Subject: Json serialization support
Posted by Mindtraveller on Sat, 04 Feb 2012 20:15:58 GMT
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Since Mirek announced "native" JSON support in U++, I tried to use it for serializing my structures and found it to be relatively hard to implement. For example, loading not-very-complex JSON led me to following ugly code:

```
 for (int projectI=0; projectI<versions.GetCount(); ++projectI)
 {
  if (!IsValueMap(versions[projectI]))
   continue;

  ValueMap curProject(versions[projectI]);

  ValueMap curProjectGlobal;
  if (IsValueMap(curProject[KEY_PROJECT_GLOBAL]))
   curProjectGlobal = curProject[KEY_PROJECT_GLOBAL];
  if (!IsDate(curProjectGlobal[KEY_PROJECT_GLOBAL_DATE]))
   curProjectGlobal.Set(KEY_PROJECT_GLOBAL_DATE, GetSysDate());
  if (!IsNumber(curProjectGlobal[KEY_PROJECT_GLOBAL_COUNTER]))
   curProjectGlobal.Set(KEY_PROJECT_GLOBAL_COUNTER, 0);
  curProject.Set(KEY_PROJECT_GLOBAL, curProjectGlobal);

  ValueMap curProjectVersion;
  if (IsValueMap(curProject[KEY_PROJECT_VERSION]))
   curProjectVersion = curProject[KEY_PROJECT_VERSION];
  if (!IsDate(curProjectVersion[KEY_PROJECT_VERSION_DATE]))
   curProjectVersion.Set(KEY_PROJECT_VERSION_DATE, GetSysDate());
  if (!IsNumber(curProjectVersion[KEY_PROJECT_VERSION_COUNTER]))
   curProjectVersion.Set(KEY_PROJECT_VERSION_COUNTER, 0);
  ValueMap curProjectVersionCurrent;
  if (IsValueMap(curProjectVersion[KEY_PROJECT_VERSION_CURRENT]))
   curProjectVersionCurrent = curProjectVersion[KEY_PROJECT_VERSION_CURRENT];
  curProjectVersion.Set(KEY_PROJECT_VERSION_CURRENT, curProjectVersionCurrent);

  curProject.Set(KEY_PROJECT_VERSION, curProjectVersion);

  versions.SetAt(projectI, curProject);
 }
```

Maybe ValueMap and ValueArray classes are good for other tasks, anyway.
So I thought about little extending JSON support in U++ making it the same as serialization with Stream and Xml - as IMO it was a brilliant solution to make it pure and clear inside a single member function (I mean Serialize and Xmlize).

After a day of work I've made a number of helper classes based on CParser (and inspired with Mirek's JSON parsing functions).

Finally, I've come to what I wanted:

```
struct TestStruct2
{
 int c;
 bool d;
 double e;
 Time   t;

 void Jsonize(JsonIO &json)
 {
  json
   ("c", c)
   ("d", d)
   ("e", e)
   ("t", t)
  ;
 }
};
struct TestStruct
{
 String u;
 String a;
 int    b;
 TestStruct2 c;
 VectorMap<String, Vector<int> > map1;

 void Jsonize(JsonIO &json)
 {
  json
   ("a",a)
   ("b",b)
   ("c",c)
   ("u",u)
   ("map1",map1)
  ;
 }
};
```

As you can see, JSON serialization is used the common way. Also it natively supports VectorMap/ArrayMap and Vector/Array serialization.

The code was not widely tested and not all the types are supported, but this is the beginning.

Also the efficiency of different serialization types was tested.
JSON/XML/BINARY timing:
release: 125/265/16
debug: 842/1857/125

Maybe, not that bad for 1-day code which was not optimized at all.

So here are sources with Jsonize package. If it is compiled as a main package (not as dependency), the test binary is made.

Any comments, critics and suggestions are welcome.

File Attachments

1) Jsonize.zip, downloaded 276 times