-n

386 **4.13.3. VAT**

387 Synopsis Fiscal identification number

388 Cardinality 0-1

389 **Processing rules**

390 If AP chooses to store the VAT attribute, AP MUST implement sufficient permissions enforcement, policies, audit trail,
391 and usage directives to ensure that the VAT is only used for legitimate purposes. AP MUST NOT disclose the VAT to
392 inappropriate parties. It is RECOMMENDED that this attribute not be populated.

393 **XML schema:**

```
394 <xs:element name="VAT" type="VATType" />
395 <xs:complexType name="VATType">
396   <xs:sequence>
397     <xs:element ref="IDValue" />
398     <xs:element ref="IDType" minOccurs="0" />
399     <xs:element ref="Extension" minOccurs="0" />
400   </xs:sequence>
401   <xs:attributeGroup ref="commonAttributes" />
402 </xs:complexType>
```

403 **4.13.3.1. IDValue**

404 Synopsis	Identification number value
405 Data type	ces
406 Cardinality	0-1

407 **4.13.3.2. IDType**

408 Synopsis	Type of identification number stored in a VAT or AltID attribute
409 Data type	URI enumeration
410 Cardinality	0-1
411 Enumerators are be defined as specified in [LibertyReg].	

412 **4.13.4. AltID**

413 Synopsis	Other identification number
414 Cardinality	0-n

415 **Processing rules**

416 If AP chooses to store AltID attributes, AP MUST implement sufficient permissions enforcement, policies, audit trail,
417 and usage directives to ensure that AltID is used for legitimate purposes only. AP MUST NOT disclose AltID to
418 inappropriate parties. It is RECOMMENDED that this attribute not be populated.

419 **XML schema:**

```
420 <xs:element name="AltID" type="AltIDType" />
421 <xs:complexType name="AltIDType">
422   <xs:sequence>
423     <xs:element ref="IDValue" />
424     <xs:element ref="IDType" minOccurs="0" />
425     <xs:element ref="Extension" minOccurs="0" />
426   </xs:sequence>
427   <xs:attributeGroup ref="commonAttributes" />
428 </xs:complexType>
```

429 See VAT [Section 4.13.3](#) for IDValue and IDType.

430 **4.14. ManagerEmployeeID**

431 Synopsis Internal Employee ID if the Principal's Manager

432 Data type ces

433 Cardinality 0-1

434 **4.15. SubalternateEmployeeID**

435 Synopsis Internal Employee ID if the Principal is a Manager

436 Data type ces

437 Cardinality 0-n

5. XML schema for ID-SIS-EP

438

439 Formal XML schema for the ID-SIS-EP follows

```
440 <?xml version="1.0" encoding="UTF-8"?>
441 <xs:schema
442     targetNamespace="urn:liberty:id-sis-ep:2005-05"
443     xmlns="urn:liberty:id-sis-ep:2005-05"
444     xmlns:xs="http://www.w3.org/2001/XMLSchema"
445     elementFormDefault="qualified" version="1.1">
446 <xs:include schemaLocation="liberty-idwsf-dst-v1.1.xsd"/>
447 <xs:include schemaLocation="liberty-idwsf-dst-dt-v1.1.xsd"/>
448 <xs:element name="EP" type="EPTYPE"/>
449 <xs:complexType name="EPTYPE">
450     <xs:sequence>
451         <xs:element ref="EmployeeID" minOccurs="0"/>
452         <xs:element ref="AltEmployeeID" minOccurs="0" maxOccurs="unbounded"/>
453         <xs:element ref="DateOfHire" minOccurs="0"/>
454         <xs:element ref="JobStartDate" minOccurs="0"/>
455         <xs:element ref="EmployeeStatus" minOccurs="0"/>
456         <xs:element ref="EmployeeType" minOccurs="0"/>
457         <xs:element ref="InternalJobTitle" minOccurs="0"/>
458         <xs:element ref="LInternalJobTitle" minOccurs="0" maxOccurs="unbounded"/>
459         <xs:element ref="OU" minOccurs="0"/>
460         <xs:element ref="LOU" minOccurs="0" maxOccurs="unbounded"/>
461         <xs:element ref="CorpCommonName" minOccurs="0"/>
462         <xs:element ref="CorpLegalIdentity" minOccurs="0"/>
463         <xs:element ref="ManagerEmployeeID" minOccurs="0"/>
464         <xs:element ref="SubalternateEmployeeID" minOccurs="0" maxOccurs="unbounded"/>
465         <xs:element ref="Extension" minOccurs="0"/>
466     </xs:sequence>
467     <xs:attributeGroup ref="commonAttributes"/>
468 </xs:complexType>
469 <xs:element name="EmployeeID" type="DSTString"/>
470 <xs:element name="AltEmployeeID" type="DSTString"/>
471 <xs:element name="DateOfHire" type="DSTDate"/>
472 <xs:element name="JobStartDate" type="DSTDate"/>
473 <xs:element name="EmployeeStatus" type="DSTURI"/>
474 <xs:element name="EmployeeType" type="DSTURI"/>
475 <xs:element name="InternalJobTitle" type="DSTString"/>
476 <xs:element name="LInternalJobTitle" type="DSTLocalizedString"/>
477 <xs:element name="OU" type="DSTString"/>
478 <xs:element name="LOU" type="DSTLocalizedString"/>
479 <xs:element name="CorpCommonName" type="CorpCommonNameType"/>
480 <xs:complexType name="CorpCommonNameType">
481     <xs:sequence>
482         <xs:element ref="CN" minOccurs="0"/>
483         <xs:element ref="LCN" minOccurs="0" maxOccurs="unbounded"/>
484         <xs:element ref="AltCN" minOccurs="0" maxOccurs="unbounded"/>
485         <xs:element ref="LAltCN" minOccurs="0" maxOccurs="unbounded"/>
486         <xs:element ref="Extension" minOccurs="0"/>
487     </xs:sequence>
488     <xs:attributeGroup ref="commonAttributes"/>
489 </xs:complexType>
490 <xs:element name="CN" type="DSTString"/>
491 <xs:element name="LCN" type="DSTLocalizedString"/>
492 <xs:element name="AltCN" type="DSTString"/>
493 <xs:element name="LAltCN" type="DSTLocalizedString"/>
494 <xs:element name="CorpLegalIdentity" type="CorpLegalIdentityType"/>
495 <xs:complexType name="CorpLegalIdentityType">
496     <xs:sequence>
497         <xs:element ref="LegalName" minOccurs="0"/>
498         <xs:element ref="LLegalName" minOccurs="0" maxOccurs="unbounded"/>
499         <xs:element ref="VAT" minOccurs="0"/>
500         <xs:element ref="AltID" minOccurs="0" maxOccurs="unbounded"/>
501         <xs:element ref="Extension" minOccurs="0"/>
502     </xs:sequence>
```

```
503     <xs:attributeGroup ref="commonAttributes"/>
504 </xs:complexType>
505 <xs:element name="LegalName" type="DSTString"/>
506 <xs:element name="LLegalName" type="DSTLocalizedString"/>
507 <xs:element name="VAT" type="VATType"/>
508 <xs:complexType name="VATType">
509     <xs:sequence>
510         <xs:element ref="IDValue"/>
511         <xs:element ref="IDType" minOccurs="0"/>
512         <xs:element ref="Extension" minOccurs="0"/>
513     </xs:sequence>
514     <xs:attributeGroup ref="commonAttributes"/>
515 </xs:complexType>
516 <xs:element name="IDValue" type="DSTString"/>
517 <xs:element name="IDType" type="DSTURI"/>
518 <xs:element name="AltID" type="AltIDType"/>
519 <xs:complexType name="AltIDType">
520     <xs:sequence>
521         <xs:element ref="IDValue"/>
522         <xs:element ref="IDType" minOccurs="0"/>
523         <xs:element ref="Extension" minOccurs="0"/>
524     </xs:sequence>
525     <xs:attributeGroup ref="commonAttributes"/>
526 </xs:complexType>
527 <xs:element name="ManagerEmployeeID" type="DSTString"/>
528 <xs:element name="SubalternateEmployeeID" type="DSTString"/>
529 <xs:simpleType name="SelectType">
530     <xs:restriction base="xs:string"/>
531 </xs:simpleType>
532 </xs:schema>
```

6. WSDL for ID-SIS-EP

533

534 The Abstract Web Services Description Language (WSDL) declaration for the ID-SIS-EP follows. The declaration
535 states what is derived from [LibertyDST], namely that ID-SIS-EP is characterized by Query and Modify operations
536 cast to the namespace of ID-SIS-EP.

```
537 <?xml version="1.0" encoding="UTF-8"?>
538 <wsdl:definitions
539     xmlns:typens="urn:liberty:id-sis-ep:wsdl:2005-05"
540     xmlns:xsd="http://www.w3.org/2001/XMLSchema"
541     xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
542     xmlns:ep="urn:liberty:id-sis-ep:2005-05"
543     xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
544     xmlns="http://schemas.xmlsoap.org/wsdl/"
545     targetNamespace="urn:liberty:id-sis-ep:wsdl:2005-05" name="ep">
546   <types>
547     <xsd:schema>
548       <xsd:import
549         namespace="urn:liberty:id-sis-ep:2005-05"
550         schemaLocation="liberty-idsis-ep-v1.1.xsd"/>
551     </xsd:schema>
552   </types>
553   <message name="Query">
554     <part name="body" element="ep:Query" />
555   </message>
556   <message name="QueryResponse">
557     <part name="body" element="ep:QueryResponse" />
558   </message>
559   <message name="Modify">
560     <part name="body" element="ep:Modify" />
561   </message>
562   <message name="ModifyResponse">
563     <part name="body" element="ep:ModifyResponse" />
564   </message>
565   <portType name="DataServicePort">
566     <operation name="QueryOperation">
567       <input message="ep:Query" />
568       <output message="ep:QueryResponse" />
569     </operation>
570     <operation name="ModifyOperation">
571       <input message="ep:Modify" />
572       <output message="ep:ModifyResponse" />
573     </operation>
574   </portType>
575 </wsdl:definitions>
```

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