

## 7.4 RegistryQuery DTD's

### Purpose

To propose a query to a Registry/Repository implementation, with the expectation of receiving back a query result. The query result for each query type is a set of references to registry instances of the implied class.

NOTE: A Registry/Repository may conform at the lowest level by supporting only a RegistryEntryQuery that consists of a single assignedURN. Other query support is required at higher levels of conformance.

### Definition

#### Query DTD

```
<!ELEMENT RegistryQuery
(
  RegistryEntryQuery
  | ContactQuery
  | RequestQuery
  | ImpactQuery      )>
```

#### QueryResult DTD

```
<!ELEMENT RegistryQueryResult
(
  RegistryEntryQResult
  | ContactQResult
  | RequestQResult
  | ImpactResult      )>

<!ELEMENT RegistryEntryQResult
( RegistryEntryReference*, StatusResult )>

<!ELEMENT RegistryEntryReference EMPTY >
<!ATTLIST RegistryEntryReference
  assignedURN    CDATA    #REQUIRED
  objectURL     CDATA    #IMPLIED
  regEntryId    ID       #IMPLIED >

<!ELEMENT ContactQResult ( ContactReference*, StatusResult )>

<!ELEMENT ContactReference EMPTY >
<!ATTLIST ContactReference
  contactName    CDATA    #REQUIRED
  orgURN        CDATA    #REQUIRED
  email         CDATA    #REQUIRED
  contactID     ID       #IMPLIED >

<!ELEMENT RequestQResult ( RequestReference*, StatusResult )>

<!ELEMENT RequestReference EMPTY >
<!ATTLIST RequestReference
  submitTime    CDATA    #REQUIRED
  requestNbr    CDATA    #REQUIRED
  requestCode   CDATA    #REQUIRED
  requestId     ID       #IMPLIED >

<!ELEMENT ImpactQResult ( ImpactReference*, StatusResult )>
```

```

<!ELEMENT ImpactReference EMPTY >
<!ATTLIST ImpactReference
  submitTime      CDATA      #REQUIRED
  requestNbr      CDATA      #REQUIRED
  assignedURN     CDATA      #REQUIRED
  objectURL       CDATA      #IMPLIED
  regentryID      CDATA      #IMPLIED
  impactCode      CDATA      #REQUIRED
  impactId        ID         #IMPLIED >

<!ELEMENT StatusResult
  ( Success | ( Exception | Warning )+ >

<!ELEMENT Success EMPTY >

<!ELEMENT Exception ( #PCDATA )>
<!ATTLIST Exception
  code      CDATA      #REQUIRED >

<!ELEMENT Warning ( #PCDATA )>
<!ATTLIST Warning
  code      CDATA      #REQUIRED >

```

### Semantic Rules

1. The semantic rules for each RegistryQuery alternative are specified in Subsections 7.4.1 through 7.4.4.
2. [NOT COMPLETE] -- Specify distinctions among Warnings and Exceptions!
3. If any exception or warning results, then it is returned as the appropriate alternative of the StatusResult element.

## 7.4.1 RegistryEntryQuery

### Purpose

To identify a set of registry entry instances by a query over selected registry metadata.

### Definition

```
<!ELEMENT RegistryEntryQuery
  (
    AssignedURN+
    | MetadataFilter
    | RegistryEntrySQL
    | RegistryEntryXML
    | RegistryEntryOQL
  )>

<!ELEMENT AssignedURN EMPTY >
<!ATTLIST AssignedURN
  assignedURN CDATA #REQUIRED >

<!ELEMENT MetadataFilter ( [NOT COMPLETE] )>

<!ELEMENT RegistryEntrySQL ( #PCDATA )>

<!ELEMENT RegistryEntryXML ( #PCDATA )>

<!ELEMENT RegistryEntryOQL ( #PCDATA )>
```

### Semantic Rules

1. If a list of AssignedURN elements is specified as an element of a RegistryEntryQuery, then:
  - a. Each AssignedURN should identify an existing RegistryEntry instance in some registry managed by the Registration Authority (RA). If any registry entry does not exist, then raise the warning: *assigned urn does not exist*; otherwise, let E identify the registry entry.
  - b. For each E, create a new RegistryEntryReference element (Section 7.4) with the assignedURN, objectURL, and regEntryId attributes of E as the corresponding attributes of the new element.
  - c. Return the set of RegistryEntryReference elements and the appropriate StatusResult with each of the warnings as the RegistryEntryQResult.
2. If a MetadataFilter element is specified as a RegistryEntryQuery, then [NOT FINISHED].
3. If a RegistryEntrySQL element is specified as a RegistryEntryQuery, then the PCDATA contained in the RegistryEntrySQL element shall conform to an SQL <query specification> as specified in International Standard ISO/IEC 9075 - Database Language SQL. In addition, a Registry/Repository implementation may require that the <query specification> be further constrained by the rules for Minimal SQL as specified in Appendix 1 [TO BE LIFTED FROM FIPS 193 - SQL Environments, Section 4.2].
  - a. The <from clause> of a <query expression> contained in a RegistryEntryQuery may be restricted to exactly one of the following:
    - i) FROM REGISTRY\_ENTRY as RE
    - ii) (REGISTRY\_ENTRY as RE LEFT JOIN CLASSIFICATION as CL ON RE.assignedURN = CL.regEntryURN) LEFT JOIN LEVELVALUEPAIR as LVP ON (CL.schemeURN = LVP.schemeURN) AND (CL.regEntryURN = LVP.regEntryURN)
    - iii) FROM REGISTRY\_ENTRY as RE LEFT JOIN EXTERNAL\_DATA as ED ON RE.assignedURN = ED.regEntryURN

- iv) FROM REGISTRY\_ENTRY as RE LEFT JOIN ASSOCIATION as AG ON RE.assignedURN = AG.givenItemURN
  - v) FROM REGISTRY\_ENTRY as RE LEFT JOIN ASSOCIATION as AA ON RE.assignedURN = AA.assocItemURN
  - vi) FROM REGISTRY\_ENTRY as RE LEFT JOIN ALTERNATE\_NAME as AN ON RE.assignedURN = AN.regEntryURN
  - vii) FROM REGISTRY\_ENTRY as RE LEFT JOIN DESCRIPTION as DS ON RE.assignedURN = DS.regEntryURN
  - viii) FROM REGISTRY\_ENTRY as RE LEFT JOIN CONTRIBUTION as CB ON RE.assignedURN = CB.regEntryURN
  - ix) FROM REGISTRY\_ENTRY as RE LEFT JOIN ORGANIZATION as SO ON RE.submittingOrg = SO.orgURN
  - x) FROM REGISTRY\_ENTRY as RE LEFT JOIN IMPACT as IM ON RE.assignedURN = IM.regEntryURN
  - xi) FROM REGISTRY\_ENTRY as RE LEFT JOIN CONTACT as CT ON RE.assignedURN = CT.regEntryURN
- b. The <select list> of a <query expression> contained in a RegistryEntryQuery may be restricted to the following two<derived column> references: RE.assignedURN and RE.objectURL.
  - c. Let each of the table names in the FROM clause specified in b) above represent the persistent instances of the corresponding Registry Class as defined in Section 3. Let R be the set of result rows that would result from execution of the SQL <query specification> in a database conforming to Entry SQL as specified in ISO/IEC 9075 - Database Language SQL.
  - d. For each row x of R, create a new RegistryEntryReference element with the assignedURN and , objectURL columns of x as the corresponding attributes of the new element. Optionally, an implementation may include a persistent object identifier as the value of the regEntryId attribute.
  - e. Return the set of RegistryEntryReference elements and the appropriate StatusResult as the RegistryEntryQResult.
4. If a RegistryEntryXML element is specified as a RegistryEntryQuery, then [NOT FINISHED].
  5. If a RegistryEntryOQL element is specified as a RegistryEntryQuery, then [NOT FINISHED].