

# *DABC* programmer manual

---

Titel: DABC: Programmer Manual

Document	Date	Editor	Revision	Comment
DABC-prog	2009-01-04	Hans G.Essel	1.0.0	First scetch



# Contents

---

<b>DABC programmer manual</b>	<b>1</b>
<b>2 DABC Programmer Manual: Overview</b>	<b>5</b>
2.1 Programmer manual overview . . . . .	5
<b>3 DABC Programmer Manual: Concepts</b>	<b>7</b>
3.1 Concepts . . . . .	7
<b>4 DABC Programmer Manual: Plugins</b>	<b>9</b>
4.1 DABC plug-in mechanism . . . . .	9
<b>5 DABC Programmer Manual: Parameter</b>	<b>11</b>
5.1 DABC parameters . . . . .	11
<b>6 DABC Programmer Manual: Commands</b>	<b>13</b>
6.1 DABC commands . . . . .	13
<b>7 DABC Programmer Manual: Setup</b>	<b>15</b>
7.1 Setting up system . . . . .	15
<b>8 DABC Programmer Manual: GUI</b>	<b>17</b>
8.1 GUI Guide lines . . . . .	17
8.2 GUI Panels . . . . .	17
8.2.1 DABC launch panel . . . . .	17
8.2.2 MBS launch panel . . . . .	17
8.2.3 Combined DABC and MBS launch panel . . . . .	17
8.2.4 Command panel . . . . .	17
8.2.5 Parameter selection panel . . . . .	17
8.2.6 Monitoring panels . . . . .	17
8.2.7 Parameter table . . . . .	17
8.2.8 Logging window . . . . .	17
8.3 GUI save/restore setups . . . . .	17
8.4 Application specific GUI plug-in . . . . .	17
8.4.1 Application interfaces . . . . .	17
8.4.2 Java Interfaces to be implemented by application . . . . .	17

8.4.3	Java Interfaces provided by xgui . . . . .	18
<b>9</b>	<b>DABC Programmer Manual: Example MBS</b>	<b>21</b>
9.1	Example MBS event building . . . . .	21
<b>10</b>	<b>DABC Programmer Manual: Example Bnet</b>	<b>23</b>
10.1	Example network event building . . . . .	23
<b>11</b>	<b>DABC Programmer Manual: Example ROC</b>	<b>25</b>
11.1	Example ROC event building . . . . .	25
	<b>References</b>	<b>27</b>

## **2   *DABC* Programmer Manual: Overview**

---

[programmer/prog-overview.tex]

### **2.1   Programmer manual overview**



## **3    *DABC* Programmer Manual: Concepts**

---

[programmer/prog-concepts.tex]

### **3.1   Concepts**





## 4 *DABC* Programmer Manual: Plugins

---

[programmer/prog-plugin.tex]

### 4.1 *DABC* plug-in mechanism



## 5 *DABC* Programmer Manual: Parameter

---

[programmer/prog-parameter.tex]

### 5.1 *DABC* parameters



## **6   *DABC* Programmer Manual: Commands**

---

[programmer/prog-command.tex]

### **6.1   *DABC* commands**



## **7   *DABC* Programmer Manual: Setup**

---

[programmer/prog-setup.tex]

### **7.1   Setting up system**





## 8 *DABC* Programmer Manual: GUI

---

[programmer/prog-gui.tex]

### 8.1 GUI Guide lines

### 8.2 GUI Panels

#### 8.2.1 *DABC* launch panel

#### 8.2.2 *MBS* launch panel

#### 8.2.3 Combined *DABC* and *MBS* launch panel

#### 8.2.4 Command panel

#### 8.2.5 Parameter selection panel

#### 8.2.6 Monitoring panels

#### 8.2.7 Parameter table

#### 8.2.8 Logging window

### 8.3 GUI save/restore setups

### 8.4 Application specific GUI plug-in

#### 8.4.1 Application interfaces

Besides the generic part of the GUI it might be useful to have specific user panels as well, integrated in the generic GUI. This is provided by interface classes. A user may implement these interfaces in his own menus. He can connect his own call back functions to parameters, and a command function to be called when a command shall be executed. He may create his own panels for display using the graphical primitives like rate meters.

#### 8.4.2 Java Interfaces to be implemented by application

##### 8.4.2.1 Interface `xiUserPanel`

```
public abstract void init(xiDesktop desktop, ActionListener actionlistener);  
Called by xgui after instantiation. The desktop can be used to add frames (see below).  
public String getHeader(); Must return a header/name text after instantiation.  
public String getToolTip(); Must return a tooltip text after instantiation.  
public ImageIcon getIcon(); Must return an icon after instantiation.
```

`public xiUserCommand getUserCommand();` Must return an object implementing `xiUserCommand`, or null. See below.

`public void setDimServices(xiDimBrowser browser);` Called by `xgui` whenever the DIM services had been changed. The browser provides the command and parameter list (see below). One can select and store references to commands or parameters. A `xiUserInfoHandler` can be registered for each selected parameter. Then the `infoHandler` method is called for each parameter update.

`public void releaseDimServices();` All local references to commands or parameters must be cleared!

#### 8.4.2.2 public interface xiUserCommand

`public boolean getArgumentStyleXml(String scope, String command);` Return true if command shall be composed as XML string, false if MBS style string. `scope` is specified in the XML command descriptor, `command` is the full command name.

#### 8.4.2.3 public interface xiUserInfoHandler

`public void infoHandler(xiDimParameter p);`

### 8.4.3 Java Interfaces provided by xgui

#### 8.4.3.1 Interface xiDesktop

`public void addDesktop(JInternalFrame frame, String name);`

#### 8.4.3.2 Interface xiDimBrowser

```
public xiDimParameter[] getParameters();
public xiDimCommand[] getCommands();
public void setInfoHandler(xiDimParameter parameter,
                           xiUserInfoHandler infohandler);
public void sleep(int s);
```

#### 8.4.3.3 Interface xiDimCommand

```
public void exec(String command);
public xiParser getParserInfo();
```

#### 8.4.3.4 Interface xiDimParameter

```
public xRecordMeter getMeter();
public xRecordState getState();
public xRecordInfo getInfo();
public xiParser getParserInfo();
```

### 8.4.3.5 Interface xiParser

```
public String getDns();
public String getNode();
public String getNodeName();
public String getNodeID();
public String getApplicationFull();
public String getApplication();
public String getApplicationName();
public String getApplicationID();
public String getName();
public String getNameSpace();
public String[] getItems();
public String getFull();
public String getFull(boolean build);
public String getCommand();
public String getCommand(boolean build);
public int getType();
public int getState();
public int getVisibility();
public int getMode();
public int getQuality();
public int getNofTypes();
public int[] getTypeSizes();
public String[] getTypeList();
public String getFormat();
public boolean isNotSpecified();
public boolean isSuccess();
public boolean isInformation();
public boolean isWarning();
public boolean isError();
public boolean isFatal();
public boolean isAtomic();
public boolean isGeneric();
public boolean isState();
public boolean isInfo();
public boolean isRate();
public boolean isHistogram();
public boolean isCommandDescriptor();
public boolean isHidden();
public boolean isVisible();
public boolean isMonitor();
public boolean isChangable();
public boolean isImportant();
public boolean isLogging();
public boolean isArray();
public boolean isFloat();
public boolean isDouble();
public boolean isInt();
public boolean isLong();
```

```
public boolean isChar();  
public boolean isStruct();
```

## **9    *DABC* Programmer Manual: Example *MBS***

---

[programmer/prog-exa-mbs.tex]

### **9.1    Example *MBS* event building**



## 10 *DABC* Programmer Manual: Example Bnet

---

[programmer/prog-exa-bnet.tex]

### 10.1 Example network event building





# 11 *DABC* Programmer Manual: Example ROC

---

[programmer/prog-exa-roc.tex]

## 11.1 Example ROC event building



# References

---

- [1] CBM collaboration, "CBM Experiment: Technical Status Report", Januar 2005
- [2] CMS collaboration, <http://cmsinfo.cern.ch/outreach/>, "CMS Outreach", CERN 2006
- [3] The Experimental Physics and Industrial Control System website, <http://www.aps.anl.gov/epics/index.php>, Argonne National Laboratory 2006
- [4] C. Gaspar et al., "DIM - Distributed Information Management System" , <http://dim.web.cern.ch/dim/>, CERN May 2006
- [5] Y. Liu and P. Sinha, "A Survey Of Generic Architectures For Dependable Systems", IEEE Canadian Review, Spring 2003
- [6] The National Instruments Labview web site, <http://www.ni.com/labview/>, National Instruments Corporation 2006
- [7] L. Orsini and J. Gutleber, "The XDAQ Wiki Main Page" <http://xdaqwiki.cern.ch/index.php>, CERN 2006
- [8] L. Orsini and J. Gutleber, "I2O Messaging" [http://xdaqwiki.cern.ch/index.php/I2O\\_Messaging](http://xdaqwiki.cern.ch/index.php/I2O_Messaging) , CERN 2006
- [9] L. Orsini and J. Gutleber, "XDAQ Monitor application" [http://xdaqwiki.cern.ch/index.php/Monitor\\_CGI\\_interface](http://xdaqwiki.cern.ch/index.php/Monitor_CGI_interface) , CERN 2005
- [10] L. Orsini and J. Gutleber, [http://xdaqwiki.cern.ch/index.php/Configuration\\_schema](http://xdaqwiki.cern.ch/index.php/Configuration_schema) "XDAQ XML configuration schema", CERN 2006
- [11] D. Stenberg et al., The curl and libcurl web site, <http://curl.haxx.se/>, HAXX HB 2006
- [12] SystemC website, <http://www.systemc.org/>
- [13] The W3C Consortium, "SOAP Version 1.2 Part 1: Messaging Framework", <http://www.w3.org/TR/soap12-part1>, W3C Recommendation, 24 June 2003
- [14] K. Whisnant, R.K. Iyer, Z. Kalbarczyk, and P. Jones, "The Effects of an ARMOR-based SIFT Environment on the Performance and Dependability of User Applications", University of Illinois, 2006
- [15] The Wikipedia, "Finite State Machine", [http://en.wikipedia.org/wiki/State\\_machine](http://en.wikipedia.org/wiki/State_machine), Wikipedia 2006

