# Using Relationships in DDI4

For each class in DDI4 content may be included either as a **property** or through a **relationship**.

## Properties

Properties may be either **simple** or **complex**. An example of a simple property of a Study would be *versionResponibility* which is a simple xml schema string. An example of a complex property would be an *overview* which has a complex datatype of *InternationalStructuredString.* This datatype has a hierarchy of multiple properties allowing for the specification not only of the string itself, but also its language, whether it is a translation, the original source language, translation date, and more. The value of a property is intended to be uniquely recorded. It is not referenced by multiple classes.

## Relationships

When information is to be reused, for example the information about an individual, it is included by reference through a relationship. An example of a relationship for a Study would be a relationship to a Population. More than one Study may refer to the same Population. The reference to another DDI class is done through a URN. DDI URNs are a string with a specific structure embedding an agency identifier, an Id, and a version. A URN referencing the Population with an Id of “MyPopulation27B” with the agency managing that Id space having an agency identifier of “example.org” and a version of “1.0” would look like: “URN:DDI:example.org: MyPopulation27B:1.0”

The XML representation for the examples above is:

<?xml version="1.0" encoding="UTF-8"?>
<DDI xmlns="urn:ddi.org:4"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:schemaLocation="file:/C:/schemas/DDI4/Build-2017-05-26/xsd/SimpleCodebookView\_4-DR0.2.xsd" type="SimpleCodebookView">
 <DocumentInformation></DocumentInformation>
 <Study>
 <VersionResponsibility>A.Version</VersionResponsibility>
 <Overview>
 <LanguageSpecificStructuredString isPlainText="true" xml:lang="en-US" >
 This is an overview for an example in the DDI Documentation
 </LanguageSpecificStructuredString>
 </Overview>
 <HasPopulation typeOfClass="Population" >URN:DDI:example.org:MyPopulation27B:1.0</HasPopulation>

 <Agency>example.org</Agency>
 <Id>MyStudy</Id>
 <Version>1.0</Version>
 </Study>

 <Population>
 <Agency>example.org</Agency>
 <Id>MyPopulation27B</Id>
 <Version>1.0</Version>

 <DescriptiveText>
 <LanguageSpecificStructuredString>
 Persons over 65 years of age. A population referenced by the example study and possibly others
 </LanguageSpecificStructuredString>
 </DescriptiveText>

 </Population>

</DDI>