ISDAT Users Manual

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Contents

1 Introduction

1.1 Purpose of the document

The purpose of this document is to provide all information needed to get started with the ISDAT system. The document is written for the ISDAT end user.

A general introduction to the ISDAT is given in [Ref. 1], which includes a complete list of ISDAT related documents. The installation of the ISDAT is described in [Ref. 2].

1.2 Scope of the software

The scope of the ISDAT software package is to provide a flexible tool for the analysis of scientific data.

1.3 Definitions and acronyms

Acronym	Meaning
DBH	Data Base Handler
GKS	Graphics Kernel System
ISDAT	Interactive Science Data Analysis Tool
N/A	Not Applicable
PEX	PHIGS Extension to X11
PHIGS	Programmer's Hierarchical Graphics System
TBD	To Be defined
TBW	To Be Written

1.4 Problem Reporting

All bugs should be reported to al@irfu.se.

2 Setting up the environment

2.1 At work session start

Since the ISDAT is a system of client/server architecture, a large number of local configurations are possible. For example:

1. A local X-terminal and remote clients, servers(DBH), and data bases.
2. A workstation with a client and remote data server(s).
3. A completely local system with clients, data servers and data base at the local workstation.
4. A complete local software installation and remote data bases.

The supported platforma are listed in [Ref. 2]. The minimum end user hardware is a X-terminal. To run PHIGS/PEX clients a PEX terminal is needed. Here we will assume that you have a configuration corresponding to case 1 above. We assume that your screen is identified as *myscreen* and that the remote machine is called *remotemachine*. It is also assumed that you are running under *kornshell*.

Firstly, you should make sure that your host mashine knows where to find the ISDAT root by the $ISDAT variable. Either you give it via a commanl line statement *export ISDAT=/home/user/isdat* or more counieniently, you have it built into your environment in the .profile for example. Secondly, you should have a *#include "ISDAT/config/Xdefaults"* as the last statement of your .Xdefaults file. An example of the Xdefaults file is listed in Appendix A. The following steps should then performed:

1. Start X11 by typing *X11start*.
2. Open an X11 window from the system menu.
3. Open a connection to the remote machine by typing *rlogin remotemashine* anl login as usual, or type *telnet remotemashine* if necessary.
4. Now, tell the remote mashine that you want the output on your screen by typing *export DISPLAY=myscreen:0*.
5. If you are not sure that a DBH is running on the foreign mashine, check it by typing *ps -ef — grep dbh*. If there is a DBH running in the background, you will recognize it in the response.
6. Now, tell the remote mashine which DBH you want to connect to by specifying the environment variable DATABASE by typing *export DATABASE=unix:0* for database 0.

2.2 Customizing your environment

There are a number of UNIX and ISDAT environment variables and X11 specifications that can be preset to suit your personal needs. They are specified in the $ISDAT/config/Xdefaults file and in the .isdat files.

2.2.1 The .Xdefault file

The file $ISDAT/config/Xdefaults is listed in Appendix A. It contains a number of motif specifications needed in the ISDAT. You are not allowed to change anything in that file as a user. However, you can introduce your own preferences by re-defining the variables in your own .Xdefaults file *after* the *#include "ISDAT/config/Xdefaults"* statement.

2.2.2 The .isdat file

An example of an .isdat file is shown in Appendix B. Here you specify what databases you intend to work with. This file is your personal file and you are free to set it according to your preferences. It has to reside in your home directory.

3 Running ISDAT

Normally one or several DBH's are running in the background when you start your session. The normal case should be to have one DBH running on the local network and that all users can connect to that. If no DBH is running, you have to start one as described in section 3.3. The ISDAT is normally started by starting a *time manager*. How that is done is described in section 3.1.

3.1 Starting a time manager

There may exist a choice of time manager at your installation. One time manager is *stm* described in [Ref. 3]. Provided that youhave set up the adequate paths you just type *stm* to start it. From now on you should refer to the *stm* manual to read how to proceed.

3.2 Starting a client

A list of available clients and filters is found in [Ref. 1].

3.2.1 Ordinary clients

Ordinary clients are normally started from a time manager menu, see for example [Ref. 3]. However, they can alternatively be started from a separate window. In that case you have no control over which time manager it will attach to (if there is more than one time manager running).

3.2.2 IDL clients

IDL clients cannot be included in time maneger menues. They have to be started from IDL. In other respects, they behave in the same way as ordinary clients.

3.3 Starting a DBH

Normally, there should be a DBH running in background at your site. If not, or if you prefer to have your own, just type *dbh unix:1* where the number can be any number, but it should correspond to the value given to $DATABASE. It may also be practical to defer *cbh* to the background by a *ctrlz; bg* command. TBW

3.4 Error messages and recovery procedures

Certain features of the ISDAT should be kept in mind:

- When a client breaks down, it does not affect the other clients, the time manager or the DBH.

Some frequent mistakes are listed below:

- When you try to start a time manager and get *Cannot connect to database **. Check that a DBH is running by *ps aux — dbh*. The set the $DATABASE to an appropriate value corresponding to the running DBH.
- *Cannot open display* means that you have not set the $DISPLAY variable or your display does not allow the foreign machine to use it.

References

[1] G. Holmgren and A. Lundgren. ISDAT interactive scientific analysis tool. an introduction. Technical report, IRF-U, February 1994.

[2] A. Lundgren. ISDAT installation manual. Technical Report CWD-SUM-003, IRF-U, March 1994.

[3] A. Lundgren. ISDAT stm users manual. Technical Report CWD-SUM-002, IRF-U, March 1994.

A File ISDAT/config/Xdefaults

```
!# This line is nescessary to get the OpenWindows olwm autoplacement
!# to work. If omitted, all ISDAT windows will be placed at the upper
!# left corner. It is either a bug in olwm or in the Xt shell code.
OpenWindows.PPositionCompat: true

!### This is for isdat

#if WIDTH == 1024 || WIDTH == 1152 || WIDTH == 1280
Isdat*fontList: *-b&h-lucidatypewriter-bold-r-normal-*-14-*-*-*-m-*-iso8859-1
Isdat*text.text.fontList: *-b&h-lucidatypewriter-medium-r-normal-*-12-*-75-75-m-*-iso8859-1
#endif
!# The default motif binding for sun is screwed (arrows doesn't work).
!# We also make both Delete and Backspace to work as Backspace.
Isdat*defaultVirtualBindings: \
osfCancel       :               <Key>Escape \n \
osfLeft         :               <Key>Left \n \
osfUp           :               <Key>Up \n \
osfRight        :               <Key>Right \n \
osfDown         :               <Key>Down \n \
osfEndLine      :               <Key>R13 \n \
osfBeginLine    :               <Key>F27 \n \
osfPageUp       :               <Key>F29 \n \
osfPageDown     :               <Key>F35 \n \
osfBackSpace    :               <Key>BackSpace \n \
osfDelete       :               <Key>KP_Decimal \n \
osfInsert       :               <Key>Insert \n \
osfAddMode      :Shift          <Key>F8 \n \
osfHelp         :               <Key>Help \n \
osfMenu         :               <Key>F4 \n \
osfMenuBar      :               <Key>F10 \n \
osfCopy         :               <Key>F16 \n \
osfCut          :               <Key>F20 \n \
osfPaste        :               <Key>F18 \n \
osfUndo         :               <Key>F14

Isdat*framerc*text*translations: #override \
  <Key>Delete     :               delete-previous-character()
Isdat*file*filew*fsb_filter_text*translations: #override \
  <Key>Delete     :               delete-previous-character()
Isdat*file*filew*sb_text*translations: #override \
  <Key>Delete     :               delete-previous-character()

Isdat*keyboardFocusPolicy: pointer
Isdat*allowShellResize: True
Isdat*fillOnArm: False
Isdat*fillOnSelect: False
Isdat*topform.horizontalSpacing: 6
Isdat*topform.verticalSpacing: 3
Isdat*subrc.marginWidth: 0
Isdat*subrc.marginHeight: 0

Isdat*XmDrawingArea.borderWidth: 1

Isdat*framerc.entryAlignment: ALIGNMENT_CENTER
```

```
Isdat*toggle.highlightThickness: 0
Isdat*radio.highlightThickness: 0
Isdat*push.highlightThickness: 0

Isdat*pot*entryAlignment: ALIGNMENT_CENTER
Isdat*pot*potrc.marginWidth: 0
Isdat*pot*potrc.marginHeight: 0
Isdat*pot*scale.showValue: True
Isdat*pot*scale.borderWidth: 1
Isdat*pot*popup*label.labelString: Potentiometer editor
Isdat*pot*popup*push.labelString: OK
Isdat*pot*popup*form.horizontalSpacing: 5
Isdat*pot*popup*form.verticalSpacing: 5

Isdat*arrow*entryAlignment: ALIGNMENT_CENTER
Isdat*arrow*arrow.height: 25

#ifdef COLOR
Isdat*foreground: black
Isdat*background: gray70
Isdat*topShadowColor: white
Isdat*bottomShadowColor: black
Isdat*XmDrawingArea.background: white
#else /* COLOR */
Isdat*foreground: black
Isdat*background: white
Isdat*backgroundPixmap: 50_foreground
Isdat*topShadowPixmap: foreground
Isdat*topShadowColor: white
Isdat*bottomShadowPixmap: foreground
Isdat*bottomShadowColor: black

Isdat*menu*foreground: white
Isdat*menu*background: black
Isdat*menu*backgroundPixmap: background
Isdat*menu*topShadowPixmap: foreground
Isdat*menu*topShadowColor: white
Isdat*menu*bottomShadowPixmap: 50_foreground
Isdat*menu*bottomShadowColor: white
Isdat*XmDrawingArea.backgroundPixmap: background
#endif /* COLOR */

!# Isdat, don't move these into the app-defaults file !!!

!# tech client sizes
Isdat*ts.width: 400
Isdat*ts.height: 200
Isdat*bfield.width: 200
Isdat*bfield.height: 200
Isdat*demo.width: 150
Isdat*demo.height: 150
Isdat*grey.width: 150
Isdat*grey.height: 150
Isdat*dft.width: 400
Isdat*dft.height: 300
Isdat*mira.width: 512
```

```
Isdat*mira.height: 512
Isdat*nwf.width: 150
Isdat*nwf.height: 150
Isdat*twf.width: 150
Isdat*twf.height: 150
Isdat*graph.width: 100
Isdat*graph.height: 40
!# liza client sizes
Isdat*stat.width: 400
Isdat*stat.height: 400
!# sci client sizes
Isdat*plot_pos.width: 150
Isdat*plot_pos.height: 150
Isdat*wf.width: 170
Isdat*wf.height: 150
Isdat*waveform.width: 170
Isdat*waveform.height: 150
Isdat*FFT.width: 170
Isdat*FFT.height: 150
Isdat*ghplot.width: 300
Isdat*ghplot.height: 300
Isdat*sweep.width: 170
Isdat*sweep.height: 150

Isdat*pred*framerc*subrc.entryAlignment: ALIGNMENT_CENTER
Isdat*pred*framerc*subrc.spacing: 3
Isdat*pred*framerc*push.shadowThickness: 1
Isdat*pred*framerc*push.marginWidth: 0
Isdat*pred*framerc*push.marginHeight: 0
Isdat*pred*framerc*push.borderWidth: 0

Isdat*bfield.iconPixmap: 50_foreground
Isdat*iconPixmap: 50_foreground

Isdat*filterpanel*filter.visibleItemCount: 10
Isdat*filterpanel*build.visibleItemCount: 10
```

B File .isdat

```
panurge.freja4.data:    /home/panurge/beta/data/freja/data:/data/freja/data
panurge.freja4.index:   /home/panurge/beta/data/freja/index
panurge.freja4.log:     /home/panurge/beta/data/freja/log
panurge.freja4.cal:     /home/panurge/beta/data/freja/cal

#panurge.freja4.data:     $HOME/testdata/ottobrunn20Feb

# time manager defaults
panurge.tm.project: freja

panurge.tm.interval: 0.5
```