GSI
Online
Offline
Object
Oriented

Go4 v2.0 Status & Overview

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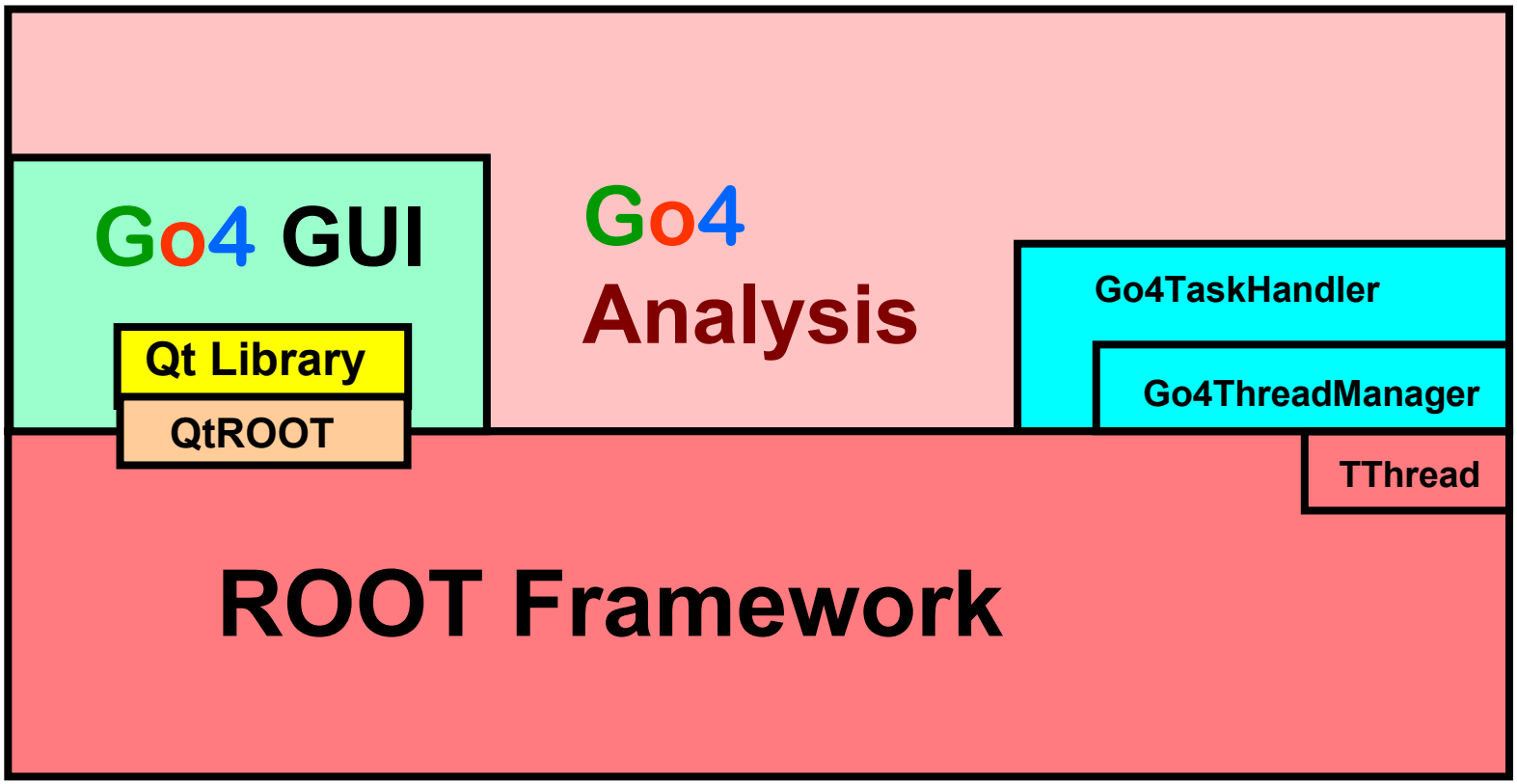
ROOT 2002

Package Layers Go4 v2.0



Releases

- Go4 thread manager package (Nov 2001, June 2002)
- Go4 task handler package (June 2002)
- Go4 Qt-ROOT interface (Nov 2001, July 2002)
- Go4 v1.x GSI internal release (May 2002)
- Go4 fit package (API) (Oct 2002) soon (➪ roottalk)
- Go4 v2.0 public release (Oct 2002) soon (➪ roottalk)

Linux is the strategic platform for experiment data processing at GSI

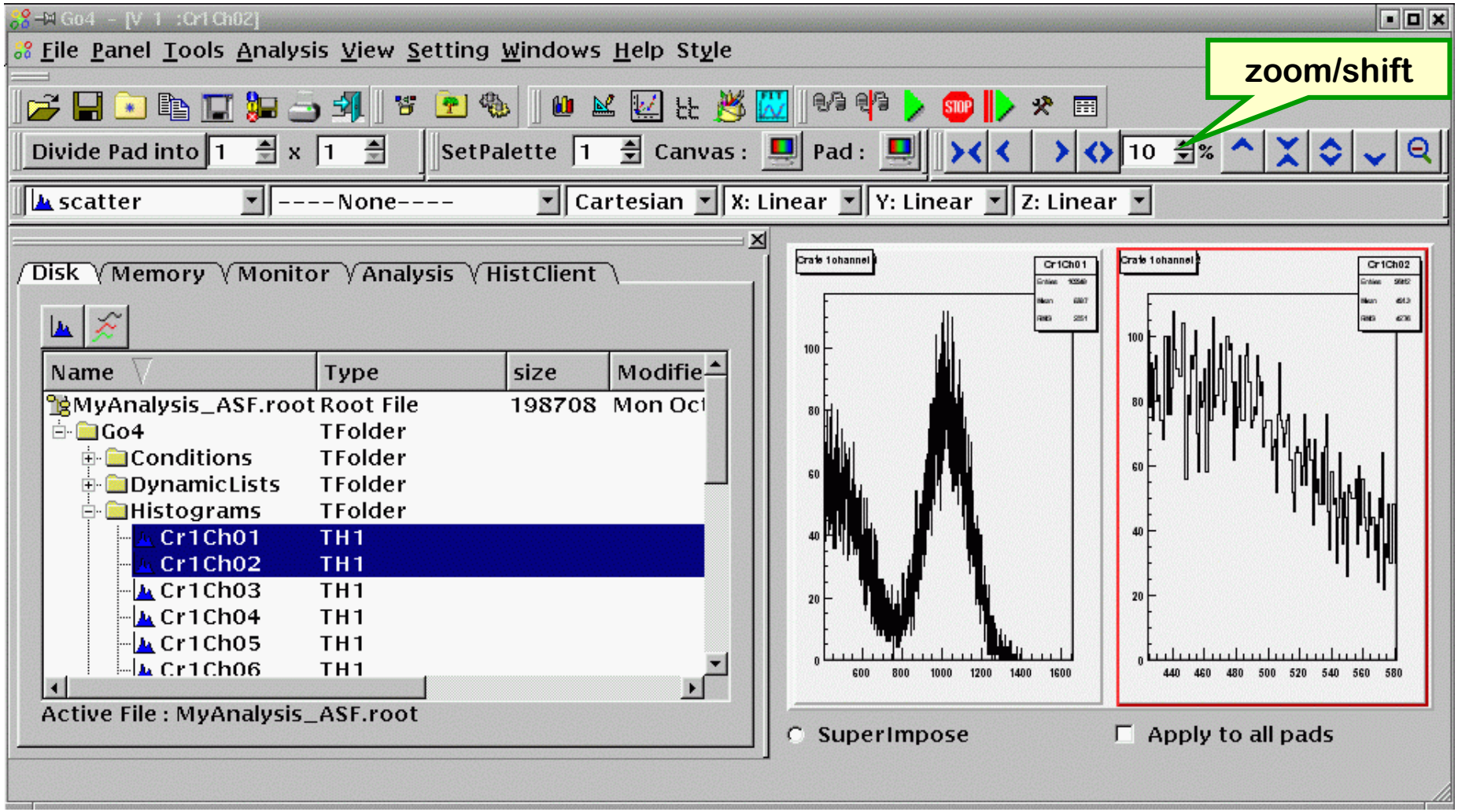
Features of Go4

- Framework for many experiments (AP & NP)
- The analysis is written by the user (unlimited ROOT)
- A GUI controls and steers the analysis
- An analysis may run permanently (e.g. on-line)
- An analysis may update graphics asynchronously
- The GUI provides efficient interactivity
- The GUI is never blocked
- The analysis may run in batch mode

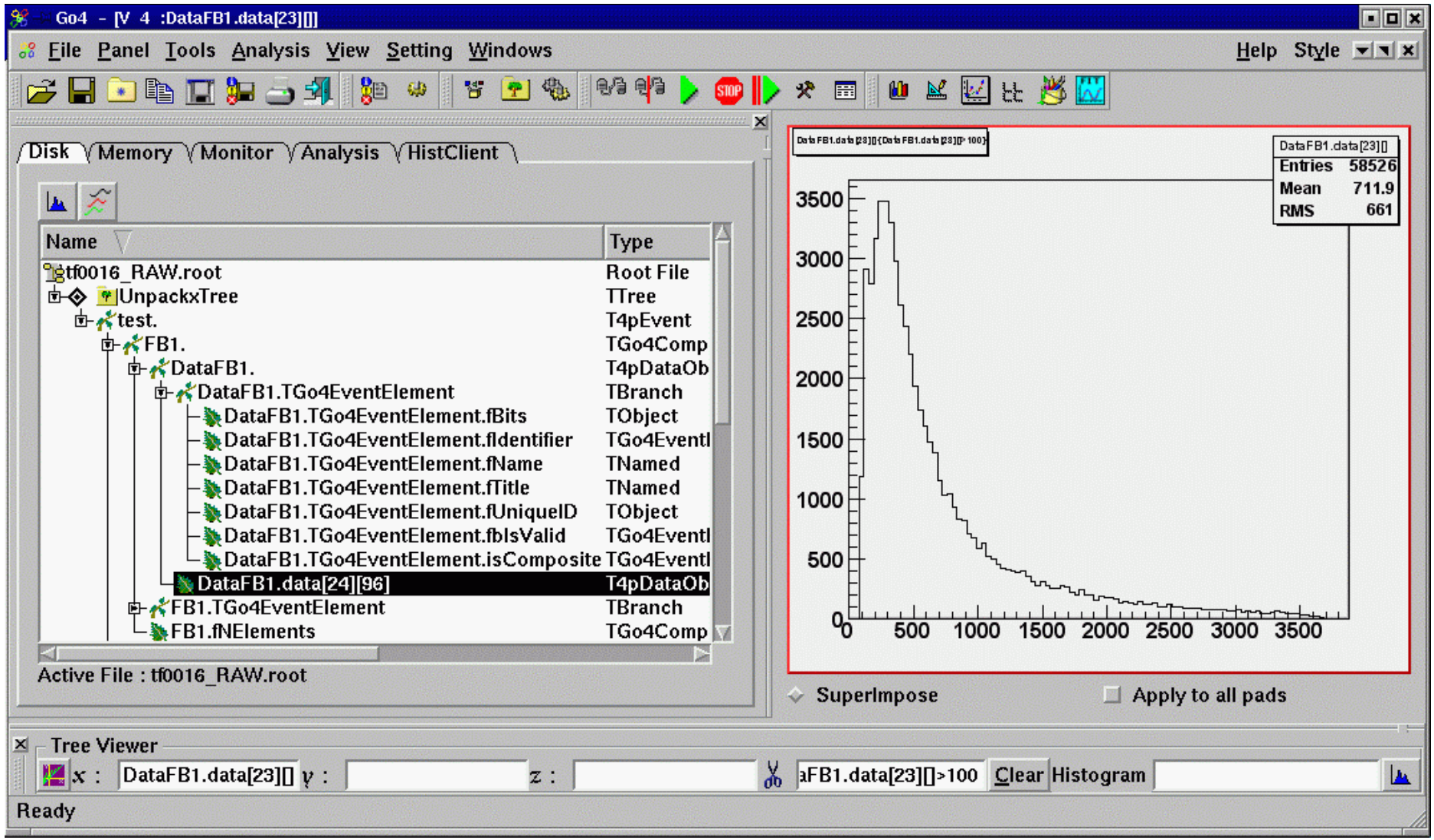
How One Can Use Go4

- **Use GUI as ROOT-file browser / viewer**
  - Histograms
  - Trees

Root File Browser



Tree Viewer


Go4 - [V 4 :DataFB1.data[23][]]
File Panel Tools Analysis View Setting Windows
Help Style
Disk Memory Monitor Analysis HistClient
Name
Type
tf0016_RAW.root
Root File
UnpackxTree
TTree
test.
T4pEvent
FB1.
TGo4Comp
DataFB1.
T4pDataOb
DataFB1.TGo4EventElement
TBranch
DataFB1.TGo4EventElement.fBits
TObject
DataFB1.TGo4EventElement.fIdentifier
TGo4Eventl
DataFB1.TGo4EventElement.fName
TNamed
DataFB1.TGo4EventElement.fTitle
TNamed
DataFB1.TGo4EventElement.fUniqueID
TObject
DataFB1.TGo4EventElement.fbIsValid
TGo4Eventl
DataFB1.TGo4EventElement.isComposite
TGo4Eventl
DataFB1.data[24][96]
T4pDataOb
FB1.TGo4EventElement
TBranch
FB1.fNElements
TGo4Comp
Active File : tf0016_RAW.root
DataFB1.data[23][]
Entries 58526
Mean 711.9
RMS 661
3500
3000
2500
2000
1500
1000
500
0
0 500 1000 1500 2000 2500 3000 3500
SuperImpose
Apply to all pads
Tree Viewer
x : DataFB1.data[23][]
y :
z :
aFB1.data[23][]>100
Clear
Histogram
Ready

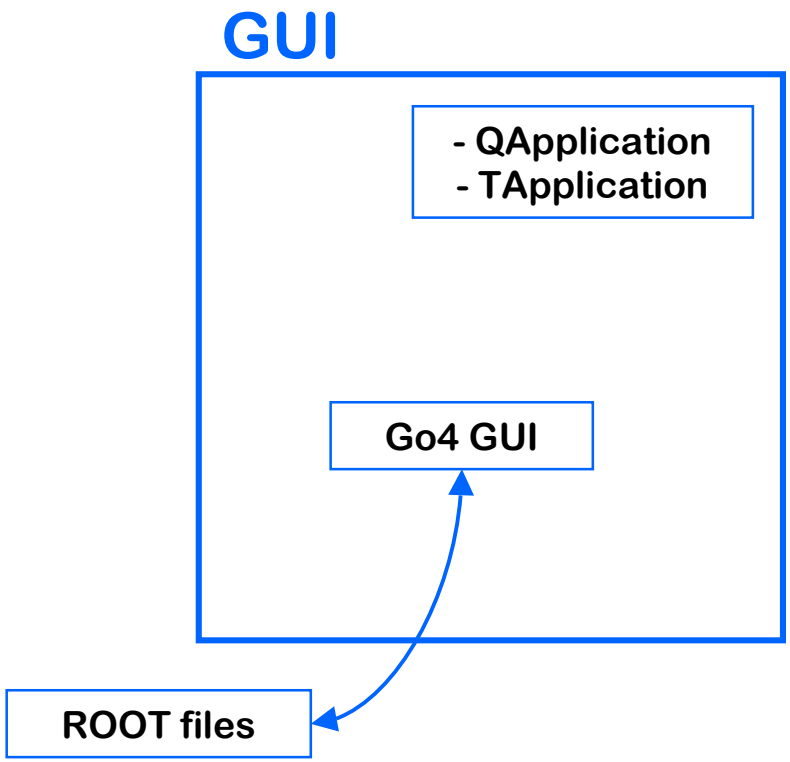
How to Use Go4 cont.

- Use GUI as ROOT-file browser / viewer
  - Histograms
  - Trees
- Connect your ROOT analysis to GUI
  - little efford to adapt
  - dynamic tree draw
  - Example: HADES online analysis
- Develop analysis with Go4 framework
  - Event classes (composite)
  - Event IO (trees, branches)
  - Analysis steps
  - Parameters, conditions
- Use Fit package independent of Go4

  more by Sergey Linev

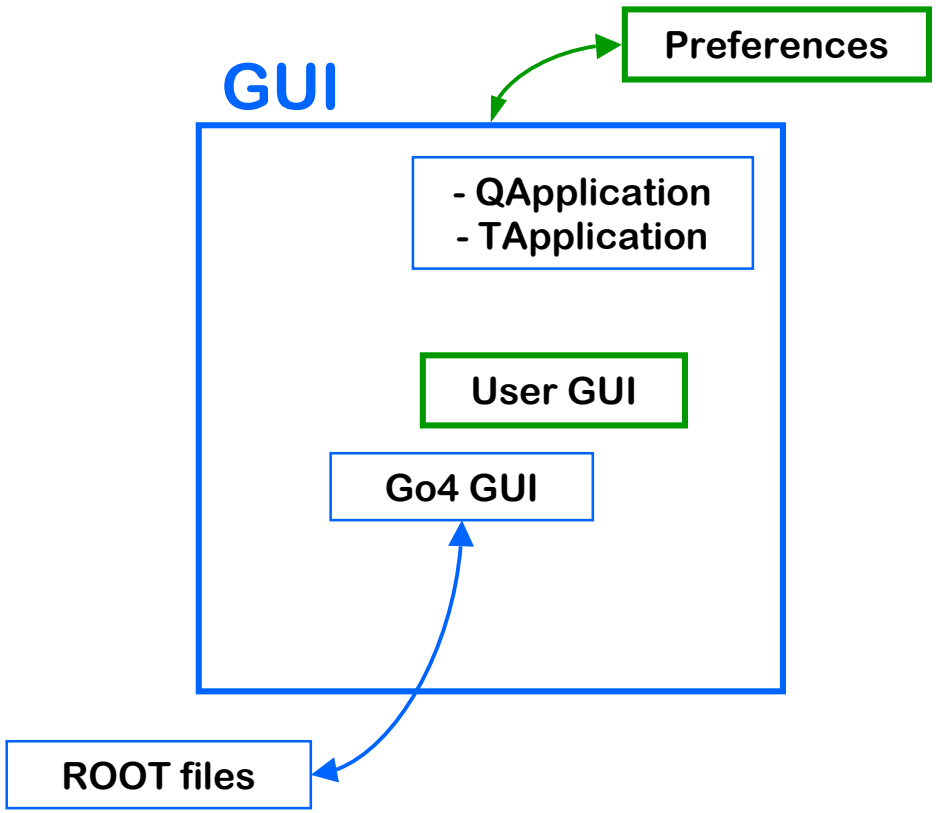
-> Go4 tasks

Go4 Tasks: GUI



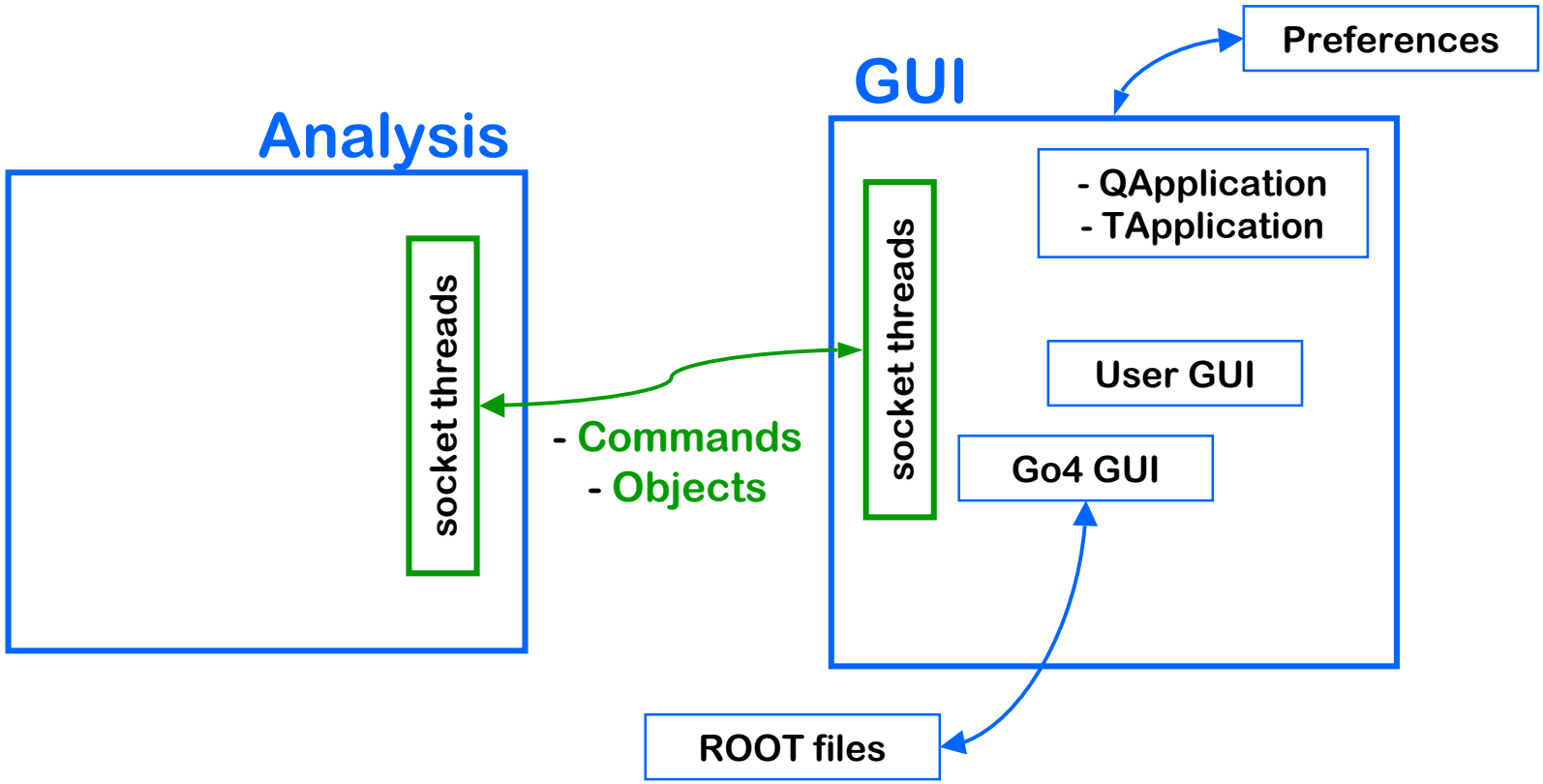
GSI histogram API

Go4 Tasks: GUI



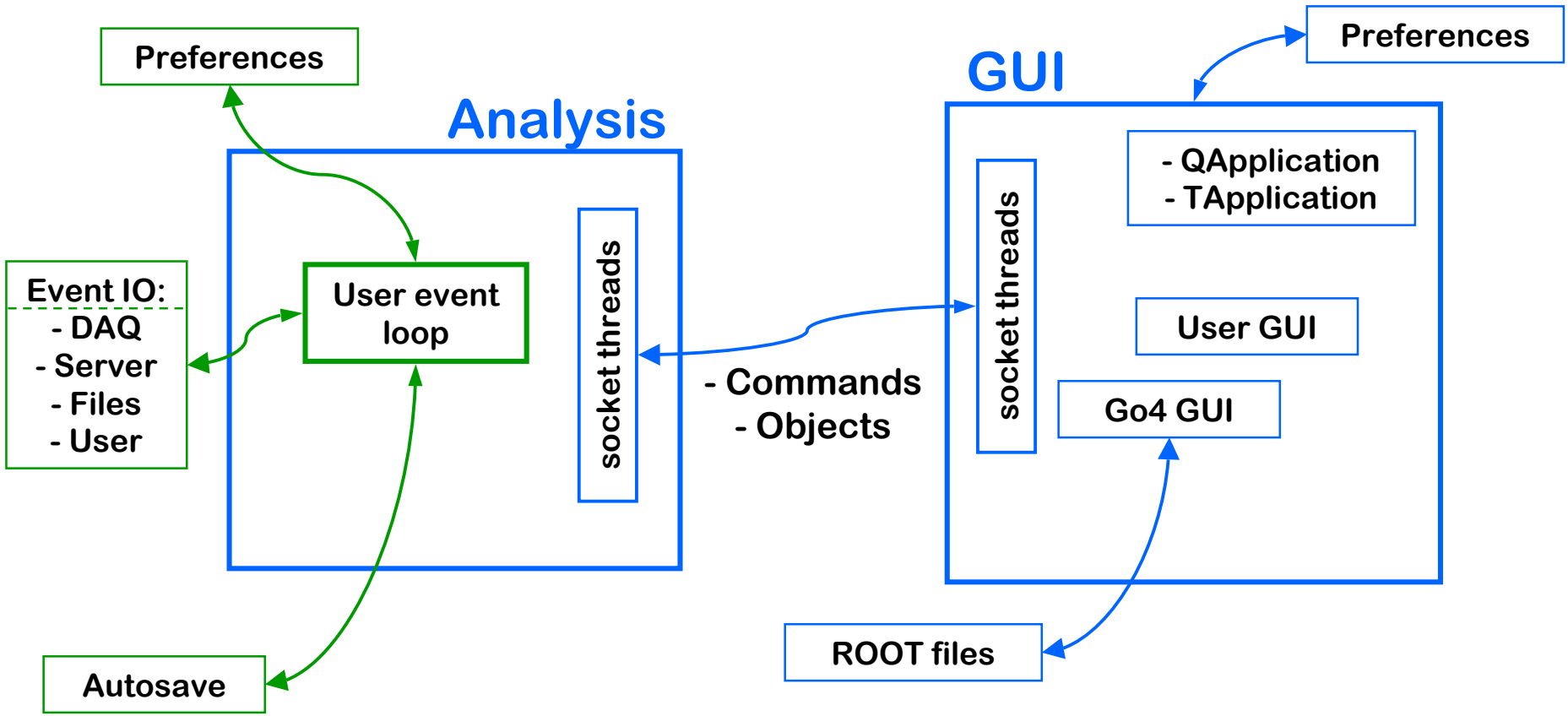
GSI histogram API

Go4 Tasks: GUI & Analysis



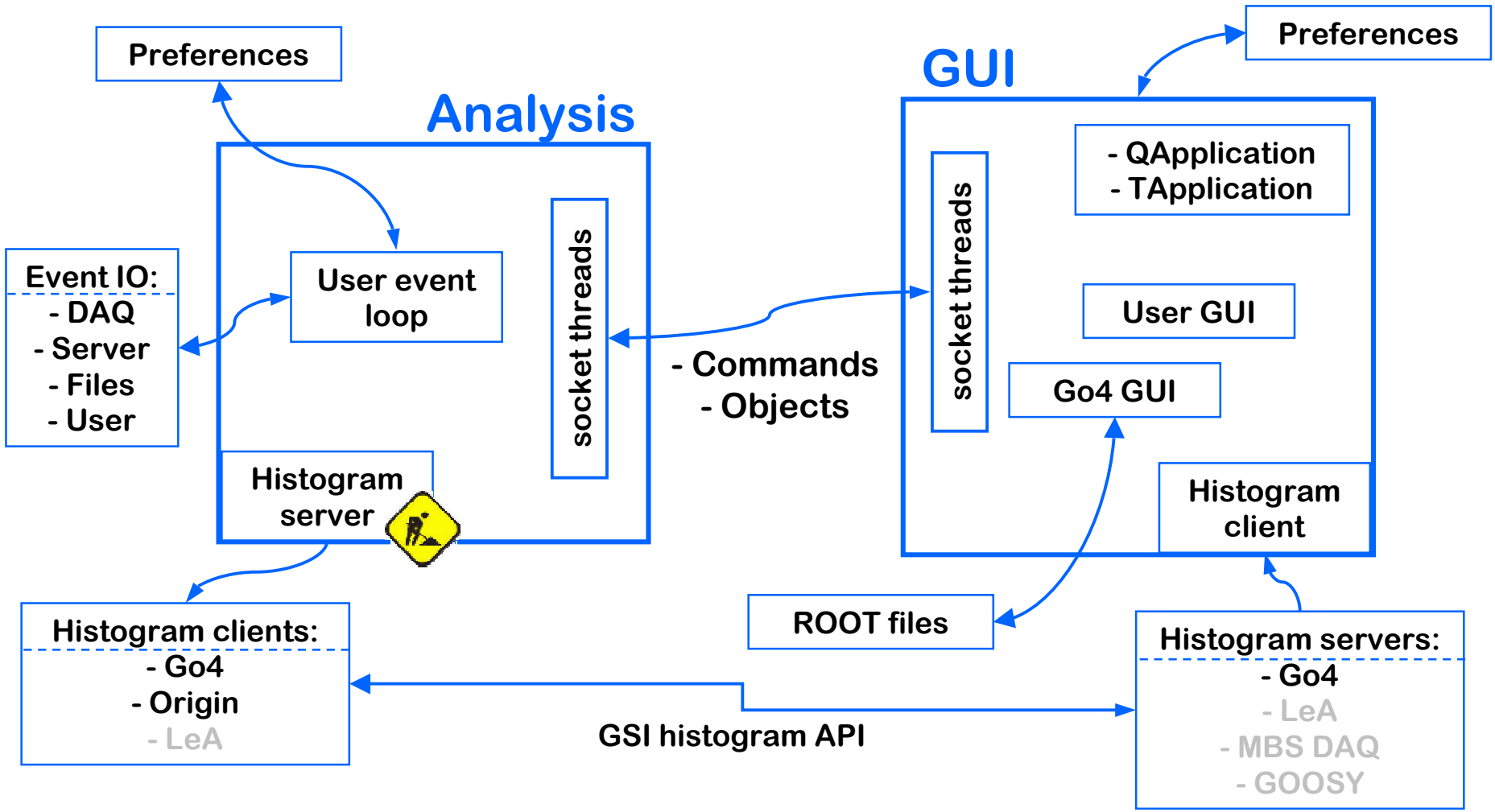
GSI histogram API

Go4 Tasks: GUI & Analysis



GSI histogram API

Go4 Tasks: GUI & Analysis



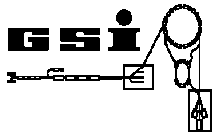
GUI: Stand Alone Features

- Program written in standard ROOT & Qt
- Uses QtROOT interface
- Qt and ROOT widgets work
- Developed with Qt designer
- Extended browser (files)
- Extended tree viewer (unlimited levels)
- Additional layer of graphical interaction
- Fit 
- Save/restore layout

More by Mohammad Al-Turany

GUI for Analysis

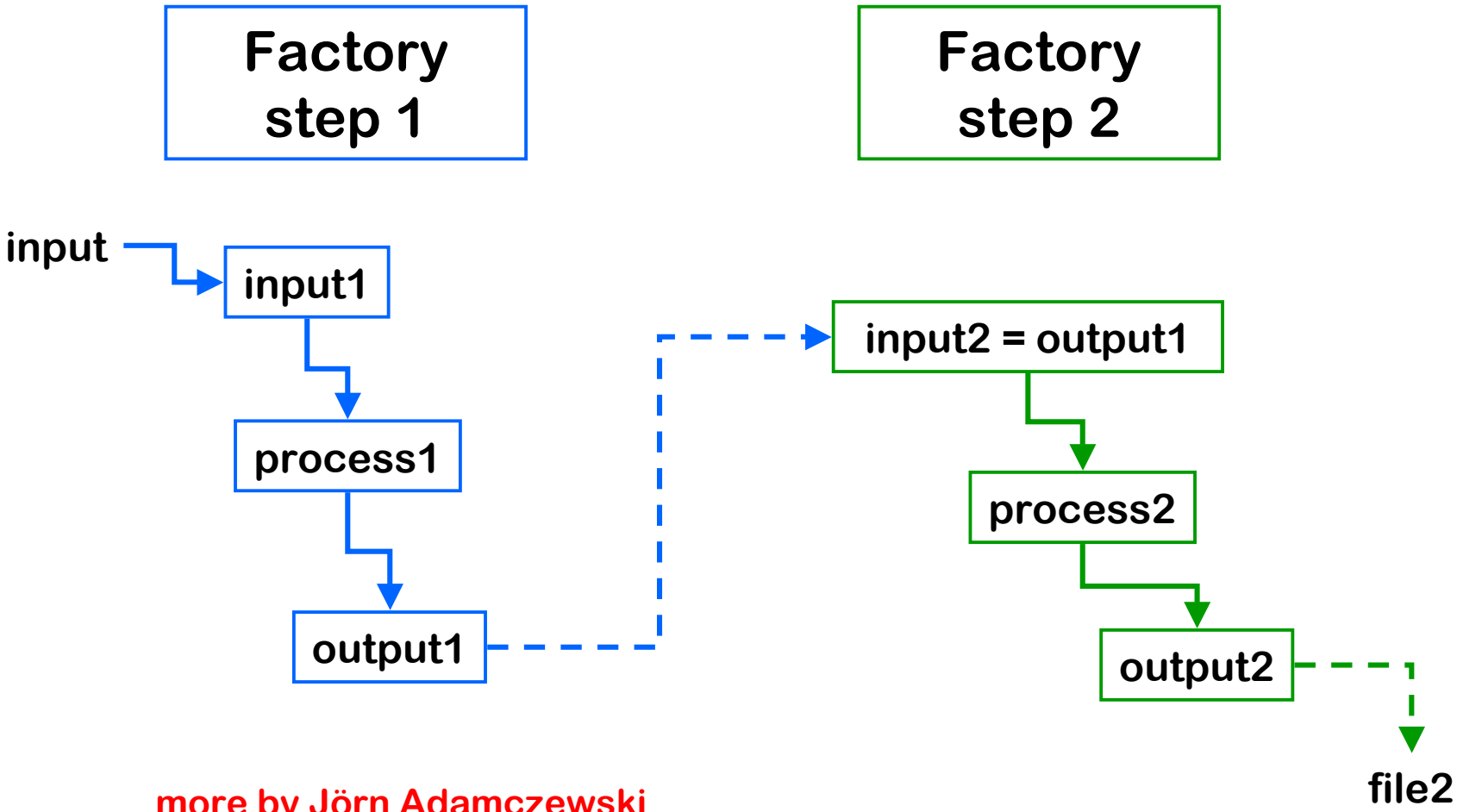
- Analysis control
- Analysis step control (built from analysis) ➪
- Visualize analysis status (from analysis)
- Remote browser (objects from analysis)
- Remote tree draw
- Condition editing (window, polygon from analysis)
- Object editing (from analysis) 
- Adding user GUIs
- Event displays (user), can be initiated from analysis



Analysis

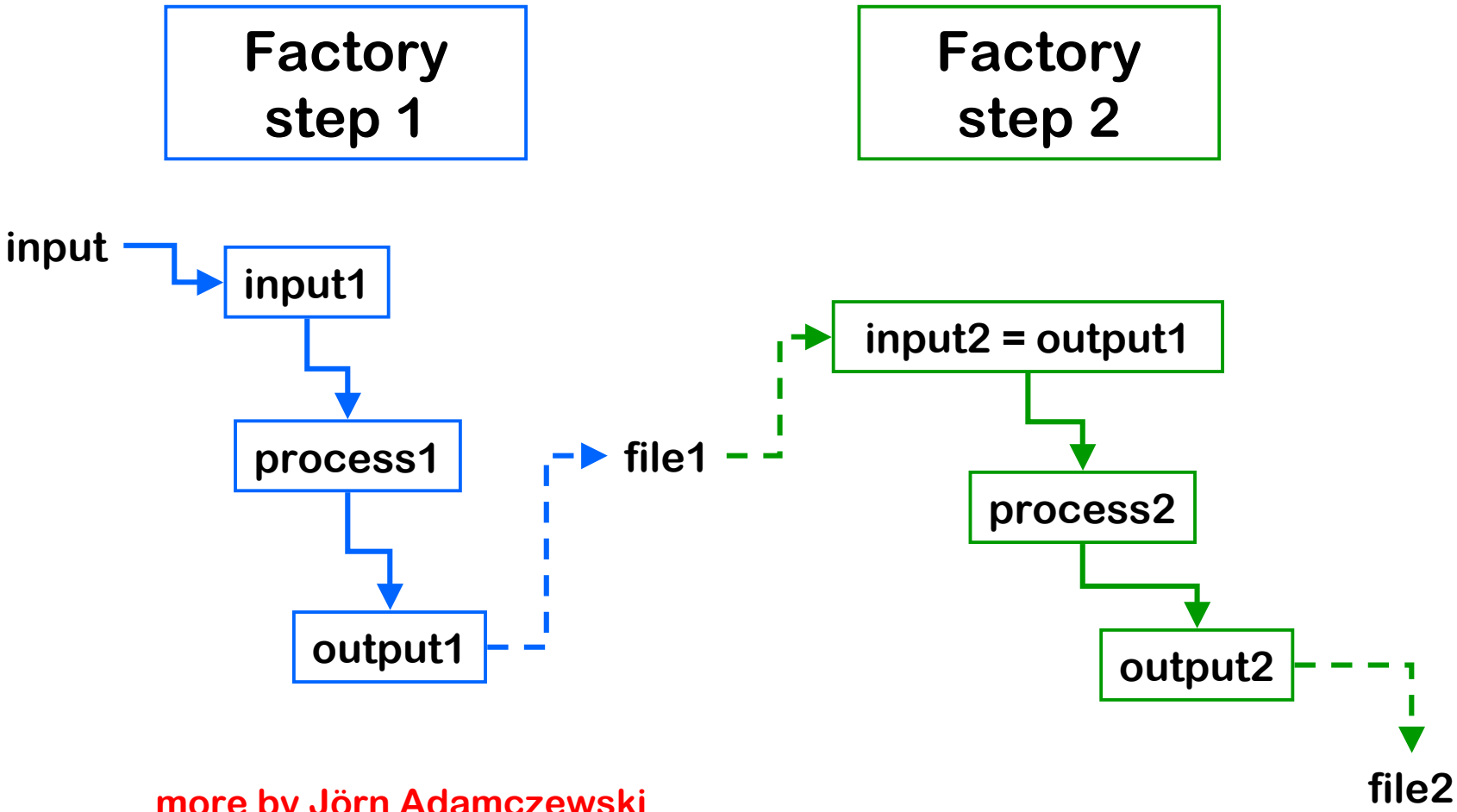
- User written (main program)
- Runs in CINT, line mode (batch) or GUI controlled
- Analysis step factory

Analysis Steps (Event Loop)



more by Jörn Adamczewski

Analysis Steps (Event Loop)

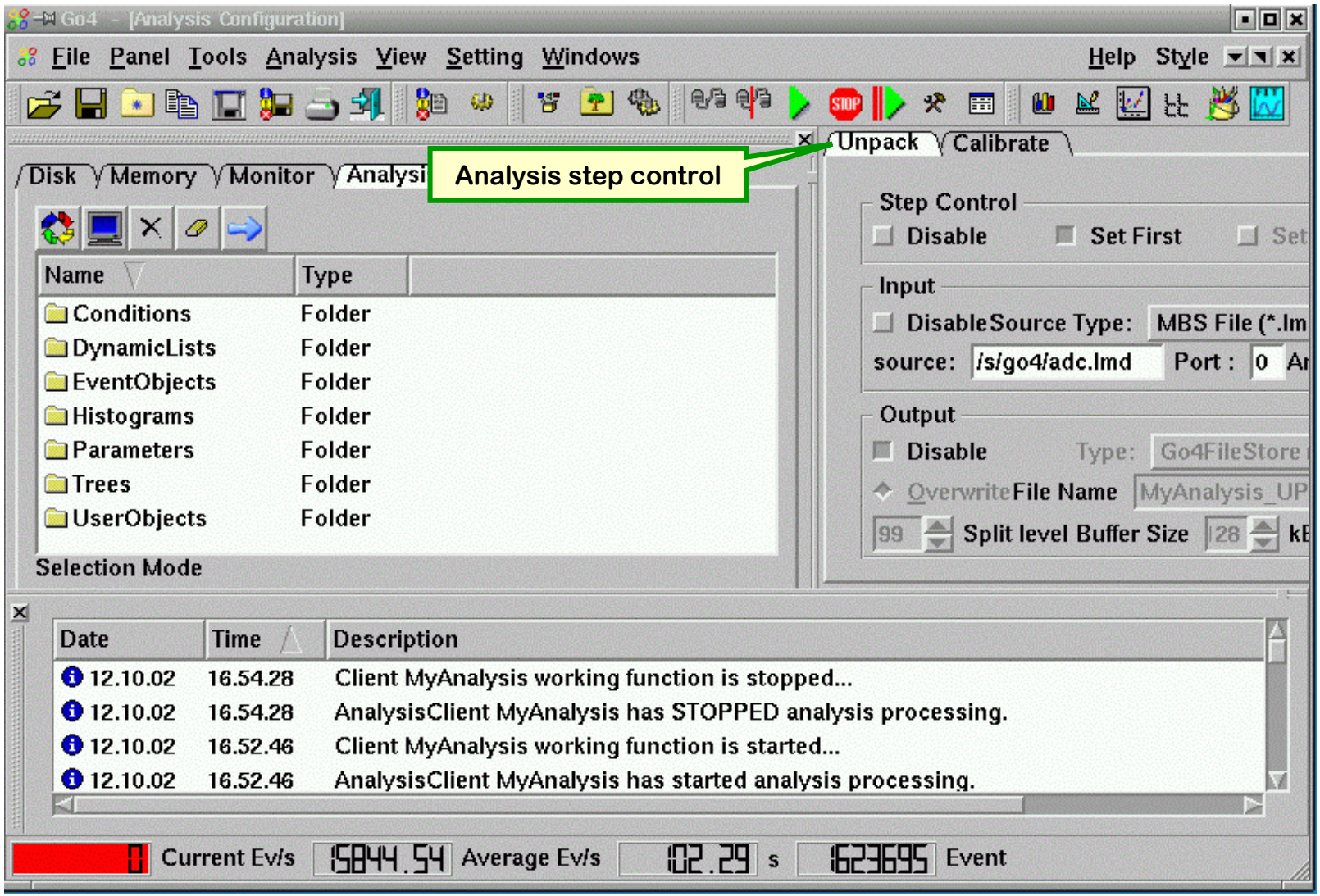


more by Jörn Adamczewski

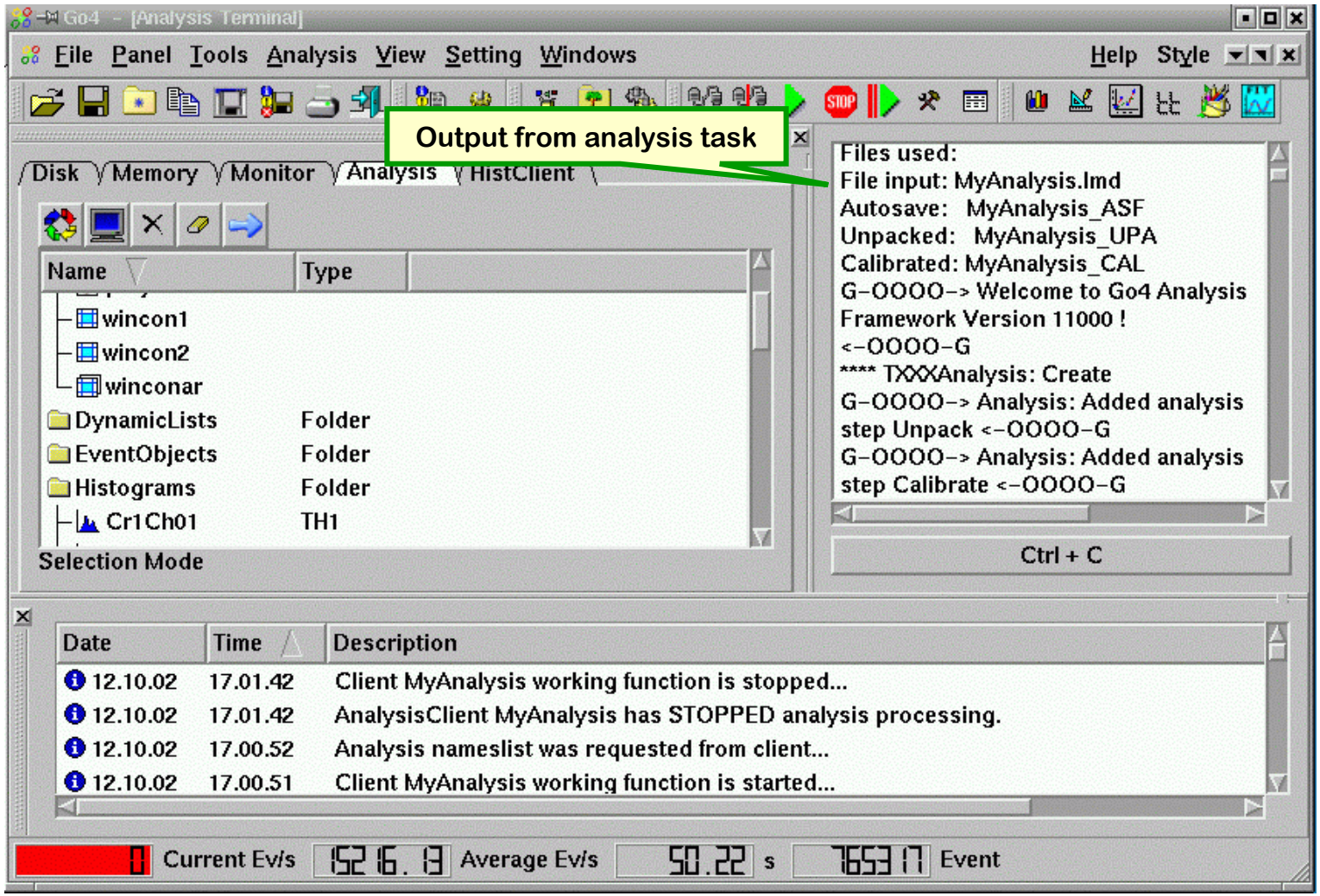
Analysis cont.

- Composite event classes (more by Denis Bertini)
- Event IO (GSI sources, others)
- Conditions (windows, polygons)
- Persistency through autosave
- Optional object server 

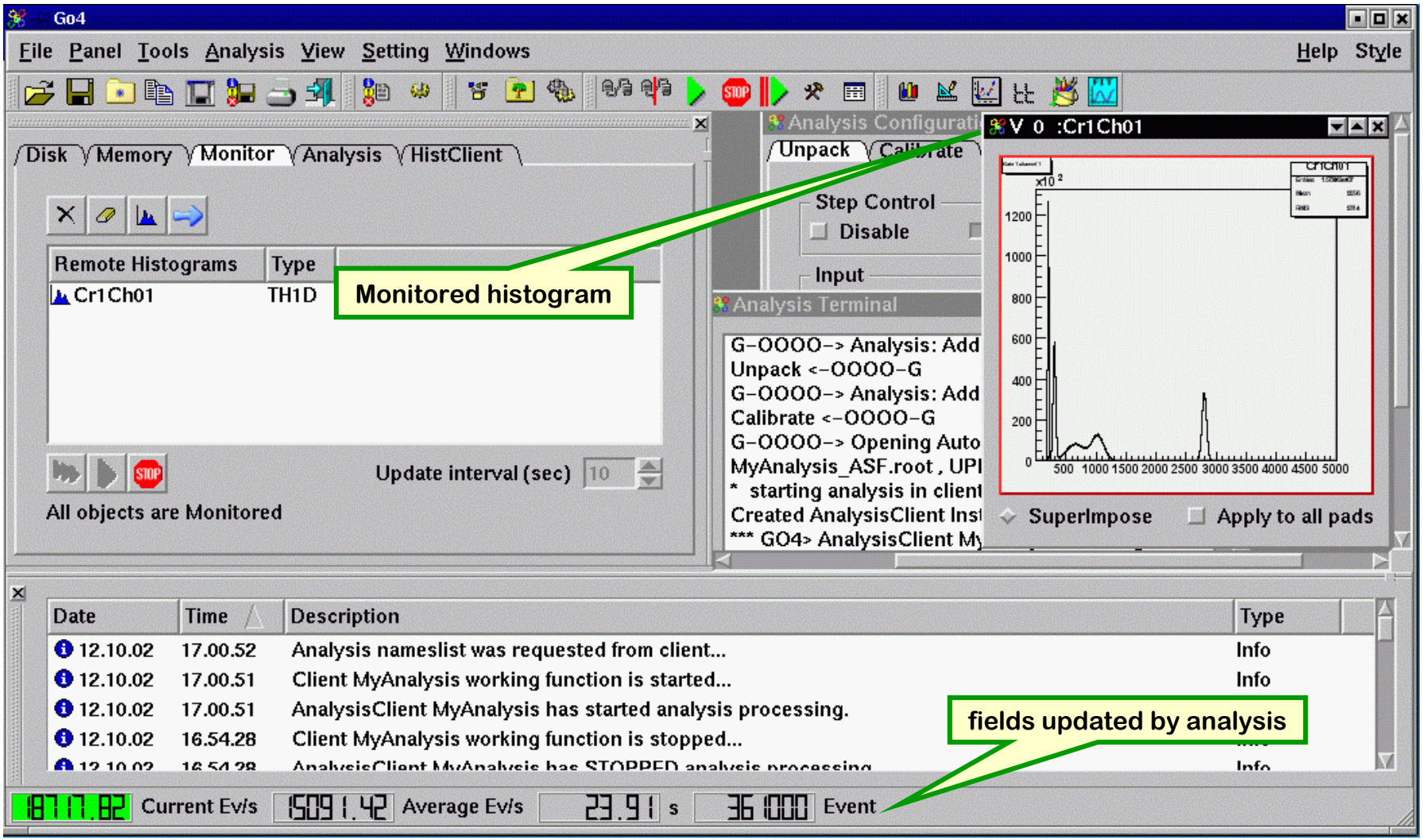
Analysis started



Analysis started



Analysis started and running



What´s Next

- Release Go4 v2.0
- Fit GUI
- Remote object editing
- Integrate OpenInventor
- Support event displays
- More graphical interaction
- More dynamic analysis
- Documentation