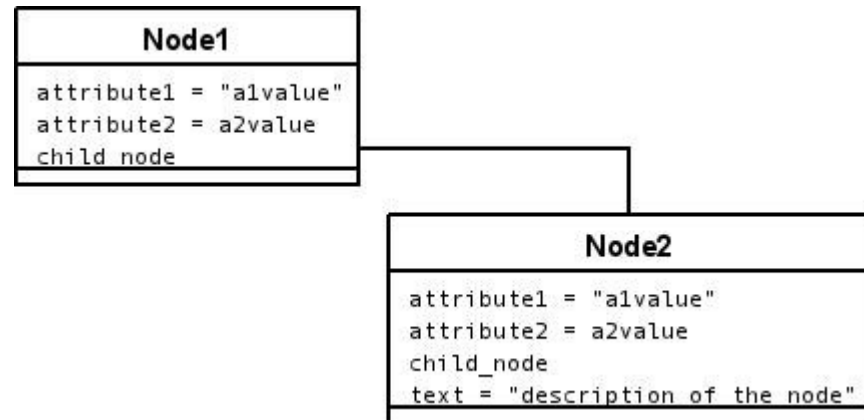


XML

- Extensible Markup Language
- Self-describing format
- Standard Generalized Markup Language
- HTML
- XML Schema
- XSLT

XML: structure

- Node (Element)
- Text
- Attributes



```
- <ROOT xmlns="the reference to the scheme">
  - <NODE1 attribute1="a1value" attribute2="a2value">
    <NODE2 attribute1="a1node2value" attribute2="a2node2value"> Just an example </NODE2>
  </NODE1>
</ROOT>
```

XML example

```
- <cross-id>
- <cross>
  <id>1</id>
  <RA2000>20.000195</RA2000>
  <DEC2000>29.996469</DEC2000>
  <B>17.9</B>
  <R>17.3</R>
  <J>15.65</J>
  <H>15.295</H>
  <K>15.174</K>
</cross>
- <cross>
  <id>2</id>
  <RA2000>20.006404</RA2000>
  <DEC2000>29.995581</DEC2000>
  <B>17.2</B>
  <R>17.0</R>
  <J>15.984</J>
  <H>15.613</H>
  <K>15.345</K>
</cross>
```

- Self-defined tags
- Tree-like structure
- Object
- `make_xml.py`

XML example

```
- <cross-id>
- <cross>
  <id>1</id>
  <RA2000>20.000195</RA2000>
  <DEC2000>29.996469</DEC2000>
  <B>17.9</B>
  <R>17.3</R>
  <J>15.65</J>
  <H>15.295</H>
  <K>15.174</K>
</cross>
- <cross>
  <id>2</id>
  <RA2000>20.006404</RA2000>
  <DEC2000>29.995581</DEC2000>
  <B>17.2</B>
  <R>17.0</R>
  <J>15.984</J>
  <H>15.613</H>
  <K>15.345</K>
</cross>
```

```
- <cross-id>
- <cross>
  <id>1</id>
  <RA EQUINOX="J2000">20.000195</RA>
  <DEC EQUINOX="J2000">29.996469</DEC>
  <MAG FILTER="B">17.9</MAG>
  <MAG FILTER="R">17.3</MAG>
  <MAG FILTER="J">15.65</MAG>
  <MAG FILTER="H">15.295</MAG>
  <MAG FILTER="K">15.174</MAG>
</cross>
- <cross>
  <id>2</id>
  <RA EQUINOX="J2000">20.006404</RA>
  <DEC EQUINOX="J2000">29.995581</DEC>
  <MAG FILTER="B">17.2</MAG>
  <MAG FILTER="R">17.0</MAG>
  <MAG FILTER="J">15.984</MAG>
  <MAG FILTER="H">15.613</MAG>
  <MAG FILTER="K">15.345</MAG>
</cross>
```

XML Schema

<http://www.w3.org/XML/Schema>

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
+ <complexType name="cross"></complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

```
- <simpleType name="EQUINOX">
- <restriction base="string">
  <enumeration value="J2000"/>
  <enumeration value="B1950"/>
</restriction>
</simpleType>
```

```
- <schema>
- <annotation>
  - <documentation xml:lang="en">
    Simple example for cross-identification table
  </documentation>
</annotation>
- <simpleType name="FILTER">
  - <restriction base="string">
    <enumeration value="B"/>
    <enumeration value="J"/>
    <enumeration value="H"/>
    <enumeration value="K"/>
    <enumeration value="V"/>
  </restriction>
</simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
+ <complexType name="cross"></complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

XML Schema

<http://www.w3.org/XML/Schema>

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
+ <complexType name="cross"></complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
- <complexType name="MAG">
- <simpleContent>
- <extension base="double">
  <attribute name="FILTER" type="FILTER"/>
</extension>
</simpleContent>
</complexType>
+ <complexType name="cross"></complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
- <complexType name="RA">
- <simpleContent>
- <extension base="double">
  <attribute name="EQUINOX" type="EQUINOX"/>
</extension>
</simpleContent>
</complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
+ <complexType name="cross"></complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

XML Schema

<http://www.w3.org/XML/Schema>

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
+ <complexType name="cross"></complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
+ <complexType name="cross"></complexType>
- <complexType name="cross-id">
- <complexContent>
- <sequence>
- <element name="cross" type="cross"/>
- </sequence>
- </complexContent>
- </complexType>
</schema>
```

```
- <schema>
+ <annotation></annotation>
+ <simpleType name="FILTER"></simpleType>
+ <simpleType name="EQUINOX"></simpleType>
+ <complexType name="RA"></complexType>
+ <complexType name="DEC"></complexType>
+ <complexType name="MAG"></complexType>
- <complexType name="cross">
- <complexContent>
- <sequence>
- <element name="id" type="int" minOccurs="1" maxOccurs="1"/>
- <element name="RA" type="RA"/>
- <element name="DEC" type="DEC"/>
- <element name="MAG" type="MAG" minOccurs="1" maxOccurs="5"/>
- </sequence>
- </complexContent>
- </complexType>
+ <complexType name="cross-id"></complexType>
</schema>
```

XML Schema

- Object-oriented format of data
- Reference to the format (schemaLocation)
- Generation of structures from the schema
- User-defined types