

# JManager

The template class `JManager` resides in the name space `JROOT` and constitutes an auxiliary class for the creating and bookkeeping of many `ROOT` histograms, graphs, etc. It simply extends the functionality of an `STL` `map`. It has a master `ROOT` histogram, graph or other `TObject` that can be defined at construction. It then creates "slave" objects on the fly (using `TObject::Clone`) of which the name is obtained by replacing the wild card character in the name of the master by the corresponding key. All objects can be written to file with a single call. The basic implementation could be as follows.

```
template<class JKey_t, class JValue_t>
class JManager:
  public public JPointer<JValue_t>, // master
  public std::map<JKey_t, JValue_t*> // STL map
{
  JManager(JValue_t* master); // specify master

  JValue_t* operator[](JKey_t key); // creates new slave if needed

  void Write(const char* file_name); // save data to file

  ..
};
```

The usual `map` operator is customised. In this, the availability of the object associated with the given key is checked. If necessary, a new object is cloned from the master. The name of this clone is determined from the name of the master by replacing the wild card character by the key. Finally, a pointer to the object associated to that key is returned.

For example.

```
JManager<int, TH2D> H2(new TH2D("H2[%]", NULL, 10, -1.0, +1.0, 10, -1.0, +1.0));

H2[12345678]->Fill(x, y);
```

The default wild card is the character `'%'`; it can differently be defined at construction of a `JManager`. As specified by `STL` `map`, the usual less-than operator `<` should be defined for the key. In addition, to create a name for the cloned object, the standard output stream operator `std::ostream<<` should be defined.

```
JManager<int, TH1D> H1(new TH1D("M_[%]", NULL, 100, 0.0, 100.0e6));

while (..) {
  ..
  for (JDAQSuperFrame::const_iterator hit = frame->begin(); hit != frame->end(); ++hit) {
    H1[frame-getModuleID()]->Fill(hit->getT());
  }
}

H1.Write("example.root");
```