

## **Blacknest Data System (BDS)**

### **BdsUserGui Program – 1.2.8 - 2010-10-14**

## **1. Introduction**

The BdsUserGui program provides a simple GUI application that provide basic BDS user access to Sensor data and MetaData. The BdsUserGui daemon is a client of the BdsServer and connects through the DataAccess API in order to fetch the requested data.

## **2. Usage**

The BdsUserGui program can be run by any user. The BdsUserGui program accepts the following command line options:

-help	Help on command line parameters
-host <hostname>	BDS Server host name
-user <user:password>	The BDS user id and password

The BdsUserGui program will read the BDS\_HOST environment variable at start-up. This variable, if set, defines the default BdsServer host name to contact. The default is “localhost” if this is not set. If the user and/or password is not given on the command line then the program will present a login Dialog box in order to provide this information.

The BdsUserGui application is written using the Qt widget set and conforms to standard GUI application practice. The main window provides a set of tabs that allow each of the major functions to be accessed. The major functions and there basic operation is listed below.

### **2.1. MetaData**

This tab provides access to the Seismic MetaData. It has a selector at the top and a set of tabs to access the Network, Station and Channel information.

#### **2.1.1. Networks**

This tab provides the ability to view the Seismic Network organisations.

#### **2.1.2. Stations**

This tab provides the ability to view Seismic Stations. Stations can be a “station” or an “array” of Stations. In the case of an “array” there is a list of stations that are associated with this array. Each Station has a set of physical locations based on a period of time and Network.

#### **2.1.3. Channels**

This tab provides the ability to view Seismic Channels. There is a simple set of selection criteria given at the top of the tab. This defines the period of time, the Network, Station/Array and Channel. When the “Update” button is clicked then the set of channels selected is displayed.

Each channel's values can then be viewed. For each channel there is a set of Instruments defined, a set of Calibration values and a set of Responses.

### **2.1.3.1. Instruments**

Each Channels Instrument consists of an associated Digitiser and Sensor. The digitiser and sensor can be unique to a channel or they could be shared amongst other channels.

### **2.1.3.2. Calibrations**

Each channel has a set of Calibration values by Time, Network and Source. These store information such as the Sampling frequency and Calibration Factor.

### **2.1.3.3. Responses**

This provides the list of frequency response information for various items in the channels data path. The predominant item is the Sensor's frequency response. Currently the system only supports the Pole/Zero format for describing frequency responses.

## **2.2. Sensor Data**

This tab provides the ability to select a set of seismic sensor data.

The top area of the tab provides the ability to select a set of channels based on a period of time, a Network, a Station, a Channel and a Source. A blank entry means any value. The "Update" button will apply the selection and display the channel data segments below. The "Update Times to data" button will modify the selections time period to match the data selected below. This allows particular segments of data to be selected easily to the block boundary. The "Update Select Fields" button enquires the server to find out what Networks, Stations, Channels and Sources there are to select from.

The Channels display shows the selected channel segments. These are ordered by network, source, station, channel and then segment. For each channel there may be a number of segments. The segments are based on the contiguous sets of data stored in individual seismic data files on the system. By default all channel segments are selected. However you can select a set of these channel segments if required.

Below the Channels list is a set of buttons to pop-up windows displaying different information on the sensor data.

The DataSelect tab also provides the ability to download the data in one of the formats supported by the BDS system using the "Download" controls at the bottom of the tab.

The FullBlocks option states to download to the nearest block boundaries with full data blocks. The default is to offset into the first and last blocks and return the samples within the time period requested.

The "Segment Merge" option merges separate segments that are sequential in time into one segment for export.

### **2.2.1. Traces**

This tab provides the ability to view the actual seismic sensor data in graphical form.

The "Update" button will update the displayed data after a selection change. The controls at the bottom will allow simple scaling and offset of the data in the X and Y directions. There is also a Scroll-bar to

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allow the period of time displayed to be modified. The start and end cursors, in conjunction with the individual trace select toggle buttons allow a selection of the data to be exported. This information is used in the Download section of the “Sensor Data” tab.

## **2.2.2. Responses**

This allows the Pole Zero responses to be viewed and Exported in a number of formats.

## **2.2.3. Data Notes**

This window displays any notes on the selected data. This includes any import warnings.

## **2.2.4. Data Info**

This tab provides the ability to view the meta data information from the seismic sensor data files. The “Update” button will update the information.

## **2.2.5. Data Channels**

This tab provides the ability to view a selection of the meta data for the channels. The “Update” button will update this display.

## **2.2.6. Data Files**

This will display information on the data files for the selected sensor data.

## **2.3. Sources**

This allows the Sensor Data and Meta Data sources to be viewed.

## **2.4. DataFiles**

This tab allows the actual seismic data files to be viewed. The tab presents a selector followed by a list of matching files and their corresponding channel entries.

## **2.5. Notes**

This tab displays a set of the system notes. These are notes and log entries entered by BDS programs and users. You can also add notes from this tab.

## **3. Return Value**

The program will return a status value of 0 if all was Ok. It will return a non zero value on error together with a message output on stderr.

## **4. Further Information**

For further information please look at the BDS system documentation at:

<https://portal.beam.ltd.uk/support/blacknest>.