

The following document summarizes the discussion to date on modeling relationships in SPML 2.0. It is intended to record common understanding, promote discussion and to be contribution artifact for the generation of the 2.0 specification. It is in no way binding or concrete.

### **Objectives for Relationships in SPML 2.0**

1. To provide within the protocol explicit support for expressing relationships between PSO's
2. We will not be providing explicit support for expressing relationships between any other protocol or model elements – this would have to be done at the attribute level in target object schema
3. To provide extensible support for the mechanics of expressing relationships without specifying definitive concrete models for specific relationships. That is to say, we will not be defining what a role, group or hierarchy actually means, although we should not do anything that prevents cooperation at this level via some form of optional binding or interface
4. To allow the following relationship types to be expressed:
  1. Containment at the point of PSO creation and as an optional interface. A sample containment relationship would be between an organization and its members
  2. Reference at the point of creation and as an optional interface. A sample reference relationship would be a "created by" relationship

### **Statements about Relationships in SPML 2.0**

1. Relationships themselves are not defined as concrete objects in the 2.0 model, that is to say a relationship would not have a specific ID but would instead be the result of the connection between two or more PSO's that do have specific ID's
2. Relationships can be "stateful" and persistent. This kind of relationship is probably best modeled as a PSO with either:
  - a. Reference relationships to two connected objects; or

- b. Containment relationship to a parent object and a reference relationship to a connected object
3. SPML 2.0 will support the expression of containment at the time at the point of PSO creation by adding a 'parent' parameter to the 'create' operation; the target is the default parent.
4. SPML 2.0 will also support the creation/expression of containment through the definition of one or more of the following optional interface operations:
  - a. 'createChild'
  - b. setParent
  - c. getParent
  - d. listChildren
  - e. getChildren
  - f. Query based on containment ("hasParent" or "hasChild")
5. SPML 2.0 will support a single containment relationship for a given PSO-ID
6. SPML 2.0 will support any number of referents in a reference relationship
7. SPML 2.0 may support relationship cardinality in any of the following forms:
  - a. 0+ // zero or more; an optional relationship to any number of referents (the default)
  - b. 1? // zero or one; an optional relationship to exactly one referent
  - c. 1 // exactly one; a required relationship to exactly one referent
  - d. 1+ // one or more; a required relationship to at least one referent
  - e. N // a required relationship to exactly N referents
  - f. N? // an optional relationship to exactly N referents
8. Any object should be able to participate in more than one \*type\* of reference relationship. For example, an Account object may belong to any number of Groups, but may also have any number of Roles. These might be represented as two different relationship types: "memberOf" and "hasRole". Both would be optional and multi-valued (that is the default cardinality suggested above)