

BdsApi

1.0.0

Generated by Doxygen 1.5.6

Wed Jun 3 13:59:30 2009

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Chapter 1

Main Page

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Version:

1.0.0

Date:

2009-02-18

1.1 Introduction

This document covers the BEAM BdsApi software API for the Blacknest Data System. This API provides the ability to access data and administer the BDS system. The API is an object orientated API implemented in 'C++' with a number of object classes. The API operates over a network type interface using an RPC type mechanism.

The BdsApi API makes use of the BEAM 'C++' class library. The BEAM 'C++' class library provides a small set of low level 'C++' classes for strings, lists and system interface functions. It also implements the BOAP RPC mechanism used to implement the BdsApi. There is some brief information on the BEAM class library later on in this page and a full API definition is available in the libBeam documentation.

1.2 Overview

Generally users of the system are only concerned with the DataAccess API.

The BdsApi has been developed using the BOAP (BEAM Object Access Protocol). This provides a simple but powerful Object Orientated RPC mechanism. The BdsApi is written in a high level interface definition language (IDL). The bidl tool generates the client and server side 'C++' interface and implementation files for the API. These are then provided as a set of 'C++' header files and a binary library file for the clients to link to. The BOAP system employs a simple BOAP name server process that provides a translation between object names and IPAddress/Socket numbers. The BOAP name server runs on the BDS Controller. More information on the BOAP system can be found in the libBeam documentation.

THE BDS API implements a number of data storage classes and three interface objects. The interface objects are:

1. **Bds::DataAccess** BDS Data API: This will provide read only access to the data and meta data. It will be used by the AutoDRM email and Web systems as well as for program access to the data.
2. **Bds::DataAddAccess** BDS DataAdd API: This will provide read and restricted write access to enable the adding of data to the system. It will not allow deletions of data to be performed. It is designed to be used by manual and automatic data adding programs.
3. **Bds::AdminAccess** BDS Admin API: This will provide full read/write access to the data and meta data as well as administrative configuration information.

1.3 Examples

There are some examples of client applications using the BdsApi in the **bdsExamples** directory of the source code. Some simple Data Access client examples are listed below:

```

/*****
 *      BdsDataClient1.cpp      BDS API example code for a Data Client
 *                               T.Barnaby,      BEAM Ltd,      2008-09-02
 *****/
 *
 *      This is a very basic example of using the BdsApi from a data access
 *      perspective. It is designed to give an overview of using the API.
 *      This program gets data in the BKNAS format.
 */
#include <iostream>
#include <stdio.h>
#include <BdsD.h>
#include <BdsC.h>

using namespace Bds;
using namespace std;

// Function to read some data
BError bdsTest (DataAccess& bds){
    BError          err;
    Selection        selection;
    DataInfo         dataInfo;
    DataHandle       dataHandle;
    BArray<BUInt8>   data;

    // Set up selection
#ifdef ZAP
    selection.startTime.setString("2002-01-01T00:00:00.000000");
    selection.endTime.setString("2002-01-01T00:01:00.000000");
#else
    selection.startTime.setString("2002-01-01T23:59:00.000000");
    selection.endTime.setString("2002-01-02T00:01:00.000000");
#endif

    selection.channels.append(SelectionChannel("BN", "EKA", "", ""));

    // Get list of all data available for the selection
    if(err = bds.dataSearch(selection, dataInfo)){
        return err.set(1, BString("Error: Searching for data: ") + err.getString());
    }

    // We should now choose which set of data we would like from the list, here we just
    // choose the first entry and get the data in appropriate format.
    if(!dataInfo.channels.size())
        return err.set(1, "No data found");

    if(err = bds.dataOpen(dataInfo, "r", "IMS", dataHandle)){
        return err;
    }
}

```



```

    }

    while(1){
        if(err = bds.dataFormattedRead(dataHandle, 1024, data)){
            return err;
        }

        if(data.size() == 0)
            break;

        fwrite(data.data(), 1, data.size(), stdout);
    }

    return err;
}

int main(int argc, char** argv){
    BError          err;
    BString          hostName;
    DataAccess       bds;

    hostName = getenv("BDS_HOST");
    if(hostName == "")
        hostName = "localhost";

    if(argc == 2)
        hostName = argv[1];

    // Connect to the DataAccess service
    if(err = bds.connectService(BString("/") + hostName + "/bdsDataAccess")){
        cerr << "Error: " << err.getString() << "\n";
        return 1;
    }

    // Connect to service
    if(!err)
        err = bds.connect("test", "beam00");

    // Run a normal data gathering as a normal data access client would.
    if(!err)
        err = bdsTest(bds);

    if(err){
        cerr << "Error: " << err.getString() << "\n";
        return 1;
    }

    return 0;
}

/*****
 *      BdsDataClient2.cpp      BDS API example code for a Data Client
 *                               T.Barnaby,      BEAM Ltd,      2008-09-02
 *****/
 *
 *      This is a very basic example of using the BdsApi from a data access
 *      perspective. It is designed to give an overview of using the API.
 *      This program gets data in raw format and outputs it in ASCII.
 */
#include <iostream>
#include <iomanip>
#include <stdio.h>
#include <BdsD.h>
#include <BdsC.h>

using namespace Bds;
using namespace std;

```

```

// Function to read some data
BError bdsTest(DataAccess& bds){
    BError          err;
    Selection        selection;
    DataInfo         dataInfo;
    DataHandle       dataHandle;
    DataBlock        data;
    BUInt32          blockNumber = 0;
    BUInt            c;
    BUInt            s;

    // Set up selection
    selection.startTime.setString("2008-01-03T00:00:00.000000");
    selection.endTime.setString("2008-01-03T00:01:00.000000");
    selection.channels.append(SelectionChannel("BN", "EKA", "", ""));

    // Get list of all data available for the selection
    if(err = bds.dataSearch(selection, dataInfo)){
        return err.set(1, BString("Error: Searching for data: ") + err.getString());
    }

    // We should now choose which set of data we would like from the list, here we just
    // choose the first entry and get the data in appropriate format.
    if(!dataInfo.channels.size())
        return err.set(1, "No data found");

    if(err = bds.dataOpen(dataInfo, "r", "API", dataHandle)){
        return err;
    }

    while(1){
        if(err = bds.dataGetBlock(dataHandle, 0, 0, blockNumber, data)){
            return err;
        }

        if(data.startTime >= dataInfo.endTime)
            break;

        for(s = 0; s < data.channelData[0].size(); s++){
            for(c = 0; c < data.channelData.size(); c++){
                if(c != 0)
                    std::cout << ", ";
                std::cout << setw(8) << data.channelData[c][s];
            }
            std::cout << "\n";
        }
        blockNumber++;
    }

    return err;
}

int main(int argc, char** argv){
    BError          err;
    BString         hostName;
    DataAccess       bds;

    hostName = getenv("BDS_HOST");
    if(hostName == "")
        hostName = "localhost";

    if(argc == 2)
        hostName = argv[1];

    // Connect to the DataAccess service

```

```

    if(err = bds.connectService(BString("/") + hostName + "/bdsDataAccess")){
        cerr << "Error: " << err.getString() << "\n";
        return 1;
    }

    // Connect to service
    if(!err)
        err = bds.connect("test", "beam00");

    // Run a normal data gathering as a normal data access client would.
    if(!err)
        err = bdsTest(bds);

    if(err){
        cerr << "Error: " << err.getString() << "\n";
        return 1;
    }

    return 0;
}

/*****
 *      BdsDataClient3.cpp      BDS API example code for a Data Client
 *                               T.Barnaby,      BEAM Ltd,      2008-09-02
 *****/
*
*      This is a very basic example of using the BdsApi from a data access
*      perspective. It is designed to give an overview of using the API.
*      This program gets information on the data channels.
*/
#include <iostream>
#include <iomanip>
#include <stdio.h>
#include <BdsD.h>
#include <BdsC.h>

using namespace Bds;
using namespace std;

// Function to read some data
BError bdsTest(DataAccess& bds){
    BError          err;
    Selection        selection;
    DataInfo         dataInfo;
    BList<ChannelInfo> channelInfos;
    BIter            i;
    BUInt            n;

    // Set up selection
    selection.startTime.setString("2008-01-03T00:00:00.000000");
    selection.endTime.setString("2008-01-03T00:01:00.000000");
    selection.channels.append(SelectionChannel("BN", "EKA", "", ""));

    // Get list of all data available for the selection
    if(err = bds.dataSearch(selection, dataInfo)){
        return err.set(1, BString("Error: Searching for data: ") + err.getString());
    }

    // We should now choose which set of data we would like from the list, here we just
    // choose the first entry and get the data in appropriate format.
    if(!dataInfo.channels.size())
        return err.set(1, "No data found");

    if(err = bds.dataGetChannelInfo(dataInfo, channelInfos)){
        return err;
    }
}

```

```

// This displays some of the information available
for(channelInfos.start(i), n = 0; !channelInfos.isEnd(i); channelInfos.next(i), n++){
    ChannelInfo& c = channelInfos[i];

    cout << n << ": Station: " << c.station.name << " Channel: " << c.channel.channel << "\n";
    cout << "      " << "Calibration: " << c.calibration.calibrationFactor << " Frequency: " <<
        " Units: " << c.calibration.calibrationUnits << "\n";
    cout << "      " << "Instrument: " << c.digitiser.name << "\n";
}

return err;
}

int main(int argc, char** argv){
    BError err;
    BString hostName;
    DataAccess bds;

    hostName = getenv("BDS_HOST");
    if(hostName == "")
        hostName = "localhost";

    if(argc == 2)
        hostName = argv[1];

    // Connect to the DataAccess service
    if(err = bds.connectService(BString("/") + hostName + "/bdsDataAccess")){
        cerr << "Error: " << err.getString() << "\n";
        return 1;
    }

    // Connect to service
    if(!err)
        err = bds.connect("test", "beam00");

    // Run a normal data gathering as a normal data access client would.
    if(!err)
        err = bdsTest(bds);

    if(err){
        cerr << "Error: " << err.getString() << "\n";
        return 1;
    }

    return 0;
}

```

Chapter 2

Directory Hierarchy

2.1 Directories

This directory hierarchy is sorted roughly, but not completely, alphabetically:

bdsDataLib 17

Chapter 3

Namespace Index

3.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Bds	19
-------------------------------	----

Chapter 4

Class Index

4.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Bds::AccessGroup	27
Bds::AdminAccess	29
Bds::ArrayChannel	39
Bds::BdsDataBlock	40
Bds::BdsDataBlockHeader	41
Bds::BdsDataPacket	42
Bds::BdsDataPacketHeader	43
Bds::BdsDataStreamlet	45
Bds::Calibration	46
Bds::Change	49
Bds::ChangeGroup	51
Bds::Channel	53
Bds::ChannelInfo	56
Bds::ChannelInstrument	58
Bds::DataAccess	60
Bds::DataAddAccess	64
Bds::DataBlock	68
Bds::DataChannel	70
Bds::DataCollate	74
Bds::DataFile	75
Bds::DataFileAscii	81
Bds::DataFileBdrs	83
Bds::DataFileBdrs	83
Bds::DataFileBds	87
Bds::DataFileBknas	95
Bds::DataFileGcf	97
Bds::DataFileIms	99
Bds::DataFileTapeDigitiser	102
Bds::DataFileWra	105
Bds::DataFileWra	105
Bds::DataFileWraAgso	109
Bds::DataFormats	112
Bds::DataHandle	113

Bds::DataInfo	114
Bds::Digitiser	116
Bds::Fap	119
Bds::FileDataHeaderTape_1v1	121
Bds::FileDataHeaderTape_2v0	124
Bds::Group	127
Bds::ListRange	129
Bds::Location	131
Bds::Network	134
Bds::Note	136
Bds::Point	138
Bds::PoleZero	139
Bds::Response	140
Bds::ResponseEdit	144
Bds::Selection	145
Bds::SelectionChannel	147
Bds::SelectionInfo	148
Bds::Sensor	150
Bds::SensorLocation	153
Bds::Station	155
Bds::TimePeriod	157
Bds::User	158

Chapter 5

Class Index

5.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Bds::AccessGroup (This holds information on data access groups)	27
Bds::AdminAccess (This is the AdminAccess API interface)	29
Bds::ArrayChannel (This class defines an arrays channel)	39
Bds::BdsDataBlock	40
Bds::BdsDataBlockHeader	41
Bds::BdsDataPacket	42
Bds::BdsDataPacketHeader	43
Bds::BdsDataStreamlet	45
Bds::Calibration (This class defines a calibration setting)	46
Bds::Change (This holds information on a change)	49
Bds::ChangeGroup (This holds information on a change)	51
Bds::Channel (This class defines a Channel)	53
Bds::ChannelInfo	56
Bds::ChannelInstrument	58
Bds::DataAccess	60
Bds::DataAddAccess (This is the DataAdd Access API interface)	64
Bds::DataBlock	68
Bds::DataChannel (This class defines information on a single channels set of data)	70
Bds::DataCollate (This class defines the interface for generic data file access)	74
Bds::DataFile (This class defines the interface for generic data file access)	75
Bds::DataFileAscii	81
Bds::DataFileBdrs	83
Bds::DataFileBds (This class implements the BDS Data File/Stream access system)	87
Bds::DataFileBknas	95
Bds::DataFileGcf	97
Bds::DataFileImms	99
Bds::DataFileTapeDigitiser (This class implements the TapeDigitiser's file output conversion and storing system)	102
Bds::DataFileWra	105
Bds::DataFileWraAgso	109
Bds::DataFormats (This class defines the interface for generic data file access)	112
Bds::DataHandle (This defines a handle to a data stream/file)	113
Bds::DataInfo	114

Bds::Digitiser (This class defines a Digitiser)	116
Bds::Fap (This class defines a Amplitude/Phase Response)	119
Bds::FileDataHeaderTape_1v1	121
Bds::FileDataHeaderTape_2v0	124
Bds::Group (This holds information on a groups)	127
Bds::ListRange (This class defines a TimePeriod)	129
Bds::Location (This class defines a Location . This will be the stations location)	131
Bds::Network (This class defines a Network organisation. Could have other information here like website, contacts etc)	134
Bds::Note (This holds information on a Note)	136
Bds::Point	138
Bds::PoleZero (This class defines a Pole/Zero Response)	139
Bds::Response (This class defines a Response)	140
Bds::ResponseEdit (Response Editor object)	144
Bds::Selection	145
Bds::SelectionChannel	147
Bds::SelectionInfo (This class defines the set of data selection criteria)	148
Bds::Sensor (This class defines a Sensor)	150
Bds::SensorLocation (This class defines a Sensor location)	153
Bds::Station	155
Bds::TimePeriod	157
Bds::User (This holds information on a user)	158

Chapter 6

File Index

6.1 File List

Here is a list of all files with brief descriptions:

/src/blacknest/bds/bds/bdsDataLib/BdsCompress.cpp	161
/src/blacknest/bds/bds/bdsDataLib/BdsCompress.h	162
/src/blacknest/bds/bds/bdsDataLib/BdsDataCollate.cpp	163
/src/blacknest/bds/bds/bdsDataLib/BdsDataCollate.h	164
/src/blacknest/bds/bds/bdsDataLib/BdsDataFile.cpp	165
/src/blacknest/bds/bds/bdsDataLib/BdsDataFile.h	166
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileAscii.cpp	167
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileAscii.h	168
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs-1.cpp	169
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs-1.h	170
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs.cpp	171
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs.h	172
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.cpp	173
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h	174
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBknas.cpp	175
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBknas.h	176
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileGcf.cpp	177
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileGcf.h	178
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileIms.cpp	179
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileIms.h	180
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileTapeDigitiser.cpp	181
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileTapeDigitiser.h	182
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.cpp	183
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.h	184
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra.cpp	185
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra.h	186
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWraAgso.cpp	187
/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWraAgso.h	188
/src/blacknest/bds/bds/bdsDataLib/BdsDataLib.cpp	189
/src/blacknest/bds/bds/bdsDataLib/BdsDataLib.h	190
/src/blacknest/bds/bds/bdsDataLib/canada_compress.c	191
/src/blacknest/bds/bds/bdsDataLib/canada_compress.h	192
BdsC.cc	193

BdsC.h	194
BdsD.cc	195
BdsD.h	196
BdsLib.cpp	199
BdsLib.h	200
BdsS.cc	201
BdsT.cc	202

Chapter 7

Directory Documentation

7.1 /src/blacknest/bds/bds/bdsDataLib/ Directory Reference

Files

- file [BdsCompress.cpp](#)
- file [BdsCompress.h](#)
- file [BdsDataCollate.cpp](#)
- file [BdsDataCollate.h](#)
- file [BdsDataFile.cpp](#)
- file [BdsDataFile.h](#)
- file [BdsDataFileAscii.cpp](#)
- file [BdsDataFileAscii.h](#)
- file [BdsDataFileBdrs-1.cpp](#)
- file [BdsDataFileBdrs-1.h](#)
- file [BdsDataFileBdrs.cpp](#)
- file [BdsDataFileBdrs.h](#)
- file [BdsDataFileBds.cpp](#)
- file [BdsDataFileBds.h](#)
- file [BdsDataFileBknas.cpp](#)
- file [BdsDataFileBknas.h](#)
- file [BdsDataFileGcf.cpp](#)
- file [BdsDataFileGcf.h](#)
- file [BdsDataFileIms.cpp](#)
- file [BdsDataFileIms.h](#)
- file [BdsDataFileTapeDigitiser.cpp](#)
- file [BdsDataFileTapeDigitiser.h](#)
- file [BdsDataFileWra-1.cpp](#)
- file [BdsDataFileWra-1.h](#)
- file [BdsDataFileWra.cpp](#)
- file [BdsDataFileWra.h](#)
- file [BdsDataFileWraAgso.cpp](#)
- file [BdsDataFileWraAgso.h](#)
- file [BdsDataLib.cpp](#)
- file [BdsDataLib.h](#)
- file [canada_compress.c](#)
- file [canada_compress.h](#)

Chapter 8

Namespace Documentation

8.1 Bds Namespace Reference

Classes

- class [DataAccess](#)
- class [DataAddAccess](#)

This is the DataAdd Access API interface.

- class [AdminAccess](#)

This is the [AdminAccess](#) API interface.

- class [Point](#)
- class [TimePeriod](#)
- class [ListRange](#)

This class defines a [TimePeriod](#).

- class [Network](#)

This class defines a [Network](#) organisation. Could have other information here like website, contacts etc.

- class [ArrayChannel](#)

This class defines an arrays channel.

- class [Station](#)
- class [Location](#)

This class defines a [Location](#). This will be the stations location.

- class [PoleZero](#)

This class defines a Pole/Zero [Response](#).

- class [Fap](#)

This class defines a Amplitude/Phase [Response](#).

- class [Response](#)

This class defines a [Response](#).

- class [Calibration](#)
This class defines a calibration setting.
- class [Digitiser](#)
This class defines a [Digitiser](#).
- class [Sensor](#)
This class defines a [Sensor](#).
- class [SensorLocation](#)
This class defines a [Sensor](#) location.
- class [ChannelInstrument](#)
- class [Channel](#)
This class defines a [Channel](#).
- class [SelectionInfo](#)
This class defines the set of data selection criteria.
- class [SelectionChannel](#)
- class [Selection](#)
- class [ChannelInfo](#)
- class [DataChannel](#)
This class defines information on a single channels set of data.
- class [DataInfo](#)
- class [DataHandle](#)
This defines a handle to a data stream/file.
- class [DataBlock](#)
- class [User](#)
This holds information on a user.
- class [Group](#)
This holds information on a groups.
- class [AccessGroup](#)
This holds information on data access groups.
- class [Change](#)
This holds information on a change.
- class [ChangeGroup](#)
This holds information on a change.
- class [Note](#)
This holds information on a [Note](#).
- class [ResponseEdit](#)

Response Editor object.

- class [DataCollate](#)

This class defines the interface for generic data file access.

- class [DataFile](#)

This class defines the interface for generic data file access.

- class [DataFileAscii](#)
- class [DataFileBdrs](#)
- struct [BdsDataBlockHeader](#)
- struct [BdsDataBlock](#)
- struct [BdsDataPacketHeader](#)
- class [BdsDataPacket](#)
- class [BdsDataStreamlet](#)
- class [DataFileBds](#)

This class implements the BDS Data File/Stream access system.

- class [DataFileBknas](#)
- class [DataFileGcf](#)
- class [DataFileImms](#)
- struct [FileDataHeaderTape_1v1](#)
- struct [FileDataHeaderTape_2v0](#)
- class [DataFileTapeDigitiser](#)

This class implements the TapeDigitiser's file output conversion and storing system.

- class [DataFileWra](#)
- class [DataFileWraAgso](#)
- class [DataFormats](#)

This class defines the interface for generic data file access.

Enumerations

- enum [Errors](#) {
[ErrorOk](#), [ErrorMisc](#), [ErrorWarning](#), [ErrorEndOfFile](#),
[ErrorFile](#), [ErrorInit](#), [ErrorConfig](#), [ErrorResourceLimit](#),
[ErrorParam](#), [ErrorNotImplemented](#), [ErrorComms](#), [ErrorTimeout](#),
[ErrorValidate](#), [ErrorValidateMissingBlocks](#), [ErrorValidateTimeBackwards](#), [ErrorValidateFilename-](#)
[Time](#),
[ErrorValidateMetaData](#), [ErrorValidateFix](#), [ErrorFormat](#), [ErrorTimeStamp](#),
[ErrorEndOfData](#), [ErrorNoData](#), [ErrorDataPresent](#), [ErrorAccessDenied](#) }
- enum [Priority](#) { [PriorityLow](#), [PriorityNormal](#), [PriorityHigh](#) }
- enum [SelectionGroup](#) { [SelectionGroupData](#), [SelectionGroupMetaData](#) }
- enum [SampleFormat](#) { [SampleFormatUnknown](#), [SampleFormatInt16](#), [SampleFormatInt32](#), [Sample-](#)
[FormatFloat32](#) }
- enum [BdsDataType](#) { [BdsDataTypeBlock](#) = 0x42534442, [BdsDataTypeInfo](#) = 0x30534442, [Bds-](#)
[DataTypeData](#) = 0x31534442 }
- enum [FileHeaderType](#) { [FileHeaderType_Standard](#) = 1, [FileHeaderType_TapeDigitiser](#) = 10 }

- enum [FileSampleType](#) {
[FileSampleType_Unknown](#), [FileSampleType_Float32](#), [FileSampleType_Float64](#), [FileSampleType_-Int16](#),
[FileSampleType_Int32](#) }

Functions

- void [bdsChannelGetTypeAux](#) (BString name, BString &type, BString &aux)
- BString [bdsChannelGetName](#) (BString type, BString aux)
- BError [bdsDataInfoSetTimeRange](#) ([DataInfo](#) &dataInfo)
- BError [bdsDataInfoFromInfo](#) (BDictString info, [DataInfo](#) &dataInfo)
Convert info to [DataInfo](#).
- BError [bdsInfoFromDataInfo](#) ([DataInfo](#) &dataInfo, BDictString &info)
- void [bdsDumpDataInfo](#) ([DataInfo](#) &dataInfo)
- BError [bdsUnCompressCm8](#) (BUInt8 *buffer, BUInt n, BArray< BInt32 > &data)
- BUInt32 [crc](#) (BUInt32 crc, void *data, int numBytes)
- void [dataCalculateDifference](#) (BInt32 &prevValue, BArray< BInt32 > &data)
- BInt32 [dataChecksum](#) (BInt32 checksum, BArray< BInt32 > &data)
- BError [dataCompressCm6](#) (int &prevValue1, int &prevValue2, BArray< BInt32 > &data, BString &d)
- void [dataConvert](#) (BArray< BFloat64 > &dataIn, BArray< BInt32 > &dataOut)

Variables

- const BUInt32 [apiVersion](#) = 0
- const BString [BdsVersion](#) = "1.0.0"
- static char [cm6Table](#) [64]
- const double [Scale](#) = 16777216.0
- [DataFormats](#) [dataFormats](#)

8.1.1 Enumeration Type Documentation

8.1.1.1 enum Bds::BdsDataType

Enumerator:

BdsDataTypeBlock

BdsDataTypeInfo

BdsDataTypeData

8.1.1.2 enum Bds::Errors

Enumerator:

ErrorOk

ErrorMisc

ErrorWarning

ErrorEndOfFile
ErrorFile
ErrorInit
ErrorConfig
ErrorResourceLimit
ErrorParam
ErrorNotImplemented
ErrorComms
ErrorTimeout
ErrorValidate
ErrorValidateMissingBlocks
ErrorValidateTimeBackwards
ErrorValidateFilenameTime
ErrorValidateMetaData
ErrorValidateFix
ErrorFormat
ErrorTimeStamp
ErrorEndOfData
ErrorNoData
ErrorDataPresent
ErrorAccessDenied

8.1.1.3 enum Bds::FileHeaderType

Enumerator:

FileHeaderType_Standard
FileHeaderType_TapeDigitiser

8.1.1.4 enum Bds::FileSampleType

Enumerator:

FileSampleType_Unknown
FileSampleType_Float32
FileSampleType_Float64
FileSampleType_Int16
FileSampleType_Int32

8.1.1.5 enum Bds::Priority

Enumerator:

PriorityLow
PriorityNormal
PriorityHigh

8.1.1.6 enum Bds::SampleFormat

Enumerator:

SampleFormatUnknown

SampleFormatInt16

SampleFormatInt32

SampleFormatFloat32

8.1.1.7 enum Bds::SelectionGroup

Enumerator:

SelectionGroupData

SelectionGroupMetaData

8.1.2 Function Documentation

8.1.2.1 BString Bds::bdsChannelGetName (BString *type*, BString *aux*)

8.1.2.2 void Bds::bdsChannelGetTypeAux (BString *name*, BString & *type*, BString & *aux*)

8.1.2.3 BError Bds::bdsDataInfoFromInfo (BDictString *info*, DataInfo & *dataInfo*)

Convert info to [DataInfo](#).

- 8.1.2.4 **BError** Bds::bdsDataInfoSetTimeRange (DataInfo & *dataInfo*)
- 8.1.2.5 **void** Bds::bdsDumpDataInfo (DataInfo & *dataInfo*)
- 8.1.2.6 **BError** Bds::bdsInfoFromDataInfo (DataInfo & *dataInfo*, BDictString & *info*)
- 8.1.2.7 **BError** Bds::bdsUnCompressCm8 (BUInt8 * *buffer*, BUInt *n*, BArray< BInt32 > & *data*)
- 8.1.2.8 **BUInt32** Bds::crc (BUInt32 *crc*, void * *data*, int *numBytes*)
- 8.1.2.9 **void** Bds::dataCalculateDifference (BInt32 & *prevValue*, BArray< BInt32 > & *data*)
- 8.1.2.10 **BInt32** Bds::dataChecksum (BInt32 *checksum*, BArray< BInt32 > & *data*)
- 8.1.2.11 **BError** Bds::dataCompressCm6 (int & *prevValue1*, int & *prevValue2*, BArray< BInt32 > & *data*, BString & *d*)
- 8.1.2.12 **void** Bds::dataConvert (BArray< BFloat64 > & *dataIn*, BArray< BInt32 > & *dataOut*)

8.1.3 Variable Documentation

- 8.1.3.1 **const** BUInt32 Bds::apiVersion = 0
- 8.1.3.2 **const** BString Bds::BdsVersion = "1.0.0"
- 8.1.3.3 **char** Bds::cm6Table[64] [static]

Initial value:

```
{
    '+', '-', '0', '1', '2', '3', '4', '5', '6', '7', '8', '9', 'A', 'B',
    'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P',
    'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'a', 'b', 'c', 'd',
    'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r',
    's', 't', 'u', 'v', 'w', 'x', 'y', 'z'
}
```

- 8.1.3.4 **DataFormats** Bds::dataFormats
- 8.1.3.5 **const double** Bds::Scale = 16777216.0

Chapter 9

Class Documentation

9.1 Bds::AccessGroup Class Reference

This holds information on data access groups.

```
#include <BdsD.h>
```

Public Member Functions

- [AccessGroup](#) (BUInt32 pid=BUInt32(), BString pgroup=BString(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pnetwork=BString(), BString pstation=BString())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The unique id.
- BString [group](#)
The [Group](#) name.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BString [network](#)
The [Network](#) Name.
- BString [station](#)
The [Station](#) name.

9.1.1 Detailed Description

This holds information on data access groups.

9.1.2 Constructor & Destructor Documentation

9.1.2.1 `Bds::AccessGroup::AccessGroup (BUInt32 pid = BUInt32(), BString pgroup = BString(), BTimeStamp pstartTime = BTimeStamp(), BTimeStamp pendTime = BTimeStamp(), BString pnetwork = BString(), BString pstation = BString())`

9.1.3 Member Function Documentation

9.1.3.1 `BString Bds::AccessGroup::getType ()`

9.1.3.2 `BError Bds::AccessGroup::setMembers (BDictString & members)`

9.1.3.3 `BError Bds::AccessGroup::getMembers (BDictString & members)`

9.1.4 Member Data Documentation

9.1.4.1 `BUInt32 Bds::AccessGroup::id`

The unique id.

9.1.4.2 `BString Bds::AccessGroup::group`

The [Group](#) name.

9.1.4.3 `BTimeStamp Bds::AccessGroup::startTime`

The Start Time.

9.1.4.4 `BTimeStamp Bds::AccessGroup::endTime`

The End Time.

9.1.4.5 `BString Bds::AccessGroup::network`

The [Network](#) Name.

9.1.4.6 `BString Bds::AccessGroup::station`

The [Station](#) name.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.2 Bds::AdminAccess Class Reference

This is the [AdminAccess](#) API interface.

```
#include <BdsC.h>
```

Public Member Functions

- [AdminAccess](#) (BString name="")
- BError [connect](#) (BString user, BString password)
Provides user/password information.
- BError [setUser](#) (BString user, BString email)
Sets user to given name or email.
- BError [setUserReal](#) ()
Sets user back to real user.
- BError [getVersion](#) (BString &version)
Gets the software version.
- BError [userGetList](#) (BList< [User](#) > &users)
Get list of Users.
- BError [userUpdate](#) (BInt32 append, [User](#) user, BUInt32 &id)
Update or append a user entry.
- BError [userDelete](#) (BUInt32 id)
Delete a user entry.
- BError [userGetGroups](#) (BList< BString > &groups)
- BError [groupGetList](#) (BList< [Group](#) > &groups)
Get list of groups the user belongs to.
- BError [groupUpdate](#) (BInt32 append, [Group](#) group, BUInt32 &id)
Update or append a group entry.
- BError [groupDelete](#) (BUInt32 id)
Delete a group entry.
- BError [accessGroupGetList](#) (BList< [AccessGroup](#) > &accessGroups)
Get list of AccessGroups.
- BError [accessGroupUpdate](#) (BInt32 append, [AccessGroup](#) group, BUInt32 &id)
Update or append an [AccessGroup](#) entry.
- BError [accessGroupDelete](#) (BUInt32 id)
Delete an [AccessGroup](#) entry.
- BError [getSelectionInfo](#) ([SelectionGroup](#) group, [SelectionInfo](#) &selectionInfo)

Get selection info.

- BError [getSelections](#) ([SelectionGroup](#) group, [Selection](#) selectionIn, [Selection](#) &selectionOut)

Get selection list.

- BError [networkGetList](#) (BList< [Network](#) > &networks)

Get list of Networks.

- BError [networkUpdate](#) (BInt32 append, [Network](#) network, BUInt32 &id)
- BError [networkDelete](#) (BUInt32 id)
- BError [stationGetList](#) ([Selection](#) sel, BList< [Station](#) > &stations)

Get list of Stations.

- BError [stationUpdate](#) (BInt32 append, [Station](#) station, BUInt32 &id)
- BError [stationDelete](#) (BUInt32 id)
- BError [locationGetList](#) ([Selection](#) sel, BList< [Location](#) > &locations)

Get list of [Station](#) Locations.

- BError [locationUpdate](#) (BInt32 append, [Location](#) location, BUInt32 &id)
- BError [locationDelete](#) (BUInt32 id)
- BError [channelGetList](#) ([Selection](#) sel, BList< [Channel](#) > &channels)

Get list of Channels.

- BError [channelGet](#) (BUInt32 id, [Channel](#) &channel)

Get a channel.

- BError [channelUpdate](#) (BInt32 append, [Channel](#) channel, BUInt32 &id)
- BError [channelDelete](#) (BUInt32 id)
- BError [channelInstrumentGetList](#) ([Selection](#) sel, BList< [ChannelInstrument](#) > &channelInstruments)

Get list of [Channel](#) Instruments.

- BError [channelInstrumentUpdate](#) (BInt32 append, [ChannelInstrument](#) channelInstrument, BUInt32 &id)
- BError [channelInstrumentDelete](#) (BUInt32 id)
- BError [digitiserGetList](#) ([Selection](#) sel, BList< [Digitiser](#) > &digitisers)

Get list of Channels.

- BError [digitiserGet](#) (BUInt32 id, [Digitiser](#) &digitiser)
- BError [digitiserUpdate](#) (BInt32 append, [Digitiser](#) digitiser, BUInt32 &id)
- BError [digitiserDelete](#) (BUInt32 id)
- BError [sensorGetList](#) ([Selection](#) sel, BList< [Sensor](#) > &sensors)

Get list of Channels.

- BError [sensorGet](#) (BUInt32 id, [Sensor](#) &sensor)
- BError [sensorUpdate](#) (BInt32 append, [Sensor](#) sensor, BUInt32 &id)
- BError [sensorDelete](#) (BUInt32 id)
- BError [sensorLocationGetList](#) ([Selection](#) sel, BList< [SensorLocation](#) > &sensorLocations)

Get list of [Sensor](#) Locations.

- BError [sensorLocationUpdate](#) (BInt32 append, [SensorLocation](#) sensorLocation, BUInt32 &id)
- BError [sensorLocationDelete](#) (BUInt32 id)
- BError [calibrationGetList](#) ([Selection](#) sel, BList< [Calibration](#) > &calibrations)
Get list of Channels.
- BError [calibrationUpdate](#) (BInt32 append, [Calibration](#) calibration, BUInt32 &id)
- BError [calibrationDelete](#) (BUInt32 id)
- BError [responseGetList](#) ([Selection](#) sel, BList< [Response](#) > &responses)
Get list of Channels.
- BError [responseUpdate](#) (BInt32 append, [Response](#) response, BUInt32 &id)
- BError [responseDelete](#) (BUInt32 id)
- BError [dataSearch](#) ([Selection](#) selection, [DataInfo](#) &dataInfo)
Search for data matching the given selection parameters.
- BError [dataGetChannelInfo](#) ([DataInfo](#) dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Return the channel MetaData in structured form.
- BError [dataOpen](#) ([DataInfo](#) dataInfo, BString mode, BString format, [DataHandle](#) &dataHandle)
Open a data stream.
- BError [dataGetInfo](#) ([DataHandle](#) dataHandle, [DataInfo](#) &dataInfo)
Get information on the data stream.
- BError [dataGetWarnings](#) ([DataHandle](#) dataHandle, BList< BString > &warnings)
Get information on the data stream.
- BError [dataGetBlock](#) ([DataHandle](#) dataHandle, BUInt32 channel, BUInt32 segment, BUInt32 block-Number, [DataBlock](#) &data)
Return a block of data.
- BError [dataSeekBlock](#) ([DataHandle](#) dataHandle, BUInt32 channel, BUInt32 segment, BTimeStamp time, BUInt32 &blockNumber)
Searches for a data block matching the time given.
- BError [dataSetInfo](#) ([DataHandle](#) dataHandle, [DataInfo](#) dataInfo)
Set the info when writing to a stream.
- BError [dataPutBlock](#) ([DataHandle](#) dataHandle, [DataBlock](#) data)
Send a block of data.
- BError [dataClose](#) ([DataHandle](#) dataHandle)
Close a stream.
- BError [dataFormattedRead](#) ([DataHandle](#) dataHandle, BUInt32 number, BArray< BUInt8 > &data)
Read the raw data from the stream.
- BError [dataFormattedGetLength](#) ([DataHandle](#) dataHandle, BUInt64 &length)
Read the raw data from the stream.

- BError [changeGroupStart](#) ([ChangeGroup](#) changeGroup)
- BError [changeGroupEnd](#) ()
- BError [changeGroupGetList](#) ([ListRange](#) range, BList< [ChangeGroup](#) > &changeGroups)
- BError [changeGroupDelete](#) (BTimeStamp beforeDate, BString type, BInt32 empty)
- BError [changeGetListNumber](#) (BUInt32 id, BUInt32 &number)
- BError [changeGetList](#) (BUInt32 id, [ListRange](#) range, BList< [Change](#) > &changes)
- BError [changeDelete](#) (BTimeStamp beforeDate, BString type)
- BError [noteGetList](#) ([ListRange](#) range, BList< [Note](#) > ¬es)
- BError [noteUpdate](#) (BInt32 append, [Note](#) note, BUInt32 &id)
- BError [noteDelete](#) (BUInt32 id)
- BError [statisticsGet](#) (BDict< BString > &info)
- BError [sqlQuery](#) (BString query, BList< BDict< BString > > &result)

A low level SQL access function.

9.2.1 Detailed Description

This is the [AdminAccess](#) API interface.

9.2.2 Constructor & Destructor Documentation

9.2.2.1 Bds::AdminAccess::AdminAccess (BString *name* = " ")

9.2.3 Member Function Documentation

9.2.3.1 BError Bds::AdminAccess::connect (BString *user*, BString *password*)

Provides user/password information.

9.2.3.2 BError Bds::AdminAccess::setUser (BString *user*, BString *email*)

Sets user to given name or email.

9.2.3.3 BError Bds::AdminAccess::setUserReal ()

Sets user back to real user.

9.2.3.4 BError Bds::AdminAccess::getVersion (BString & *version*)

Gets the software version.

9.2.3.5 BError Bds::AdminAccess::userGetList (BList< User > & *users*)

Get list of Users.

9.2.3.6 BError Bds::AdminAccess::userUpdate (BInt32 *append*, User *user*, BUInt32 & *id*)

Update or append a user entry.

9.2.3.7 BError Bds::AdminAccess::userDelete (BUInt32 *id*)

Delete a user entry.

9.2.3.8 BError Bds::AdminAccess::userGetGroups (BList< BString > & *groups*)**9.2.3.9 BError Bds::AdminAccess::groupGetList (BList< Group > & *groups*)**

Get list of groups the user belongs to.

Get list of Groups

9.2.3.10 BError Bds::AdminAccess::groupUpdate (BInt32 *append*, Group *group*, BUInt32 & *id*)

Update or append a group entry.

9.2.3.11 BError Bds::AdminAccess::groupDelete (BUInt32 *id*)

Delete a group entry.

9.2.3.12 BError Bds::AdminAccess::accessGroupGetList (BList< AccessGroup > & *accessGroups*)

Get list of AccessGroups.

9.2.3.13 BError Bds::AdminAccess::accessGroupUpdate (BInt32 *append*, AccessGroup *group*, BUInt32 & *id*)

Update or append an [AccessGroup](#) entry.

9.2.3.14 BError Bds::AdminAccess::accessGroupDelete (BUInt32 *id*)

Delete an [AccessGroup](#) entry.

9.2.3.15 BError Bds::AdminAccess::getSelectionInfo (SelectionGroup *group*, SelectionInfo & *selectionInfo*)

Get selection info.

9.2.3.16 BError Bds::AdminAccess::getSelections (SelectionGroup *group*, Selection *selectionIn*, Selection & *selectionOut*)

Get selection list.

9.2.3.17 BError Bds::AdminAccess::networkGetList (BList< Network > & *networks*)

Get list of Networks.

9.2.3.18 BError Bds::AdminAccess::networkUpdate (BInt32 *append*, Network *network*, BUInt32 & *id*)**9.2.3.19 BError Bds::AdminAccess::networkDelete (BUInt32 *id*)****9.2.3.20 BError Bds::AdminAccess::stationGetList (Selection *sel*, BList< Station > & *stations*)**

Get list of Stations.

9.2.3.21 BError Bds::AdminAccess::stationUpdate (BInt32 *append*, Station *station*, BUInt32 & *id*)**9.2.3.22 BError Bds::AdminAccess::stationDelete (BUInt32 *id*)****9.2.3.23 BError Bds::AdminAccess::locationGetList (Selection *sel*, BList< Location > & *locations*)**

Get list of [Station](#) Locations.

9.2.3.24 BError Bds::AdminAccess::locationUpdate (BInt32 *append*, Location *location*, BUInt32 & *id*)**9.2.3.25 BError Bds::AdminAccess::locationDelete (BUInt32 *id*)****9.2.3.26 BError Bds::AdminAccess::channelGetList (Selection *sel*, BList< Channel > & *channels*)**

Get list of Channels.

9.2.3.27 BError Bds::AdminAccess::channelGet (BUInt32 *id*, Channel & *channel*)

Get a channel.

9.2.3.28 BError Bds::AdminAccess::channelUpdate (BInt32 *append*, Channel *channel*, BUInt32 & *id*)**9.2.3.29 BError Bds::AdminAccess::channelDelete (BUInt32 *id*)****9.2.3.30 BError Bds::AdminAccess::channelInstrumentGetList (Selection *sel*, BList< ChannelInstrument > & *channelInstruments*)**

Get list of [Channel](#) Instruments.

9.2.3.31 **BError Bds::AdminAccess::channelInstrumentUpdate** (BInt32 *append*, ChannelInstrument *channelInstrument*, BUInt32 & *id*)

9.2.3.32 **BError Bds::AdminAccess::channelInstrumentDelete** (BUInt32 *id*)

9.2.3.33 **BError Bds::AdminAccess::digitiserGetList** (Selection *sel*, BList< Digitiser > & *digitisers*)

Get list of Channels.

9.2.3.34 **BError Bds::AdminAccess::digitiserGet** (BUInt32 *id*, Digitiser & *digitiser*)

9.2.3.35 **BError Bds::AdminAccess::digitiserUpdate** (BInt32 *append*, Digitiser *digitiser*, BUInt32 & *id*)

9.2.3.36 **BError Bds::AdminAccess::digitiserDelete** (BUInt32 *id*)

9.2.3.37 **BError Bds::AdminAccess::sensorGetList** (Selection *sel*, BList< Sensor > & *sensors*)

Get list of Channels.

9.2.3.38 **BError Bds::AdminAccess::sensorGet** (BUInt32 *id*, Sensor & *sensor*)

9.2.3.39 **BError Bds::AdminAccess::sensorUpdate** (BInt32 *append*, Sensor *sensor*, BUInt32 & *id*)

9.2.3.40 **BError Bds::AdminAccess::sensorDelete** (BUInt32 *id*)

9.2.3.41 **BError Bds::AdminAccess::sensorLocationGetList** (Selection *sel*, BList< SensorLocation > & *sensorLocations*)

Get list of [Sensor](#) Locations.

9.2.3.42 **BError Bds::AdminAccess::sensorLocationUpdate** (BInt32 *append*, SensorLocation *sensorLocation*, BUInt32 & *id*)

9.2.3.43 **BError Bds::AdminAccess::sensorLocationDelete** (BUInt32 *id*)

9.2.3.44 **BError Bds::AdminAccess::calibrationGetList** (Selection *sel*, BList< Calibration > & *calibrations*)

Get list of Channels.

9.2.3.45 **BError Bds::AdminAccess::calibrationUpdate** (BInt32 *append*, Calibration *calibration*, BUInt32 & *id*)

9.2.3.46 **BError Bds::AdminAccess::calibrationDelete** (BUInt32 *id*)

9.2.3.47 **BError Bds::AdminAccess::responseGetList** (Selection *sel*, BList< Response > & *responses*)

Get list of Channels.

9.2.3.48 **BError Bds::AdminAccess::responseUpdate** (BInt32 *append*, Response *response*, BUInt32 & *id*)

9.2.3.49 **BError Bds::AdminAccess::responseDelete** (BUInt32 *id*)

9.2.3.50 **BError Bds::AdminAccess::dataSearch** (Selection *selection*, DataInfo & *dataInfo*)

Search for data matching the given selection parameters.

9.2.3.51 **BError Bds::AdminAccess::dataGetChannelInfo** (DataInfo *dataInfo*, BList< ChannelInfo > & *channelInfos*)

Return the channel MetaData in structured form.

9.2.3.52 **BError Bds::AdminAccess::dataOpen** (DataInfo *dataInfo*, BString *mode*, BString *format*, DataHandle & *dataHandle*)

Open a data stream.

9.2.3.53 **BError Bds::AdminAccess::dataGetInfo** (DataHandle *dataHandle*, DataInfo & *dataInfo*)

Get information on the data stream.

9.2.3.54 **BError Bds::AdminAccess::dataGetWarnings** (DataHandle *dataHandle*, BList< BString > & *warnings*)

Get information on the data stream.

9.2.3.55 **BError Bds::AdminAccess::dataGetBlock** (DataHandle *dataHandle*, BUInt32 *channel*, BUInt32 *segment*, BUInt32 *blockNumber*, DataBlock & *data*)

Return a block of data.

9.2.3.56 **BError Bds::AdminAccess::dataSeekBlock** (DataHandle *dataHandle*, BUInt32 *channel*, BUInt32 *segment*, BTimeStamp *time*, BUInt32 & *blockNumber*)

Searches for a data block matching the time given.

9.2.3.57 BError Bds::AdminAccess::dataSetInfo (DataHandle *dataHandle*, DataInfo *dataInfo*)

Set the info when writing to a stream.

9.2.3.58 BError Bds::AdminAccess::dataPutBlock (DataHandle *dataHandle*, DataBlock *data*)

Send a block of data.

9.2.3.59 BError Bds::AdminAccess::dataClose (DataHandle *dataHandle*)

Close a stream.

9.2.3.60 BError Bds::AdminAccess::dataFormattedRead (DataHandle *dataHandle*, BUInt32 *number*, BArray< BUInt8 > & *data*)

Read the raw data from the stream.

9.2.3.61 BError Bds::AdminAccess::dataFormattedGetLength (DataHandle *dataHandle*, BUInt64 & *length*)

Read the raw data from the stream.

- 9.2.3.62 **BError Bds::AdminAccess::changeGroupStart** (*ChangeGroup changeGroup*)
- 9.2.3.63 **BError Bds::AdminAccess::changeGroupEnd** ()
- 9.2.3.64 **BError Bds::AdminAccess::changeGroupGetList** (*ListRange range*, *BList< ChangeGroup > & changeGroups*)
- 9.2.3.65 **BError Bds::AdminAccess::changeGroupDelete** (*BTimeStamp beforeDate*, *BString type*, *BInt32 empty*)
- 9.2.3.66 **BError Bds::AdminAccess::changeGetListNumber** (*BUInt32 id*, *BUInt32 & number*)
- 9.2.3.67 **BError Bds::AdminAccess::changeGetList** (*BUInt32 id*, *ListRange range*, *BList< Change > & changes*)
- 9.2.3.68 **BError Bds::AdminAccess::changeDelete** (*BTimeStamp beforeDate*, *BString type*)
- 9.2.3.69 **BError Bds::AdminAccess::noteGetList** (*ListRange range*, *BList< Note > & notes*)
- 9.2.3.70 **BError Bds::AdminAccess::noteUpdate** (*BInt32 append*, *Note note*, *BUInt32 & id*)
- 9.2.3.71 **BError Bds::AdminAccess::noteDelete** (*BUInt32 id*)
- 9.2.3.72 **BError Bds::AdminAccess::statisticsGet** (*BDict< BString > & info*)
- 9.2.3.73 **BError Bds::AdminAccess::sqlQuery** (*BString query*, *BList< BDict< BString > > & result*)

A low level SQL access function.

The documentation for this class was generated from the following files:

- [BdsC.h](#)
- [BdsC.cc](#)

9.3 Bds::ArrayChannel Class Reference

This class defines an arrays channel.

```
#include <BdsD.h>
```

Public Member Functions

- [ArrayChannel](#) (BString pstation=BString(), BString pchannel=BString())

Public Attributes

- BString [station](#)
The Stations name.
- BString [channel](#)
The Channels name.

9.3.1 Detailed Description

This class defines an arrays channel.

9.3.2 Constructor & Destructor Documentation

9.3.2.1 `Bds::ArrayChannel::ArrayChannel (BString pstation = BString(), BString pchannel = BString())`

9.3.3 Member Data Documentation

9.3.3.1 BString Bds::ArrayChannel::station

The Stations name.

9.3.3.2 BString Bds::ArrayChannel::channel

The Channels name.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.4 Bds::BdsDataBlock Struct Reference

```
#include <BdsDataFileBds.h>
```

Public Attributes

- [BdsDataBlockHeader](#) header
- char [data](#) []

The packet data.

9.4.1 Member Data Documentation

9.4.1.1 BdsDataBlockHeader Bds::BdsDataBlock::header

9.4.1.2 char Bds::BdsDataBlock::data[]

The packet data.

The documentation for this struct was generated from the following file:

- /src/blacknest/bds/bds/bdsDataLib/[BdsDataFileBds.h](#)

9.5 Bds::BdsDataBlockHeader Struct Reference

```
#include <BdsDataFileBds.h>
```

Public Attributes

- BUInt32 [type](#)
Blocks type, contains magic number for synchronisation.
- BUInt32 [length](#)
Packet length.
- BUInt32 [packetOffset](#)
Offset to first packet header within block or 0 if no packet header within block.

9.5.1 Member Data Documentation

9.5.1.1 BUInt32 Bds::BdsDataBlockHeader::type

Blocks type, contains magic number for synchronisation.

9.5.1.2 BUInt32 Bds::BdsDataBlockHeader::length

Packet length.

9.5.1.3 BUInt32 Bds::BdsDataBlockHeader::packetOffset

Offset to first packet header within block or 0 if no packet header within block.

The documentation for this struct was generated from the following file:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h](#)

9.6 Bds::BdsDataPacket Class Reference

```
#include <BdsDataFileBds.h>
```

Public Member Functions

- [BdsDataPacket \(\)](#)
- [~BdsDataPacket \(\)](#)
- void [clear \(\)](#)
- void [setChecksumAndLength \(\)](#)
- BError [validateChecksum \(\)](#)
- BError [setHeader \(BdsDataPacketHeader &header\)](#)
- BError [getHeader \(BdsDataPacketHeader &header\)](#)
- void [dump \(\)](#)

9.6.1 Constructor & Destructor Documentation

9.6.1.1 [Bds::BdsDataPacket::BdsDataPacket \(\)](#)

9.6.1.2 [Bds::BdsDataPacket::~~BdsDataPacket \(\)](#)

9.6.2 Member Function Documentation

9.6.2.1 [void Bds::BdsDataPacket::clear \(\)](#)

9.6.2.2 [void Bds::BdsDataPacket::setChecksumAndLength \(\)](#)

9.6.2.3 [BError Bds::BdsDataPacket::validateChecksum \(\)](#)

9.6.2.4 [BError Bds::BdsDataPacket::setHeader \(BdsDataPacketHeader & header\)](#)

9.6.2.5 [BError Bds::BdsDataPacket::getHeader \(BdsDataPacketHeader & header\)](#)

9.6.2.6 [void Bds::BdsDataPacket::dump \(\)](#)

The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.cpp](#)

9.7 Bds::BdsDataPacketHeader Struct Reference

```
#include <BdsDataFileBds.h>
```

Public Attributes

- BUInt32 [type](#)
Packets type.
- BUInt32 [length](#)
Length in bytes of packet.
- BUInt32 [streamlet](#)
The streamlet id.
- BUInt32 [sequence](#)
The streamlet packet sequence number.
- BUInt32 [checksum](#)
Checksum of packet.
- BTimeStamp [startTime](#)
The time of the first sample.
- BTimeStamp [endTime](#)
The time of the last sample + 1.

9.7.1 Member Data Documentation

9.7.1.1 BUInt32 Bds::BdsDataPacketHeader::type

Packets type.

9.7.1.2 BUInt32 Bds::BdsDataPacketHeader::length

Length in bytes of packet.

9.7.1.3 BUInt32 Bds::BdsDataPacketHeader::streamlet

The streamlet id.

9.7.1.4 BUInt32 Bds::BdsDataPacketHeader::sequence

The streamlet packet sequence number.

9.7.1.5 BUInt32 Bds::BdsDataPacketHeader::checksum

Checksum of packet.

9.7.1.6 BTimeStamp Bds::BdsDataPacketHeader::startTime

The time of the first sample.

9.7.1.7 BTimeStamp Bds::BdsDataPacketHeader::endTime

The time of the last sample + 1.

The documentation for this struct was generated from the following file:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h](#)

9.8 Bds::BdsDataStreamlet Class Reference

```
#include <BdsDataFileBds.h>
```

Public Member Functions

- [BdsDataStreamlet\(\)](#)

Public Attributes

- BUInt32 [packetNumber](#)
- BUInt64 [position](#)

9.8.1 Constructor & Destructor Documentation

9.8.1.1 [Bds::BdsDataStreamlet::BdsDataStreamlet\(\)](#) `[inline]`

9.8.2 Member Data Documentation

9.8.2.1 [BUInt32 Bds::BdsDataStreamlet::packetNumber](#)

9.8.2.2 [BUInt64 Bds::BdsDataStreamlet::position](#)

The documentation for this class was generated from the following file:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h](#)

9.9 Bds::Calibration Class Reference

This class defines a calibration setting.

```
#include <BdsD.h>
```

Public Member Functions

- **Calibration** (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pnetwork=BString(), BString pstation=BString(), BString pchannel=BString(), BFloat64 psamplingFrequency=BFloat64(), BFloat64 pcalibrationFrequency=BFloat64(), BFloat64 pcalibrationFactor=BFloat64(), BString pcalibrationUnits=BString())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BString [network](#)
The Network/Organisation Name.
- BString [station](#)
The station.
- BString [channel](#)
The channel.
- BFloat64 [samplingFrequency](#)
The sample rate used.
- BFloat64 [calibrationFrequency](#)
The frequency that the CalibrationFactor value is valid for.
- BFloat64 [calibrationFactor](#)
The scaling value to apply to the data to normalise to Nanometers. This is a measured value at the calibration frequency and is in Nanometers/Count.
- BString [calibrationUnits](#)
The calibration units.

9.9.1 Detailed Description

This class defines a calibration setting.

9.9.2 Constructor & Destructor Documentation

9.9.2.1 **Bds::Calibration::Calibration** (**BUInt32** *pid* = **BUInt32** (), **BTimeStamp** *pstartTime* = **BTimeStamp** (), **BTimeStamp** *pendTime* = **BTimeStamp** (), **BString** *pnetwork* = **BString** (), **BString** *pstation* = **BString** (), **BString** *pchannel* = **BString** (), **BFloat64** *psamplingFrequency* = **BFloat64** (), **BFloat64** *pcalibrationFrequency* = **BFloat64** (), **BFloat64** *pcalibrationFactor* = **BFloat64** (), **BString** *pcalibrationUnits* = **BString** ())

9.9.3 Member Function Documentation

9.9.3.1 **BString** **Bds::Calibration::getType** ()

9.9.3.2 **BError** **Bds::Calibration::setMembers** (**BDictString** & *members*)

9.9.3.3 **BError** **Bds::Calibration::getMembers** (**BDictString** & *members*)

9.9.4 Member Data Documentation

9.9.4.1 **BUInt32** **Bds::Calibration::id**

The ID.

9.9.4.2 **BTimeStamp** **Bds::Calibration::startTime**

The Start Time.

9.9.4.3 **BTimeStamp** **Bds::Calibration::endTime**

The End Time.

9.9.4.4 **BString** **Bds::Calibration::network**

The Network/Organisation Name.

9.9.4.5 **BString** **Bds::Calibration::station**

The station.

9.9.4.6 **BString** **Bds::Calibration::channel**

The channel.

9.9.4.7 BFloat64 Bds::Calibration::samplingFrequency

The sample rate used.

9.9.4.8 BFloat64 Bds::Calibration::calibrationFrequency

The frequency that the CalibrationFactor value is valid for.

9.9.4.9 BFloat64 Bds::Calibration::calibrationFactor

The scaling value to apply to the data to normalise to Nanometers. This is a measured value at the calibration frequency and is in Nanometers/Count.

9.9.4.10 BString Bds::Calibration::calibrationUnits

The calibration units.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.10 Bds::Change Class Reference

This holds information on a change.

```
#include <BdsD.h>
```

Public Member Functions

- [Change](#) (BUInt32 pid=BUInt32(), BUInt32 pchangeGroupId=BUInt32(), BTimeStamp ptime=BTimeStamp(), BString ptype=BString(), BString ptable=BString(), BUInt32 prowid=BUInt32())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The unique id.
- BUInt32 [changeGroupId](#)
The [Change](#) group ID.
- BTimeStamp [time](#)
The Time the change was made.
- BString [type](#)
The change type.
- BString [table](#)
The database table affected.
- BUInt32 [rowId](#)
The database row affected.

9.10.1 Detailed Description

This holds information on a change.

9.10.2 Constructor & Destructor Documentation

9.10.2.1 `Bds::Change::Change (BUInt32 pid = BUInt32 (), BUInt32 pchangeGroupId = BUInt32 (), BTimeStamp ptime = BTimeStamp (), BString ptype = BString (), BString ptable = BString (), BUInt32 prowid = BUInt32 ())`

9.10.3 Member Function Documentation

9.10.3.1 `BString Bds::Change::getType ()`

9.10.3.2 `BError Bds::Change::setMembers (BDictString & members)`

9.10.3.3 `BError Bds::Change::getMembers (BDictString & members)`

9.10.4 Member Data Documentation

9.10.4.1 `BUInt32 Bds::Change::id`

The unique id.

9.10.4.2 `BUInt32 Bds::Change::changeGroupId`

The [Change](#) group ID.

9.10.4.3 `BTimeStamp Bds::Change::time`

The Time the change was made.

9.10.4.4 `BString Bds::Change::type`

The change type.

9.10.4.5 `BString Bds::Change::table`

The database table affected.

9.10.4.6 `BUInt32 Bds::Change::rowId`

The database row affected.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.11 Bds::ChangeGroup Class Reference

This holds information on a change.

```
#include <BdsD.h>
```

Public Member Functions

- [ChangeGroup](#) (BUInt32 pid=BUInt32(), BTimeStamp ptime=BTimeStamp(), BString ptype=BString(), BString puser=BString(), BString ptitle=BString(), BString pdescription=BString())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The unique id.
- BTimeStamp [time](#)
The Time the change was made.
- BString [type](#)
The type of change.
- BString [user](#)
The user who made the change.
- BString [title](#)
The Changes title.
- BString [description](#)
The Description of the change.

9.11.1 Detailed Description

This holds information on a change.

9.11.2 Constructor & Destructor Documentation

9.11.2.1 `Bds::ChangeGroup::ChangeGroup (BUInt32 pid = BUInt32(), BTimeStamp ptime = BTimeStamp(), BString pptype = BString(), BString puser = BString(), BString ptitle = BString(), BString pdescription = BString())`

9.11.3 Member Function Documentation

9.11.3.1 `BString Bds::ChangeGroup::getType ()`

9.11.3.2 `BError Bds::ChangeGroup::setMembers (BDictString & members)`

9.11.3.3 `BError Bds::ChangeGroup::getMembers (BDictString & members)`

9.11.4 Member Data Documentation

9.11.4.1 `BUInt32 Bds::ChangeGroup::id`

The unique id.

9.11.4.2 `BTimeStamp Bds::ChangeGroup::time`

The Time the change was made.

9.11.4.3 `BString Bds::ChangeGroup::type`

The type of change.

9.11.4.4 `BString Bds::ChangeGroup::user`

The user who made the change.

9.11.4.5 `BString Bds::ChangeGroup::title`

The Changes title.

9.11.4.6 `BString Bds::ChangeGroup::description`

The Description of the change.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.12 Bds::Channel Class Reference

This class defines a [Channel](#).

```
#include <BdsD.h>
```

Public Member Functions

- [Channel](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pnetwork=BString(), BString pstation=BString(), BString pchannel=BString(), BString pchannelType=BString(), BString pchannelAux=BString(), BString pdescription=BString())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time the channel was available.
- BString [network](#)
The [Network](#) Name.
- BString [station](#)
The Stations name. (Do we want this in here and if so do we want, network, source etc).
- BString [channel](#)
The channels name.
- BString [channelType](#)
The channels type.
- BString [channelAux](#)
The channels auxiliary identifier.
- BString [description](#)
The channels description.

9.12.1 Detailed Description

This class defines a [Channel](#).

9.12.2 Constructor & Destructor Documentation

9.12.2.1 `Bds::Channel::Channel (BUInt32 pid = BUInt32(), BTimeStamp pstartTime = BTimeStamp(), BTimeStamp pendTime = BTimeStamp(), BString pnetwork = BString(), BString pstation = BString(), BString pchannel = BString(), BString pchannelType = BString(), BString pchannelAux = BString(), BString pdescription = BString())`

9.12.3 Member Function Documentation

9.12.3.1 `BString Bds::Channel::getType ()`

9.12.3.2 `BError Bds::Channel::setMembers (BDictString & members)`

9.12.3.3 `BError Bds::Channel::getMembers (BDictString & members)`

9.12.4 Member Data Documentation

9.12.4.1 `BUInt32 Bds::Channel::id`

ID.

9.12.4.2 `BTimeStamp Bds::Channel::startTime`

The Start Time.

9.12.4.3 `BTimeStamp Bds::Channel::endTime`

The End Time the channel was available.

9.12.4.4 `BString Bds::Channel::network`

The [Network](#) Name.

9.12.4.5 `BString Bds::Channel::station`

The Stations name. (Do we want this in here and if so do we want, network, source etc).

9.12.4.6 `BString Bds::Channel::channel`

The channels name.

9.12.4.7 `BString Bds::Channel::channelType`

The channels type.

9.12.4.8 BString Bds::Channel::channelAux

The channels auxiliary identifier.

9.12.4.9 BString Bds::Channel::description

The channels description.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.13 Bds::ChannelInfo Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [ChannelInfo](#) ([Station](#) pstation=[Station](#)(), [Location](#) plocation=[Location](#)(), [Channel](#) pchannel=[Channel](#)(), [Digitiser](#) pdigitiser=[Digitiser](#)(), [Sensor](#) psensor=[Sensor](#)(), [SensorLocation](#) psensorLocation=[SensorLocation](#)(), [Calibration](#) pcalibration=[Calibration](#)(), [BList](#)< [Response](#) > presponses=[BList](#)< [Response](#) >())

Public Attributes

- [Station](#) station
The [Station](#) info.
- [Location](#) location
The [Station](#) location.
- [Channel](#) channel
The [Channel](#) data.
- [Digitiser](#) digitiser
The [Digitiser](#) in use.
- [Sensor](#) sensor
The [Sensor](#) in use.
- [SensorLocation](#) sensorLocation
The [Sensor](#)'s location.
- [Calibration](#) calibration
The [Calibration](#) info.
- [BList](#)< [Response](#) > responses
The list of frequency responses.

9.13.1 Constructor & Destructor Documentation

- 9.13.1.1** [Bds::ChannelInfo::ChannelInfo](#) ([Station](#) pstation = [Station](#) (), [Location](#) plocation = [Location](#) (), [Channel](#) pchannel = [Channel](#) (), [Digitiser](#) pdigitiser = [Digitiser](#) (), [Sensor](#) psensor = [Sensor](#) (), [SensorLocation](#) psensorLocation = [SensorLocation](#) (), [Calibration](#) pcalibration = [Calibration](#) (), [BList](#)< [Response](#) > presponses = [BList](#)<[Response](#) > ())

9.13.2 Member Data Documentation

9.13.2.1 [Station](#) [Bds::ChannelInfo::station](#)

The [Station](#) info.

9.13.2.2 Location Bds::ChannelInfo::location

The [Station](#) location.

9.13.2.3 Channel Bds::ChannelInfo::channel

The [Channel](#) data.

9.13.2.4 Digitiser Bds::ChannelInfo::digitiser

The [Digitiser](#) in use.

9.13.2.5 Sensor Bds::ChannelInfo::sensor

The [Sensor](#) in use.

9.13.2.6 SensorLocation Bds::ChannelInfo::sensorLocation

The Sensor's location.

9.13.2.7 Calibration Bds::ChannelInfo::calibration

The [Calibration](#) info.

9.13.2.8 BList<Response > Bds::ChannelInfo::responses

The list of frequency responses.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.14 Bds::ChannelInstrument Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [ChannelInstrument](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BUInt32 pchannelId=BUInt32(), BUInt32 pdigitiserId=BUInt32(), BUInt32 psensorId=BUInt32())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time the channel was available.
- BUInt32 [channelId](#)
The channels Id.
- BUInt32 [digitiserId](#)
The [Digitiser](#) in use.
- BUInt32 [sensorId](#)
The sensor in use.

9.14.1 Constructor & Destructor Documentation

9.14.1.1 `Bds::ChannelInstrument::ChannelInstrument (BUInt32 pid = BUInt32 (), BTimeStamp pstartTime = BTimeStamp (), BTimeStamp pendTime = BTimeStamp (), BUInt32 pchannelId = BUInt32 (), BUInt32 pdigitiserId = BUInt32 (), BUInt32 psensorId = BUInt32 ())`

9.14.2 Member Function Documentation

9.14.2.1 `BString Bds::ChannelInstrument::getType ()`

9.14.2.2 `BError Bds::ChannelInstrument::setMembers (BDictString & members)`

9.14.2.3 `BError Bds::ChannelInstrument::getMembers (BDictString & members)`

9.14.3 Member Data Documentation

9.14.3.1 `BUInt32 Bds::ChannelInstrument::id`

ID.

9.14.3.2 `BTimeStamp Bds::ChannelInstrument::startTime`

The Start Time.

9.14.3.3 `BTimeStamp Bds::ChannelInstrument::endTime`

The End Time the channel was available.

9.14.3.4 `BUInt32 Bds::ChannelInstrument::channelId`

The channels Id.

9.14.3.5 `BUInt32 Bds::ChannelInstrument::digitiserId`

The [Digitiser](#) in use.

9.14.3.6 `BUInt32 Bds::ChannelInstrument::sensorId`

The sensor in use.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.15 Bds::DataAccess Class Reference

```
#include <BdsC.h>
```

Public Member Functions

- [DataAccess](#) (BString name="")
- BError [connect](#) (BString user, BString password)
Provides user/password information for secure connection.
- BError [setUser](#) (BString user, BString email)
Sets user to given name or email.
- BError [setUserReal](#) ()
Sets user back to real user.
- BError [getVersion](#) (BString &version)
Gets the software version.
- BError [userGetGroups](#) (BList< BString > &groups)
- BError [networkGetList](#) (BList< [Network](#) > &networks)
Get list of groups the user belongs to.
- BError [stationGetList](#) ([Selection](#) sel, BList< [Station](#) > &stations)
Get list of Stations.
- BError [getSelectionInfo](#) ([SelectionGroup](#) group, [SelectionInfo](#) &selectionInfo)
Get selection info.
- BError [getSelections](#) ([SelectionGroup](#) group, [Selection](#) selectionIn, [Selection](#) &selectionOut)
Get selection list.
- BError [dataSearch](#) ([Selection](#) selection, [DataInfo](#) &dataInfo)
Search for data matching the given selection parameters.
- BError [dataGetChannelInfo](#) ([DataInfo](#) dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Return the channel MetaData in structured form.
- BError [dataOpen](#) ([DataInfo](#) dataInfo, BString mode, BString format, [DataHandle](#) &dataHandle)
Open a data stream.
- BError [dataGetInfo](#) ([DataHandle](#) dataHandle, [DataInfo](#) &dataInfo)
Get information on the data stream.
- BError [dataGetWarnings](#) ([DataHandle](#) dataHandle, BList< BString > &warnings)
Get information on the data stream.
- BError [dataSeekBlock](#) ([DataHandle](#) dataHandle, BUInt32 channel, BUInt32 segment, BTimeStamp time, BUInt32 &blockNumber)

Searches for a data block matching the time given.

- BError [dataGetBlock](#) ([DataHandle](#) dataHandle, BUInt32 channel, BUInt32 segment, BUInt32 block-Number, [DataBlock](#) &data)

Return a block of data.

- BError [dataClose](#) ([DataHandle](#) dataHandle)

Close a stream.

- BError [dataFormattedRead](#) ([DataHandle](#) dataHandle, BUInt32 number, BArray< BUInt8 > &data)

Read the raw data from the stream.

- BError [dataFormattedGetLength](#) ([DataHandle](#) dataHandle, BUInt64 &length)

Read the raw data from the stream.

- BError [noteUpdate](#) (BInt32 append, [Note](#) note, BUInt32 &id)

9.15.1 Detailed Description

This class defines a [TimePeriod](#) This class defines a [Network](#) organisation. Could have other information here like website, contacts etc This class defines an arrays channel This class defines a [Location](#). This will be the stations location. This class defines a Pole/Zero [Response](#) This class defines a Amplitude/Phase [Response](#) This class defines a [Response](#) This class defines a calibration setting This class defines a [Digitiser](#) This class defines a [Sensor](#) This class defines a [Sensor](#) location This class defines a [Channel](#) This class defines the set of data selection criteria This class defines information on a single channels set of data This defines a handle to a data stream/file This holds information on a user This holds information on a groups This holds information on data access groups This holds information on a change This holds information on a change This holds information on a [Note](#) This is the Data Access API interface

9.15.2 Constructor & Destructor Documentation

9.15.2.1 Bds::DataAccess::DataAccess (BString name = " ")

9.15.3 Member Function Documentation

9.15.3.1 BError Bds::DataAccess::connect (BString user, BString password)

Provides user/password information for secure connection.

9.15.3.2 BError Bds::DataAccess::setUser (BString user, BString email)

Sets user to given name or email.

9.15.3.3 BError Bds::DataAccess::setUserReal ()

Sets user back to real user.

9.15.3.4 BError Bds::DataAccess::getVersion (BString & *version*)

Gets the software version.

9.15.3.5 BError Bds::DataAccess::userGetGroups (BList< BString > & *groups*)**9.15.3.6 BError Bds::DataAccess::networkGetList (BList< Network > & *networks*)**

Get list of groups the user belongs to.

Get list of Networks

9.15.3.7 BError Bds::DataAccess::stationGetList (Selection *sel*, BList< Station > & *stations*)

Get list of Stations.

9.15.3.8 BError Bds::DataAccess::getSelectionInfo (SelectionGroup *group*, SelectionInfo & *selectionInfo*)

Get selection info.

9.15.3.9 BError Bds::DataAccess::getSelections (SelectionGroup *group*, Selection *selectionIn*, Selection & *selectionOut*)

Get selection list.

9.15.3.10 BError Bds::DataAccess::dataSearch (Selection *selection*, DataInfo & *dataInfo*)

Search for data matching the given selection parameters.

9.15.3.11 BError Bds::DataAccess::dataGetChannelInfo (DataInfo *dataInfo*, BList< ChannelInfo > & *channelInfos*)

Return the channel MetaData in structured form.

9.15.3.12 BError Bds::DataAccess::dataOpen (DataInfo *dataInfo*, BString *mode*, BString *format*, DataHandle & *dataHandle*)

Open a data stream.

9.15.3.13 BError Bds::DataAccess::dataGetInfo (DataHandle *dataHandle*, DataInfo & *dataInfo*)

Get information on the data stream.

9.15.3.14 BError Bds::DataAccess::dataGetWarnings (DataHandle *dataHandle*, BList< BString > & *warnings*)

Get information on the data stream.

9.15.3.15 BError Bds::DataAccess::dataSeekBlock (DataHandle *dataHandle*, BUInt32 *channel*, BUInt32 *segment*, BTimeStamp *time*, BUInt32 & *blockNumber*)

Searches for a data block matching the time given.

9.15.3.16 BError Bds::DataAccess::dataGetBlock (DataHandle *dataHandle*, BUInt32 *channel*, BUInt32 *segment*, BUInt32 *blockNumber*, DataBlock & *data*)

Return a block of data.

9.15.3.17 BError Bds::DataAccess::dataClose (DataHandle *dataHandle*)

Close a stream.

9.15.3.18 BError Bds::DataAccess::dataFormattedRead (DataHandle *dataHandle*, BUInt32 *number*, BArray< BUInt8 > & *data*)

Read the raw data from the stream.

9.15.3.19 BError Bds::DataAccess::dataFormattedGetLength (DataHandle *dataHandle*, BUInt64 & *length*)

Read the raw data from the stream.

9.15.3.20 BError Bds::DataAccess::noteUpdate (BInt32 *append*, Note *note*, BUInt32 & *id*)

The documentation for this class was generated from the following files:

- [BdsC.h](#)
- [BdsC.cc](#)

9.16 Bds::DataAddAccess Class Reference

This is the DataAdd Access API interface.

```
#include <BdsC.h>
```

Public Member Functions

- [DataAddAccess](#) (BString name="")
- BError [connect](#) (BString user, BString password)
Provides user/password information.
- BError [setUser](#) (BString user, BString email)
Sets user to given name or email.
- BError [setUserReal](#) ()
Sets user back to real user.
- BError [getVersion](#) (BString &version)
Gets the software version.
- BError [userGetGroups](#) (BList< BString > &groups)
- BError [networkGetList](#) (BList< [Network](#) > &networks)
Get list of groups the user belongs to.
- BError [stationGetList](#) ([Selection](#) sel, BList< [Station](#) > &stations)
Get list of Stations.
- BError [getSelectionInfo](#) ([SelectionGroup](#) group, [SelectionInfo](#) &selectionInfo)
Get selection info.
- BError [getSelections](#) ([SelectionGroup](#) group, [Selection](#) selectionIn, [Selection](#) &selectionOut)
Get selection list.
- BError [dataSearch](#) ([Selection](#) selection, [DataInfo](#) &dataInfo)
Search for data matching the given selection parameters.
- BError [dataGetChannelInfo](#) ([DataInfo](#) dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Return the channel MetaData in structured form.
- BError [dataOpen](#) ([DataInfo](#) dataInfo, BString mode, BString format, [DataHandle](#) &dataHandle)
Open a data stream.
- BError [dataGetInfo](#) ([DataHandle](#) dataHandle, [DataInfo](#) &dataInfo)
Get information on the data stream.
- BError [dataGetWarnings](#) ([DataHandle](#) dataHandle, BList< BString > &warnings)
Get information on the data stream.

- BError [dataSeekBlock](#) ([DataHandle](#) dataHandle, BUInt32 channel, BUInt32 segment, BTimeStamp time, BUInt32 &blockNumber)
Searches for a data block matching the time given.
- BError [dataGetBlock](#) ([DataHandle](#) dataHandle, BUInt32 channel, BUInt32 segment, BUInt32 blockNumber, [DataBlock](#) &data)
Return a block of data.
- BError [dataSetInfo](#) ([DataHandle](#) dataHandle, [DataInfo](#) dataInfo)
Set the info when writing to a stream.
- BError [dataPutBlock](#) ([DataHandle](#) dataHandle, [DataBlock](#) data)
Send a block of data.
- BError [dataClose](#) ([DataHandle](#) dataHandle)
Close a stream.
- BError [dataFormattedRead](#) ([DataHandle](#) dataHandle, BUInt32 number, BArray< BUInt8 > &data)
Read the raw data from the stream.
- BError [dataFormattedGetLength](#) ([DataHandle](#) dataHandle, BUInt64 &length)
The total length in bytes of the formatted data.
- BError [noteUpdate](#) (BInt32 append, [Note](#) note, BUInt32 &id)

9.16.1 Detailed Description

This is the DataAdd Access API interface.

9.16.2 Constructor & Destructor Documentation

9.16.2.1 Bds::DataAddAccess::DataAddAccess (BString *name* = " ")

9.16.3 Member Function Documentation

9.16.3.1 BError Bds::DataAddAccess::connect (BString *user*, BString *password*)

Provides user/password information.

9.16.3.2 BError Bds::DataAddAccess::setUser (BString *user*, BString *email*)

Sets user to given name or email.

9.16.3.3 BError Bds::DataAddAccess::setUserReal ()

Sets user back to real user.

9.16.3.4 BError Bds::DataAddAccess::getVersion (BString & *version*)

Gets the software version.

9.16.3.5 BError Bds::DataAddAccess::userGetGroups (BList< BString > & *groups*)

9.16.3.6 BError Bds::DataAddAccess::networkGetList (BList< Network > & *networks*)

Get list of groups the user belongs to.

Get list of Networks

9.16.3.7 BError Bds::DataAddAccess::stationGetList (Selection *sel*, BList< Station > & *stations*)

Get list of Stations.

9.16.3.8 BError Bds::DataAddAccess::getSelectionInfo (SelectionGroup *group*, SelectionInfo & *selectionInfo*)

Get selection info.

9.16.3.9 BError Bds::DataAddAccess::getSelections (SelectionGroup *group*, Selection *selectionIn*, Selection & *selectionOut*)

Get selection list.

9.16.3.10 BError Bds::DataAddAccess::dataSearch (Selection *selection*, DataInfo & *dataInfo*)

Search for data matching the given selection parameters.

9.16.3.11 BError Bds::DataAddAccess::dataGetChannelInfo (DataInfo *dataInfo*, BList< ChannelInfo > & *channelInfos*)

Return the channel MetaData in structured form.

9.16.3.12 BError Bds::DataAddAccess::dataOpen (DataInfo *dataInfo*, BString *mode*, BString *format*, DataHandle & *dataHandle*)

Open a data stream.

9.16.3.13 BError Bds::DataAddAccess::dataGetInfo (DataHandle *dataHandle*, DataInfo & *dataInfo*)

Get information on the data stream.

9.16.3.14 BError Bds::DataAddAccess::dataGetWarnings (DataHandle *dataHandle*, BList< BString > & *warnings*)

Get information on the data stream.

9.16.3.15 BError Bds::DataAddAccess::dataSeekBlock (DataHandle *dataHandle*, BUInt32 *channel*, BUInt32 *segment*, BTimeStamp *time*, BUInt32 & *blockNumber*)

Searches for a data block matching the time given.

9.16.3.16 BError Bds::DataAddAccess::dataGetBlock (DataHandle *dataHandle*, BUInt32 *channel*, BUInt32 *segment*, BUInt32 *blockNumber*, DataBlock & *data*)

Return a block of data.

9.16.3.17 BError Bds::DataAddAccess::dataSetInfo (DataHandle *dataHandle*, DataInfo *dataInfo*)

Set the info when writing to a stream.

9.16.3.18 BError Bds::DataAddAccess::dataPutBlock (DataHandle *dataHandle*, DataBlock *data*)

Send a block of data.

9.16.3.19 BError Bds::DataAddAccess::dataClose (DataHandle *dataHandle*)

Close a stream.

9.16.3.20 BError Bds::DataAddAccess::dataFormattedRead (DataHandle *dataHandle*, BUInt32 *number*, BArray< BUInt8 > & *data*)

Read the raw data from the stream.

9.16.3.21 BError Bds::DataAddAccess::dataFormattedGetLength (DataHandle *dataHandle*, BUInt64 & *length*)

The total length in bytes of the formatted data.

9.16.3.22 BError Bds::DataAddAccess::noteUpdate (BInt32 *append*, Note *note*, BUInt32 & *id*)

The documentation for this class was generated from the following files:

- [BdsC.h](#)
- [BdsC.cc](#)

9.17 Bds::DataBlock Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [DataBlock](#) (BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BUInt32 pchannelNumber=BUInt32(), BUInt32 psegmentNumber=BUInt32(), BArray< BArray< BFloat64 > > pchannelData=BArray< BArray< BFloat64 > >(), BDict< BString > pinfo=BDict< BString >())

Public Attributes

- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time the channel was available.
- BUInt32 [channelNumber](#)
The first channel number.
- BUInt32 [segmentNumber](#)
The segment number.
- BArray< BArray< BFloat64 > > [channelData](#)
The raw channel data in a 2 dimensional array, orders as per channel information in dataInfo.
- BDict< BString > [info](#)
Extra information on data.

9.17.1 Constructor & Destructor Documentation

- 9.17.1.1 Bds::DataBlock::DataBlock (BTimeStamp pstartTime = BTimeStamp(), BTimeStamp pendTime = BTimeStamp(), BUInt32 pchannelNumber = BUInt32(), BUInt32 psegmentNumber = BUInt32(), BArray< BArray< BFloat64 > > pchannelData = BArray< BArray< BFloat64 > >(), BDict< BString > pinfo = BDict< BString >())**

9.17.2 Member Data Documentation

9.17.2.1 BTimeStamp Bds::DataBlock::startTime

The Start Time.

9.17.2.2 BTimeStamp Bds::DataBlock::endTime

The End Time the channel was available.

9.17.2.3 BUInt32 Bds::DataBlock::channelNumber

The first channel number.

9.17.2.4 BUInt32 Bds::DataBlock::segmentNumber

The segment number.

9.17.2.5 BArray<BArray<BFloat64 > > Bds::DataBlock::channelData

The raw channel data in a 2 dimensional array, orders as per channel information in dataInfo.

9.17.2.6 BDict<BString > Bds::DataBlock::info

Extra information on data.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.18 Bds::DataChannel Class Reference

This class defines information on a single channels set of data.

```
#include <BdsD.h>
```

Public Member Functions

- [DataChannel](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pnetwork=BString(), BString pstation=BString(), BString pchannel=BString(), BString psource=BString(), BUInt32 pnumBlocks=BUInt32(), BUInt64 pnumSamples=BUInt64(), BFloat64 psampleRate=BFloat64(), BUInt32 psampleFormat=BUInt32(), BUInt32 pdataFileId=BUInt32(), BUInt32 pdataFileChannel=BUInt32(), BDict< BString > pinfo=BDict< BString >())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BString [network](#)
The [Network](#) Name.
- BString [station](#)
The [Station](#) name.
- BString [channel](#)
The Channels name.
- BString [source](#)
The Data Source.
- BUInt32 [numBlocks](#)
The total number of blocks per channel if known, 0 otherwise.
- BUInt64 [numSamples](#)
The total number of samples per channel if known, 0 otherwise.
- BFloat64 [sampleRate](#)
The data's sample rate.

- BUInt32 [sampleFormat](#)
The data sample format.
- BUInt32 [dataFileId](#)
The Data File Id.
- BUInt32 [dataFileChannel](#)
The Data File [Channel](#) number.
- BDict< BString > [info](#)
Extra info on the channel.

9.18.1 Detailed Description

This class defines information on a single channels set of data.

9.18.2 Constructor & Destructor Documentation

9.18.2.1 Bds::DataChannel::DataChannel (BUInt32 *pid* = BUInt32(), BTimeStamp *pstartTime* = BTimeStamp(), BTimeStamp *pendTime* = BTimeStamp(), BString *pnetwork* = BString(), BString *pstation* = BString(), BString *pchannel* = BString(), BString *psource* = BString(), BUInt32 *pnumBlocks* = BUInt32(), BUInt64 *pnumSamples* = BUInt64(), BFloat64 *psampleRate* = BFloat64(), BUInt32 *psampleFormat* = BUInt32(), BUInt32 *pdataFileId* = BUInt32(), BUInt32 *pdataFileChannel* = BUInt32(), BDict< BString > *pinfo* = BDict<BString >())

9.18.3 Member Function Documentation

9.18.3.1 BString Bds::DataChannel::getType ()

9.18.3.2 BError Bds::DataChannel::setMembers (BDictString & *members*)

9.18.3.3 BError Bds::DataChannel::getMembers (BDictString & *members*)

9.18.4 Member Data Documentation

9.18.4.1 BUInt32 Bds::DataChannel::id

ID.

9.18.4.2 BTimeStamp Bds::DataChannel::startTime

The Start Time.

9.18.4.3 BTimeStamp Bds::DataChannel::endTime

The End Time.

9.18.4.4 BString Bds::DataChannel::network

The [Network](#) Name.

9.18.4.5 BString Bds::DataChannel::station

The [Station](#) name.

9.18.4.6 BString Bds::DataChannel::channel

The Channels name.

9.18.4.7 BString Bds::DataChannel::source

The Data Source.

9.18.4.8 BUInt32 Bds::DataChannel::numBlocks

The total number of blocks per channel if known, 0 otherwise.

9.18.4.9 BUInt64 Bds::DataChannel::numSamples

The total number of samples per channel if known, 0 otherwise.

9.18.4.10 BFloat64 Bds::DataChannel::sampleRate

The data's sample rate.

9.18.4.11 BUInt32 Bds::DataChannel::sampleFormat

The data sample format.

9.18.4.12 BUInt32 Bds::DataChannel::dataFileId

The Data File Id.

9.18.4.13 BUInt32 Bds::DataChannel::dataFileChannel

The Data File [Channel](#) number.

9.18.4.14 BDict<BString> Bds::DataChannel::info

Extra info on the channel.

The documentation for this class was generated from the following files:

- [BdsD.h](#)

- [BdsD.cc](#)

9.19 Bds::DataCollate Class Reference

This class defines the interface for generic data file access.

```
#include <BdsDataCollate.h>
```

Public Member Functions

- [DataCollate](#) ()
- [~DataCollate](#) ()
- BError [addSource](#) ([DataFile](#) &dataFile, BUInt channel)
- BError [readData](#) (BUInt32 blockNumber, [DataBlock](#) &data)

9.19.1 Detailed Description

This class defines the interface for generic data file access.

9.19.2 Constructor & Destructor Documentation

9.19.2.1 Bds::DataCollate::DataCollate ()

9.19.2.2 Bds::DataCollate::~~DataCollate ()

9.19.3 Member Function Documentation

9.19.3.1 BError Bds::DataCollate::addSource ([DataFile](#) & *dataFile*, BUInt *channel*)

9.19.3.2 BError Bds::DataCollate::readData (BUInt32 *blockNumber*, [DataBlock](#) & *data*)

The documentation for this class was generated from the following files:

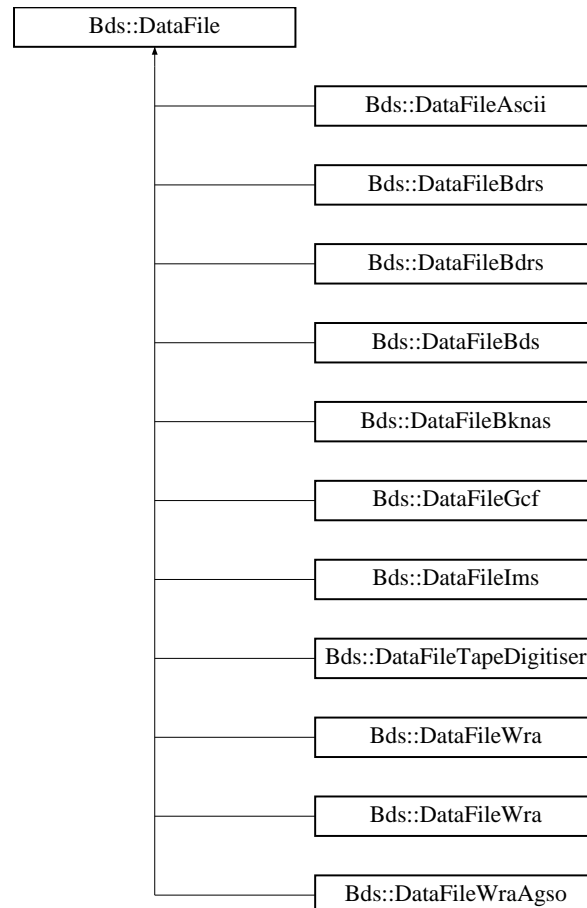
- /src/blacknest/bds/bds/bdsDataLib/[BdsDataCollate.h](#)
- /src/blacknest/bds/bds/bdsDataLib/[BdsDataCollate.cpp](#)

9.20 Bds::DataFile Class Reference

This class defines the interface for generic data file access.

```
#include <BdsDataFile.h>
```

Inheritance diagram for Bds::DataFile::



Public Types

- enum [DataOrder](#) { [DataOrderUnknown](#), [DataOrderAll](#), [DataOrderSample](#), [DataOrderChannel](#) }
- enum [Features](#) { [FeatureNone](#) = 0x00, [FeatureCanWrite](#) = 0x01, [FeatureCanRead](#) = 0x02 }
- enum [OptionsList](#) { [OptionNone](#) = 0x00, [OptionValidate](#) = 0x01, [OptionFileNameProcess](#) = 0x02, [OptionValidateCorruptions](#) = 0x04 }
- typedef int [Options](#)

Public Member Functions

- [DataFile](#) ()
- virtual [~DataFile](#) ()
- virtual void [init](#) ()

Initialise.

- virtual BError [open](#) (BString fileName, BString mode)
Open the file for read or write.
- virtual void [close](#) ()
Close the file.
- virtual BError [setFormat](#) (BString format)
Set the sub-format.
- virtual [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- virtual int [getFeatures](#) ()
Get bitmask of supported features.
- virtual BError [setInfo](#) ([DataInfo](#) &dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Set information on data for write.
- virtual BError [start](#) (BUInt channel, BUInt segment)
Start next segment of data.
- virtual BError [writeData](#) ([DataBlock](#) &data)
Write a block of data.
- virtual BError [end](#) ()
End segment.
- virtual BError [fileNameProcess](#) ()
Parse the file name for a date/time.
- virtual BError [getFormat](#) (BString &format)
Get sub-format.
- virtual BError [getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, BList< BError > &errors)
Get info on data.
- virtual BError [seekBlock](#) (BUInt32 channel, BTimeStamp time, BUInt32 &blockNumber)
Find requested block on given channel given a time.
- virtual BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.

Protected Attributes

- BString [ofilename](#)
- BString [omode](#)
- BTimeStamp [ofilenameTime](#)
- BFile [ofile](#)
- BString [oformat](#)

9.20.1 Detailed Description

This class defines the interface for generic data file access.

9.20.2 Member Typedef Documentation

9.20.2.1 typedef int Bds::DataFile::Options

9.20.3 Member Enumeration Documentation

9.20.3.1 enum Bds::DataFile::DataOrder

Enumerator:

DataOrderUnknown
DataOrderAll
DataOrderSample
DataOrderChannel

9.20.3.2 enum Bds::DataFile::Features

Enumerator:

FeatureNone
FeatureCanWrite
FeatureCanRead

9.20.3.3 enum Bds::DataFile::OptionsList

Enumerator:

OptionNone
OptionValidate
OptionFileNameProcess
OptionValidateCorruptions

9.20.4 Constructor & Destructor Documentation

9.20.4.1 Bds::DataFile::DataFile ()

9.20.4.2 Bds::DataFile::~~DataFile () [virtual]

9.20.5 Member Function Documentation

9.20.5.1 void Bds::DataFile::init () [virtual]

Initialise.

9.20.5.2 BError Bds::DataFile::open (BString *fileName*, BString *mode*) [virtual]

Open the file for read or write.

Reimplemented in [Bds::DataFileAscii](#), [Bds::DataFileBdrs](#), [Bds::DataFileBds](#), [Bds::DataFileBknas](#), [Bds::DataFileIms](#), [Bds::DataFileTapeDigitiser](#), and [Bds::DataFileWra](#).

9.20.5.3 void Bds::DataFile::close () [virtual]

Close the file.

Reimplemented in [Bds::DataFileBds](#), and [Bds::DataFileIms](#).

9.20.5.4 BError Bds::DataFile::setFormat (BString *format*) [virtual]

Set the sub-format.

Reimplemented in [Bds::DataFileBds](#), [Bds::DataFileWra](#), and [Bds::DataFileWra](#).

9.20.5.5 DataFile::DataOrder Bds::DataFile::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented in [Bds::DataFileBdrs](#), [Bds::DataFileBdrs](#), [Bds::DataFileBds](#), [Bds::DataFileIms](#), [Bds::DataFileWra](#), [Bds::DataFileWra](#), and [Bds::DataFileWraAgso](#).

9.20.5.6 int Bds::DataFile::getFeatures () [virtual]

Get bitmask of supported features.

Reimplemented in [Bds::DataFileBdrs](#), [Bds::DataFileBdrs](#), [Bds::DataFileGcf](#), [Bds::DataFileIms](#), [Bds::DataFileWra](#), [Bds::DataFileWra](#), and [Bds::DataFileWraAgso](#).

9.20.5.7 BError Bds::DataFile::setInfo (DataInfo & *dataInfo*, BList< ChannelInfo > & *channelInfos*) [virtual]

Set information on data for write.

Reimplemented in [Bds::DataFileAscii](#), [Bds::DataFileBds](#), [Bds::DataFileBknas](#), and [Bds::DataFileIms](#).

9.20.5.8 BError Bds::DataFile::start (BUInt *channel*, BUInt *segment*) [virtual]

Start next segment of data.

Reimplemented in [Bds::DataFileImgs](#).

9.20.5.9 BError Bds::DataFile::writeData (DataBlock & *data*) [virtual]

Write a block of data.

Reimplemented in [Bds::DataFileAscii](#), [Bds::DataFileBds](#), [Bds::DataFileBknas](#), and [Bds::DataFileImgs](#).

9.20.5.10 BError Bds::DataFile::end () [virtual]

End segment.

Reimplemented in [Bds::DataFileImgs](#).

9.20.5.11 BError Bds::DataFile::fileNameProcess () [virtual]

Parse the file name for a date/time.

9.20.5.12 BError Bds::DataFile::getFormat (BString & *format*) [virtual]

Get sub-format.

9.20.5.13 BError Bds::DataFile::getInfo (DataInfo & *dataInfo*, Options *options*, BList< BError > & *errors*) [virtual]

Get info on data.

Reimplemented in [Bds::DataFileBdrs](#).

9.20.5.14 BError Bds::DataFile::seekBlock (BUInt32 *channel*, BTimeStamp *time*, BUInt32 & *blockNumber*) [virtual]

Find requested block on given channel given a time.

Reimplemented in [Bds::DataFileBds](#).

9.20.5.15 BError Bds::DataFile::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*) [virtual]

Read a block.

Reimplemented in [Bds::DataFileBdrs](#), [Bds::DataFileBdrs](#), [Bds::DataFileBds](#), [Bds::DataFileGcf](#), [Bds::DataFileTapeDigitiser](#), [Bds::DataFileWra](#), [Bds::DataFileWra](#), and [Bds::DataFileWraAgso](#).

9.20.5.16 BStringList Bds::DataFile::getFormats () [static]

Get list of supported formats.

Reimplemented in [Bds::DataFileAscii](#), [Bds::DataFileBdrs](#), [Bds::DataFileBdrs](#), [Bds::DataFileBds](#), [Bds::DataFileBknas](#), [Bds::DataFileGcf](#), [Bds::DataFileIms](#), [Bds::DataFileTapeDigitiser](#), [Bds::DataFileWra](#), [Bds::DataFileWra](#), and [Bds::DataFileWraAgso](#).

9.20.6 Member Data Documentation

9.20.6.1 `BString Bds::DataFile::ofileName` [protected]

9.20.6.2 `BString Bds::DataFile::omode` [protected]

9.20.6.3 `BTimeStamp Bds::DataFile::ofileNameTime` [protected]

9.20.6.4 `BFile Bds::DataFile::ofile` [protected]

9.20.6.5 `BString Bds::DataFile::oformat` [protected]

Reimplemented in [Bds::DataFileBds](#), and [Bds::DataFileGcf](#).

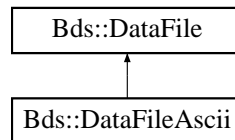
The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFile.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFile.cpp](#)

9.21 Bds::DataFileAscii Class Reference

```
#include <BdsDataFileAscii.h>
```

Inheritance diagram for Bds::DataFileAscii:



Public Member Functions

- [DataFileAscii](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for read or write.
- BError [setInfo](#) ([DataInfo](#) &dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Set information on data for write.
- BError [writeData](#) ([DataBlock](#) &data)
Write a block of data.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Attributes

- [DataInfo](#) odataInfo

9.21.1 Constructor & Destructor Documentation

9.21.1.1 Bds::DataFileAscii::DataFileAscii ()

9.21.2 Member Function Documentation

9.21.2.1 BError Bds::DataFileAscii::open (BString *fileName*, BString *mode*) [virtual]

Open the file for read or write.

Reimplemented from [Bds::DataFile](#).

9.21.2.2 BError Bds::DataFileAscii::setInfo (DataInfo & *dataInfo*, BList< ChannelInfo > & *channelInfos*) [virtual]

Set information on data for write.

Reimplemented from [Bds::DataFile](#).

9.21.2.3 BError Bds::DataFileAscii::writeData (DataBlock & *data*) [virtual]

Write a block of data.

Reimplemented from [Bds::DataFile](#).

9.21.2.4 BStringList Bds::DataFileAscii::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.21.3 Member Data Documentation

9.21.3.1 DataInfo Bds::DataFileAscii::odataInfo [private]

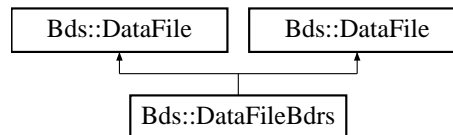
The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileAscii.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileAscii.cpp](#)

9.22 Bds::DataFileBdrs Class Reference

```
#include <BdsDataFileBdrs.h>
```

Inheritance diagram for Bds::DataFileBdrs::



Public Member Functions

- [DataFileBdrs](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for read or write.
- int [getFeatures](#) ()
Get bitmask of supported features.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, int validate, BList< BError > &errors)
Get info on data.
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.
- [DataFileBdrs](#) ()
- int [getFeatures](#) ()
Get bitmask of supported features.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, BList< BError > &errors)
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.
- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Member Functions

- BError [readBlock](#) (BUInt32 channel, BUInt64 pos, [DataBlock](#) &data)

Private Attributes

- int [oyear](#)
- BTimeStamp [ofileNameDate](#)
- BUInt32 [oblockSize](#)
- double [osampleRate](#)
- [DataInfo](#) [odataInfo](#)
- int [omagic](#)
- int [oblockYear](#)
- BArray< BUInt64 > [oblockPositions](#)

9.22.1 Constructor & Destructor Documentation

9.22.1.1 Bds::DataFileBdrs::DataFileBdrs ()

9.22.1.2 Bds::DataFileBdrs::DataFileBdrs ()

9.22.2 Member Function Documentation

9.22.2.1 BError Bds::DataFileBdrs::open (BString *fileName*, BString *mode*) [virtual]

Open the file for read or write.

Reimplemented from [Bds::DataFile](#).

9.22.2.2 int Bds::DataFileBdrs::getFeatures () [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.22.2.3 DataFile::DataOrder Bds::DataFileBdrs::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.22.2.4 BError Bds::DataFileBdrs::getInfo (DataInfo & *dataInfo*, int *options*, BList< BError > & *errors*) [virtual]

Get info on data.

Reimplemented from [Bds::DataFile](#).

9.22.2.5 BError Bds::DataFileBdrs::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*) [virtual]

Read a block.

Reimplemented from [Bds::DataFile](#).

9.22.2.6 BStringList Bds::DataFileBdrs::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.22.2.7 int Bds::DataFileBdrs::getFeatures () [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.22.2.8 DataOrder Bds::DataFileBdrs::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.22.2.9 BError Bds::DataFileBdrs::getInfo (DataInfo & *dataInfo*, Options *options*, BList< BError > & *errors*)

9.22.2.10 BError Bds::DataFileBdrs::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*) [virtual]

Read a block.

Reimplemented from [Bds::DataFile](#).

9.22.2.11 static BStringList Bds::DataFileBdrs::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.22.2.12 `BError Bds::DataFileBdrs::readBlock (BUInt32 channel, BUInt64 pos, DataBlock & data)` [private]

9.22.3 Member Data Documentation

9.22.3.1 `int Bds::DataFileBdrs::oyear` [private]

9.22.3.2 `BTimeStamp Bds::DataFileBdrs::ofileNameDate` [private]

9.22.3.3 `BUInt32 Bds::DataFileBdrs::oblockSize` [private]

9.22.3.4 `double Bds::DataFileBdrs::osampleRate` [private]

9.22.3.5 `DataInfo Bds::DataFileBdrs::odataInfo` [private]

9.22.3.6 `int Bds::DataFileBdrs::omagic` [private]

9.22.3.7 `int Bds::DataFileBdrs::oblockYear` [private]

9.22.3.8 `BArray<BUInt64> Bds::DataFileBdrs::oblockPositions` [private]

The documentation for this class was generated from the following files:

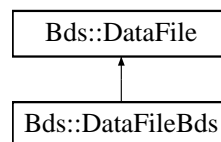
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs-1.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs-1.cpp](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs.cpp](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.cpp](#)

9.23 Bds::DataFileBds Class Reference

This class implements the BDS Data File/Stream access system.

```
#include <BdsDataFileBds.h>
```

Inheritance diagram for Bds::DataFileBds::



Public Types

- enum { [StreamsMax](#) = 64 }
- enum { [DefaultBlockSize](#) = 65536 }
- enum [PackFormat](#) { [PackFormat_Unknown](#) = 0, [PackFormat_SM](#) = 1, [PackFormat_CM](#) = 2, [PackFormat_SM_CC](#) = 3 }

Public Member Functions

- [DataFileBds](#) ()
- [~DataFileBds](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for reading or writing.
- void [close](#) ()
Close file.
- BError [setFormat](#) (BString format)
Sets the sub-format.
- BError [setInfo](#) ([DataInfo](#) &dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Sets the information.
- BError [writeData](#) ([DataBlock](#) &data)
Writes a data block to the file.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, BList< BError > &errors)
Get information on open file.
- BError [seekBlock](#) (BUInt32 channel, BTimeStamp time, BUInt32 &blockNumber)
Find the block that contains the samples for the time requested.
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)

Read the data block for the given channel or all channels if blockNumber is 0.

- BError [setDiskBlockSize](#) (BUInt32 blockSize)
Sets up file/stream block size.
- BUInt32 [getDiskBlockSize](#) ()
Returns the data block size in bytes.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get the names of the supported formats.

Private Member Functions

- void [clear](#) ()
- BError [setInfoRepeat](#) (BUInt32 repeat)
Sets the repeat period for the information packets.
- BError [infoSet](#) (BUInt32 streamlet, BTimeStamp startTime, BTimeStamp endTime, BDictString &info)
Sets the information packet and writes this to the file/stream.
- BError [infoGet](#) (BdsDataPacket &packet, BDictString &info)
Gets the information from an information packet.
- BError [addInfoPacket](#) ()
- BError [dataAppend](#) (BUInt32 streamlet, [DataBlock](#) &data)
Appends a data block to the file.
- BError [dataGet](#) (BUInt channel, [BdsDataPacket](#) &packet, [DataBlock](#) &data)
Gets the data from a data packet.
- BError [packetRead](#) ([BdsDataPacket](#) &packet)
Reads a packet from the file.
- BError [packetWrite](#) ([BdsDataPacket](#) &packet)
Writes a packet to the file.
- BError [packetSeek](#) (BUInt32 streamlet, BUInt32 packetNumber, [BdsDataPacket](#) &packet)
- void [diskBlockReset](#) ()
Resets to disk block 0.
- BError [diskBlockWrite](#) (void *data, BUInt32 numBytes, int header=0)
Writes data to a block in the file.
- BError [diskBlockWriteFlush](#) ()

Flushes a semi-filled block to the file.

- BError [diskBlockRead](#) (void *data, BUInt32 numBytes, int header=0)
Reads data from a block.
- BError [diskBlockSeek](#) (BUInt64 position)

Private Attributes

- BString [oformat](#)
The format.
- PackFormat [opackFormat](#)
The data packet format.
- DataInfo [odataInfo](#)
Information on the channel data.
- BList< [ChannelInfo](#) > [ochannelInfos](#)
Channel meta data information.
- BUInt32 [oinfoRepeat](#)
How often to output info packet.
- BDictString [oinfo](#)
Info packet output.
- BdsDataPacketHeader [oinfoHeader](#)
Info packet header.
- BUInt32 [odiskBlockSize](#)
The block size.
- BdsDataBlock * [odiskBlock](#)
Data block buffer.
- BUInt64 [odiskPosition](#)
The disk block position.
- BArray< [BdsDataStreamlet](#) > [ostreamlets](#)
Streamlet sequence numbers and positions.
- BdsDataPacket [opacket](#)
Temporary packet for header/data packet generation.

9.23.1 Detailed Description

This class implements the BDS Data File/Stream access system.

9.23.2 Member Enumeration Documentation

9.23.2.1 anonymous enum

Enumerator:

StreamsMax

9.23.2.2 anonymous enum

Enumerator:

DefaultBlockSize

9.23.2.3 enum Bds::DataFileBds::PackFormat

Enumerator:

PackFormat_Unknown

PackFormat_SM

PackFormat_CM

PackFormat_SM_CC

9.23.3 Constructor & Destructor Documentation

9.23.3.1 Bds::DataFileBds::DataFileBds ()

9.23.3.2 Bds::DataFileBds::~~DataFileBds ()

9.23.4 Member Function Documentation

9.23.4.1 BError Bds::DataFileBds::open (BString *fileName*, BString *mode*) [virtual]

Open the file for reading or writing.

Reimplemented from [Bds::DataFile](#).

9.23.4.2 void Bds::DataFileBds::close () [virtual]

Close file.

Reimplemented from [Bds::DataFile](#).

9.23.4.3 BError Bds::DataFileBds::setFormat (BString *format*) [virtual]

Sets the sub-format.

Reimplemented from [Bds::DataFile](#).

9.23.4.4 BError Bds::DataFileBds::setInfo (DataInfo & *dataInfo*, BList< ChannelInfo > & *channelInfos*) [virtual]

Sets the information.

Reimplemented from [Bds::DataFile](#).

9.23.4.5 BError Bds::DataFileBds::writeData (DataBlock & *data*) [virtual]

Writes a data block to the file.

Reimplemented from [Bds::DataFile](#).

9.23.4.6 DataFile::DataOrder Bds::DataFileBds::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.23.4.7 BError Bds::DataFileBds::getInfo (DataInfo & *dataInfo*, Options *options*, BList< BError > & *errors*)

Get information on open file.

9.23.4.8 BError Bds::DataFileBds::seekBlock (BUInt32 *channel*, BTimeStamp *time*, BUInt32 & *blockNumber*) [virtual]

Find the block that contains the samples for the time requested.

Reimplemented from [Bds::DataFile](#).

9.23.4.9 BError Bds::DataFileBds::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*) [virtual]

Read the data block for the given channel or all channels if blockNumber is 0.

Reimplemented from [Bds::DataFile](#).

9.23.4.10 BStringList Bds::DataFileBds::getFormats () [static]

Get the names of the supported formats.

Reimplemented from [Bds::DataFile](#).

9.23.4.11 BError Bds::DataFileBds::setDiskBlockSize (BUInt32 *blockSize*)

Sets up file/stream block size.

9.23.4.12 uint32_t Bds::DataFileBds::getDiskBlockSize ()

Returns the data block size in bytes.

9.23.4.13 void Bds::DataFileBds::clear () [private]

9.23.4.14 BError Bds::DataFileBds::setInfoRepeat (BUInt32 *repeat*) [private]

Sets the repeat period for the information packets.

9.23.4.15 BError Bds::DataFileBds::infoSet (BUInt32 *streamlet*, BTimeStamp *startTime*, BTimeStamp *endTime*, BDictString & *info*) [private]

Sets the information packet and writes this to the file/stream.

9.23.4.16 BError Bds::DataFileBds::infoGet (BdsDataPacket & *packet*, BDictString & *info*) [private]

Gets the information from an information packet.

9.23.4.17 BError Bds::DataFileBds::addInfoPacket () [private]

9.23.4.18 BError Bds::DataFileBds::dataAppend (BUInt32 *streamlet*, DataBlock & *data*) [private]

Appends a data block to the file.

9.23.4.19 BError Bds::DataFileBds::dataGet (BUInt *channel*, BdsDataPacket & *packet*, DataBlock & *data*) [private]

Gets the data from a data packet.

9.23.4.20 BError Bds::DataFileBds::packetRead (BdsDataPacket & *packet*) [private]

Reads a packet from the file.

9.23.4.21 BError Bds::DataFileBds::packetWrite (BdsDataPacket & *packet*) [private]

Writes a packet to the file.

9.23.4.22 BError Bds::DataFileBds::packetSeek (BUInt32 *streamlet*, BUInt32 *packetNumber*, BdsDataPacket & *packet*) [private]

9.23.4.23 void Bds::DataFileBds::diskBlockReset () [private]

Resets to disk block 0.

9.23.4.24 BError Bds::DataFileBds::diskBlockWrite (void * *data*, BUInt32 *numBytes*, int *header* = 0) [private]

Writes data to a block in the file.

9.23.4.25 BError Bds::DataFileBds::diskBlockWriteFlush () [private]

Flushes a semi-filled block to the file.

9.23.4.26 BError Bds::DataFileBds::diskBlockRead (void * *data*, BUInt32 *numBytes*, int *header* = 0) [private]

Reads data from a block.

9.23.4.27 BError Bds::DataFileBds::diskBlockSeek (BUInt64 *position*) [private]**9.23.5 Member Data Documentation****9.23.5.1 BString Bds::DataFileBds::oformat** [private]

The format.

Reimplemented from [Bds::DataFile](#).

9.23.5.2 PackFormat Bds::DataFileBds::opackFormat [private]

The data packet format.

9.23.5.3 DataInfo Bds::DataFileBds::odataInfo [private]

Information on the channel data.

9.23.5.4 BList<ChannelInfo> Bds::DataFileBds::ochannelInfos [private]

[Channel](#) meta data information.

9.23.5.5 BUInt32 Bds::DataFileBds::oinfoRepeat [private]

How often to output info packet.

9.23.5.6 BDictString Bds::DataFileBds::oinfo [private]

Info packet output.

9.23.5.7 BdsDataPacketHeader Bds::DataFileBds::oinfoHeader [private]

Info packet header.

9.23.5.8 BUInt32 Bds::DataFileBds::odiskBlockSize [private]

The block size.

9.23.5.9 BdsDataBlock* Bds::DataFileBds::odiskBlock [private]

Data block buffer.

9.23.5.10 BUInt64 Bds::DataFileBds::odiskPosition [private]

The disk block position.

9.23.5.11 BArray<BdsDataStreamlet> Bds::DataFileBds::ostreamlets [private]

Streamlet sequence numbers and positions.

9.23.5.12 BdsDataPacket Bds::DataFileBds::opacket [private]

Temporary packet for header/data packet generation.

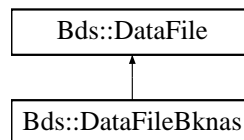
The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.cpp](#)

9.24 Bds::DataFileBknas Class Reference

```
#include <BdsDataFileBknas.h>
```

Inheritance diagram for Bds::DataFileBknas::



Public Member Functions

- [DataFileBknas](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for read or write.
- BError [setInfo](#) ([DataInfo](#) &dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Set information on data for write.
- BError [writeData](#) ([DataBlock](#) &data)
Write a block of data.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Attributes

- [DataInfo](#) odataInfo

9.24.1 Constructor & Destructor Documentation

9.24.1.1 Bds::DataFileBknas::DataFileBknas ()

9.24.2 Member Function Documentation

9.24.2.1 BError Bds::DataFileBknas::open (BString *fileName*, BString *mode*) [virtual]

Open the file for read or write.

Reimplemented from [Bds::DataFile](#).

9.24.2.2 BError Bds::DataFileBknas::setInfo (DataInfo & *dataInfo*, BList< ChannelInfo > & *channelInfos*) [virtual]

Set information on data for write.

Reimplemented from [Bds::DataFile](#).

9.24.2.3 BError Bds::DataFileBknas::writeData (DataBlock & *data*) [virtual]

Write a block of data.

Reimplemented from [Bds::DataFile](#).

9.24.2.4 BStringList Bds::DataFileBknas::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.24.3 Member Data Documentation

9.24.3.1 DataInfo Bds::DataFileBknas::odataInfo [private]

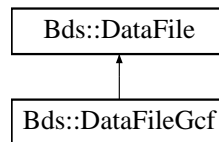
The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBknas.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileBknas.cpp](#)

9.25 Bds::DataFileGcf Class Reference

```
#include <BdsDataFileGcf.h>
```

Inheritance diagram for Bds::DataFileGcf::



Public Member Functions

- [DataFileGcf](#) ()
- [int getFeatures](#) ()
Get bitmask of supported features.
- [BError getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, [BList](#)< [BError](#) > &errors)
- [BError readData](#) ([BUInt32](#) channel, [BUInt32](#) blockNumber, [DataBlock](#) &data)
Read a block.

Static Public Member Functions

- [static BStringList getFormats](#) ()
Get list of supported formats.

Private Attributes

- [BUInt32 oblockSize](#)
- [DataInfo odataInfo](#)
- [BString osystemId](#)
- [BString ostreamId](#)
- [int oformat](#)
- [int ofilterCoef](#)
- [double osampleRate](#)

9.25.1 Constructor & Destructor Documentation

9.25.1.1 Bds::DataFileGcf::DataFileGcf ()

9.25.2 Member Function Documentation

9.25.2.1 [int Bds::DataFileGcf::getFeatures](#) () [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.25.2.2 `BError Bds::DataFileGcf::getInfo (DataInfo & dataInfo, Options options, BList< BError > & errors)`

9.25.2.3 `BError Bds::DataFileGcf::readData (BUInt32 channel, BUInt32 blockNumber, DataBlock & data)` `[virtual]`

Read a block.

Reimplemented from [Bds::DataFile](#).

9.25.2.4 `BStringList Bds::DataFileGcf::getFormats ()` `[static]`

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.25.3 Member Data Documentation

9.25.3.1 `BUInt32 Bds::DataFileGcf::oblockSize` `[private]`

9.25.3.2 `DataInfo Bds::DataFileGcf::odataInfo` `[private]`

9.25.3.3 `BString Bds::DataFileGcf::osystemId` `[private]`

9.25.3.4 `BString Bds::DataFileGcf::ostreamId` `[private]`

9.25.3.5 `int Bds::DataFileGcf::oformat` `[private]`

Reimplemented from [Bds::DataFile](#).

9.25.3.6 `int Bds::DataFileGcf::ofilterCoef` `[private]`

9.25.3.7 `double Bds::DataFileGcf::osampleRate` `[private]`

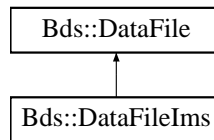
The documentation for this class was generated from the following files:

- `/src/blacknest/bds/bds/bdsDataLib/BdsDataFileGcf.h`
- `/src/blacknest/bds/bds/bdsDataLib/BdsDataFileGcf.cpp`

9.26 Bds::DataFileImgs Class Reference

```
#include <BdsDataFileImgs.h>
```

Inheritance diagram for Bds::DataFileImgs::



Public Member Functions

- [DataFileImgs](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for read or write.
- void [close](#) ()
Close the file.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- int [getFeatures](#) ()
Get bitmask of supported features.
- BError [setInfo](#) ([DataInfo](#) &dataInfo, BList< [ChannelInfo](#) > &channelInfos)
Set information on data for write.
- BError [start](#) (BUInt channel, BUInt segment)
Start next segment of data.
- BError [writeData](#) ([DataBlock](#) &data)
Write a block of data.
- BError [end](#) ()
End segment.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Attributes

- [DataInfo](#) *odataInfo*
- [BList](#)< [ChannelInfo](#) > *ochannelInfos*
- [BUInt](#) *owriteChannel*
- [BInt32](#) *owriteChecksum*
- [BUInt](#) *owriteColumn*
- [BInt32](#) *oprevValue1*
- [BInt32](#) *oprevValue2*

9.26.1 Constructor & Destructor Documentation

9.26.1.1 [Bds::DataFileIm](#)s::DataFileIm

9.26.2 Member Function Documentation

9.26.2.1 [BError](#) [Bds::DataFileIm](#)s::open ([BString](#) *fileName*, [BString](#) *mode*) [virtual]

Open the file for read or write.

Reimplemented from [Bds::DataFile](#).

9.26.2.2 [void](#) [Bds::DataFileIm](#)s::close () [virtual]

Close the file.

Reimplemented from [Bds::DataFile](#).

9.26.2.3 [DataFile::DataOrder](#) [Bds::DataFileIm](#)s::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.26.2.4 [int](#) [Bds::DataFileIm](#)s::getFeatures () [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.26.2.5 [BError](#) [Bds::DataFileIm](#)s::setInfo ([DataInfo](#) & *dataInfo*, [BList](#)< [ChannelInfo](#) > & *channelInfos*) [virtual]

Set information on data for write.

Reimplemented from [Bds::DataFile](#).

9.26.2.6 [BError](#) [Bds::DataFileIm](#)s::start ([BUInt](#) *channel*, [BUInt](#) *segment*) [virtual]

Start next segment of data.

Reimplemented from [Bds::DataFile](#).

9.26.2.7 BError Bds::DataFileIms::writeData (DataBlock & *data*) [virtual]

Write a block of data.

Reimplemented from [Bds::DataFile](#).

9.26.2.8 BError Bds::DataFileIms::end () [virtual]

End segment.

Reimplemented from [Bds::DataFile](#).

9.26.2.9 BStringList Bds::DataFileIms::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.26.3 Member Data Documentation**9.26.3.1 DataInfo Bds::DataFileIms::odataInfo** [private]**9.26.3.2 BList<ChannelInfo> Bds::DataFileIms::ochannelInfos** [private]**9.26.3.3 BUInt Bds::DataFileIms::owriteChannel** [private]**9.26.3.4 BInt32 Bds::DataFileIms::owriteChecksum** [private]**9.26.3.5 BUInt Bds::DataFileIms::owriteColumn** [private]**9.26.3.6 BInt32 Bds::DataFileIms::oprevValue1** [private]**9.26.3.7 BInt32 Bds::DataFileIms::oprevValue2** [private]

The documentation for this class was generated from the following files:

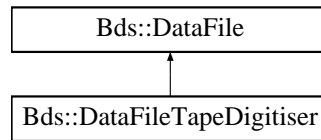
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileIms.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileIms.cpp](#)

9.27 Bds::DataFileTapeDigitiser Class Reference

This class implements the TapeDigitiser's file output conversion and storing system.

```
#include <BdsDataFileTapeDigitiser.h>
```

Inheritance diagram for Bds::DataFileTapeDigitiser::



Public Member Functions

- [DataFileTapeDigitiser](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for reading or writing.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, BList< BError > &errors)
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Member Functions

- uint32_t [blockSize](#) ()
Returns the data block size in bytes.
- uint32_t [blockNumSamples](#) ()
Returns the number of samples of data in a block.
- BError [readHeader](#) (BDictString &header)
Read the file header info.
- uint32_t [computeChecksum](#) (void *data, int nBytes)

Private Attributes

- BDictString [oheader](#)
- off64_t [oheaderSize](#)
- uint32_t [oblockSize](#)

- uint32_t [oblockNumSamples](#)
- double [osampleRate](#)
- BBuffer [obuffer](#)

Data block buffer.

- BString [oversion](#)

9.27.1 Detailed Description

This class implements the TapeDigitiser's file output conversion and storing system.

9.27.2 Constructor & Destructor Documentation

9.27.2.1 Bds::DataFileTapeDigitiser::DataFileTapeDigitiser ()

9.27.3 Member Function Documentation

9.27.3.1 BError Bds::DataFileTapeDigitiser::open (BString *fileName*, BString *mode*) [virtual]

Open the file for reading or writing.

Reimplemented from [Bds::DataFile](#).

9.27.3.2 BError Bds::DataFileTapeDigitiser::getInfo (DataInfo & *dataInfo*, Options *options*, BList< BError > & *errors*)

9.27.3.3 BError Bds::DataFileTapeDigitiser::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*) [virtual]

Read a block.

Reimplemented from [Bds::DataFile](#).

9.27.3.4 BStringList Bds::DataFileTapeDigitiser::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.27.3.5 uint32_t Bds::DataFileTapeDigitiser::blockSize () [private]

Returns the data block size in bytes.

9.27.3.6 uint32_t Bds::DataFileTapeDigitiser::blockNumSamples () [private]

Returns the number of samples of data in a block.

9.27.3.7 BError Bds::DataFileTapeDigitiser::readHeader (BDictString & *header*) [private]

Read the file header info.

9.27.3.8 uint32_t Bds::DataFileTapeDigitiser::computeChecksum (void * *data*, int *nBytes*) [private]

9.27.4 Member Data Documentation

9.27.4.1 BDictString Bds::DataFileTapeDigitiser::oheader [private]

9.27.4.2 off64_t Bds::DataFileTapeDigitiser::oheaderSize [private]

9.27.4.3 uint32_t Bds::DataFileTapeDigitiser::oblockSize [private]

9.27.4.4 uint32_t Bds::DataFileTapeDigitiser::oblockNumSamples [private]

9.27.4.5 double Bds::DataFileTapeDigitiser::osampleRate [private]

9.27.4.6 BBuffer Bds::DataFileTapeDigitiser::obuffer [private]

Data block buffer.

9.27.4.7 BString Bds::DataFileTapeDigitiser::oversion [private]

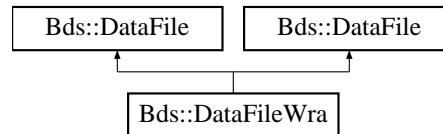
The documentation for this class was generated from the following files:

- /src/blacknest/bds/bds/bdsDataLib/[BdsDataFileTapeDigitiser.h](#)
- /src/blacknest/bds/bds/bdsDataLib/[BdsDataFileTapeDigitiser.cpp](#)

9.28 Bds::DataFileWra Class Reference

```
#include <BdsDataFileWra.h>
```

Inheritance diagram for Bds::DataFileWra::



Public Member Functions

- [DataFileWra](#) ()
- BError [open](#) (BString fileName, BString mode)
Open the file for read or write.
- BError [setFormat](#) (BString format)
Set the sub-format.
- int [getFeatures](#) ()
Get bitmask of supported features.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, int validate, int fix, BList< BError > &errors)
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.
- [DataFileWra](#) ()
- BError [setFormat](#) (BString format)
Set the sub-format.
- int [getFeatures](#) ()
Get bitmask of supported features.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, BList< BError > &errors)
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.
- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Member Functions

- BError [readBlock](#) (BUInt32 channel, BUInt64 pos, [DataBlock](#) &data)
- BError [readBlock](#) (BUInt32 channel, BUInt64 pos, [DataBlock](#) &data)

Private Attributes

- int [oyear](#)
- int [oblockYear](#)
- BTimeStamp [ofileNameDate](#)
- BUInt32 [oblockSize](#)
- BUInt32 [onumChannels](#)
- double [osampleRate](#)
- [DataInfo](#) [odataInfo](#)
- BArray< BUInt64 > [oblockPositions](#)
- int [omagic](#)

9.28.1 Constructor & Destructor Documentation

9.28.1.1 Bds::DataFileWra::DataFileWra ()

9.28.1.2 Bds::DataFileWra::DataFileWra ()

9.28.2 Member Function Documentation

9.28.2.1 BError Bds::DataFileWra::open (BString *fileName*, BString *mode*) [virtual]

Open the file for read or write.

Reimplemented from [Bds::DataFile](#).

9.28.2.2 BError Bds::DataFileWra::setFormat (BString *format*) [virtual]

Set the sub-format.

Reimplemented from [Bds::DataFile](#).

9.28.2.3 int Bds::DataFileWra::getFeatures () [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.28.2.4 DataFile::DataOrder Bds::DataFileWra::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.28.2.5 BError Bds::DataFileWra::getInfo (DataInfo & *dataInfo*, int *validate*, int *fix*, BList< BError > & *errors*)**9.28.2.6 BError Bds::DataFileWra::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*)** [virtual]

Read a block.

Reimplemented from [Bds::DataFile](#).

9.28.2.7 BStringList Bds::DataFileWra::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.28.2.8 BError Bds::DataFileWra::readBlock (BUInt32 *channel*, BUInt64 *pos*, DataBlock & *data*) [private]**9.28.2.9 BError Bds::DataFileWra::setFormat (BString *format*)** [virtual]

Set the sub-format.

Reimplemented from [Bds::DataFile](#).

9.28.2.10 int Bds::DataFileWra::getFeatures () [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.28.2.11 DataOrder Bds::DataFileWra::getDataOrder () [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.28.2.12 BError Bds::DataFileWra::getInfo (DataInfo & *dataInfo*, Options *options*, BList< BError > & *errors*)**9.28.2.13 BError Bds::DataFileWra::readData (BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*)** [virtual]

Read a block.

Reimplemented from [Bds::DataFile](#).

9.28.2.14 static BStringList Bds::DataFileWra::getFormats () [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.28.2.15 BError Bds::DataFileWra::readBlock (BUInt32 *channel*, BUInt64 *pos*, DataBlock & *data*) [private]

9.28.3 Member Data Documentation

9.28.3.1 int Bds::DataFileWra::oyear [private]

9.28.3.2 int Bds::DataFileWra::oblockYear [private]

9.28.3.3 BTimeStamp Bds::DataFileWra::ofileNameDate [private]

9.28.3.4 BUInt32 Bds::DataFileWra::oblockSize [private]

9.28.3.5 BUInt32 Bds::DataFileWra::onumChannels [private]

9.28.3.6 double Bds::DataFileWra::osampleRate [private]

9.28.3.7 DataInfo Bds::DataFileWra::odataInfo [private]

9.28.3.8 BArray< BUInt64 > Bds::DataFileWra::oblockPositions [private]

9.28.3.9 int Bds::DataFileWra::omagic [private]

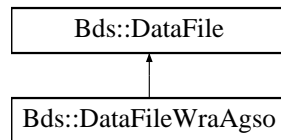
The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.cpp](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra.cpp](#)

9.29 Bds::DataFileWraAgso Class Reference

```
#include <BdsDataFileWraAgso.h>
```

Inheritance diagram for Bds::DataFileWraAgso::



Public Member Functions

- [DataFileWraAgso](#) ()
- int [getFeatures](#) ()
Get bitmask of supported features.
- [DataOrder](#) [getDataOrder](#) ()
Get the expected order of writing data, by sample or by channel.
- BError [getInfo](#) ([DataInfo](#) &dataInfo, [Options](#) options, BList< BError > &errors)
- BError [readData](#) (BUInt32 channel, BUInt32 blockNumber, [DataBlock](#) &data)
Read a block.

Static Public Member Functions

- static BStringList [getFormats](#) ()
Get list of supported formats.

Private Member Functions

- BError [readBlock](#) (BUInt32 blockNumber, BString &channelheader, [DataBlock](#) &data)

Private Attributes

- int [oyear](#)
- int [oblockYear](#)
- BUInt32 [oblockSize](#)
- double [osampleRate](#)
- [DataInfo](#) [odataInfo](#)
- BArray< BUInt > [ochannelStartBlocks](#)
- BUInt [oreadChannel](#)
- BUInt [oreadBlock](#)
- BUInt [ocurrentBlock](#)

Static Private Attributes

- static int [ofieldWidths](#) [] = { 5, 10, 14, 7, 6, 7, 12, 10, 7, 7, 2, 3, 7, 11, 2, 31, 21, 11, 6, 3, 5, 0 }

9.29.1 Constructor & Destructor Documentation

9.29.1.1 [Bds::DataFileWraAgso::DataFileWraAgso \(\)](#)

9.29.2 Member Function Documentation

9.29.2.1 [int Bds::DataFileWraAgso::getFeatures \(\)](#) [virtual]

Get bitmask of supported features.

Reimplemented from [Bds::DataFile](#).

9.29.2.2 [DataFile::DataOrder Bds::DataFileWraAgso::getDataOrder \(\)](#) [virtual]

Get the expected order of writing data, by sample or by channel.

Reimplemented from [Bds::DataFile](#).

9.29.2.3 [BError Bds::DataFileWraAgso::getInfo \(DataInfo & *dataInfo*, Options *options*, BList< BError > & *errors*\)](#)

9.29.2.4 [BError Bds::DataFileWraAgso::readData \(BUInt32 *channel*, BUInt32 *blockNumber*, DataBlock & *data*\)](#) [virtual]

Read a block.

Reimplemented from [Bds::DataFile](#).

9.29.2.5 [BStringList Bds::DataFileWraAgso::getFormats \(\)](#) [static]

Get list of supported formats.

Reimplemented from [Bds::DataFile](#).

9.29.2.6 `BError Bds::DataFileWraAgso::readBlock (BUInt32 blockNumber, BString & channelheader, DataBlock & data)` [private]

9.29.3 Member Data Documentation

9.29.3.1 `int Bds::DataFileWraAgso::oyear` [private]

9.29.3.2 `int Bds::DataFileWraAgso::oblockYear` [private]

9.29.3.3 `BUInt32 Bds::DataFileWraAgso::oblockSize` [private]

9.29.3.4 `double Bds::DataFileWraAgso::osampleRate` [private]

9.29.3.5 `DataInfo Bds::DataFileWraAgso::odataInfo` [private]

9.29.3.6 `BArray<BUInt> Bds::DataFileWraAgso::ochannelStartBlocks` [private]

9.29.3.7 `BUInt Bds::DataFileWraAgso::oreadChannel` [private]

9.29.3.8 `BUInt Bds::DataFileWraAgso::oreadBlock` [private]

9.29.3.9 `BUInt Bds::DataFileWraAgso::ocurrentBlock` [private]

9.29.3.10 `int Bds::DataFileWraAgso::ofieldWidths = { 5, 10, 14, 7, 6, 7, 12, 10, 7, 7, 2, 3, 7, 11, 2, 31, 21, 11, 6, 3, 5, 0 }` [static, private]

The documentation for this class was generated from the following files:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWraAgso.h](#)
- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileWraAgso.cpp](#)

9.30 Bds::DataFormats Class Reference

This class defines the interface for generic data file access.

```
#include <BdsDataLib.h>
```

Public Member Functions

- [DataFormats](#) ()
- [~DataFormats](#) ()
- BError [formatList](#) (BList< BStringList > &formats)
- BError [formatGet](#) (BString format, [DataFile](#) *&dataFile)

Protected Member Functions

- int [findString](#) (BStringList stringList, BString string)

9.30.1 Detailed Description

This class defines the interface for generic data file access.

9.30.2 Constructor & Destructor Documentation

9.30.2.1 Bds::DataFormats::DataFormats ()

9.30.2.2 Bds::DataFormats::~~DataFormats ()

9.30.3 Member Function Documentation

9.30.3.1 BError Bds::DataFormats::formatList (BList< BStringList > & *formats*)

9.30.3.2 BError Bds::DataFormats::formatGet (BString *format*, DataFile *& *dataFile*)

9.30.3.3 int Bds::DataFormats::findString (BStringList *stringList*, BString *string*)
[protected]

The documentation for this class was generated from the following files:

- /src/blacknest/bds/bds/bdsDataLib/[BdsDataLib.h](#)
- /src/blacknest/bds/bds/bdsDataLib/[BdsDataLib.cpp](#)

9.31 Bds::DataHandle Class Reference

This defines a handle to a data stream/file.

```
#include <BdsD.h>
```

Public Member Functions

- [DataHandle](#) (BUInt32 phandle=BUInt32(), BUInt32 pstartBlock=BUInt32())

Public Attributes

- BUInt32 [handle](#)
Opaque file handle.
- BUInt32 [startBlock](#)
The starting block containing the start time requested.

9.31.1 Detailed Description

This defines a handle to a data stream/file.

9.31.2 Constructor & Destructor Documentation

9.31.2.1 Bds::DataHandle::DataHandle (BUInt32 phandle = BUInt32(), BUInt32 pstartBlock = BUInt32())

9.31.3 Member Data Documentation

9.31.3.1 BUInt32 Bds::DataHandle::handle

Opaque file handle.

9.31.3.2 BUInt32 Bds::DataHandle::startBlock

The starting block containing the start time requested.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.32 Bds::DataInfo Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- **DataInfo** (BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString parray=BString(), BString pdescription=BString(), BUInt32 psynchronous=BUInt32(), BArray< BArray< [DataChannel](#) > > pchannels=BArray< BArray< [DataChannel](#) > >(), BDict< BString > pinfo=BDict< BString >())

Public Attributes

- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BString [array](#)
The Seismic Array that all of the channels are from, if just one.
- BString [description](#)
The Comment.
- BUInt32 [synchronous](#)
The channels are synchronously sampled.
- BArray< BArray< [DataChannel](#) > > [channels](#)
The Data channels. Each channel can have multiple segments of data.
- BDict< BString > [info](#)
Extra info on the set of channels.

9.32.1 Constructor & Destructor Documentation

- 9.32.1.1 Bds::DataInfo::DataInfo (BTimeStamp pstartTime = BTimeStamp(), BTimeStamp pendTime = BTimeStamp(), BString parray = BString(), BString pdescription = BString(), BUInt32 psynchronous = BUInt32(), BArray< BArray< [DataChannel](#) > > pchannels = BArray< BArray< [DataChannel](#) > >(), BDict< BString > pinfo = BDict< BString >())**

9.32.2 Member Data Documentation

9.32.2.1 BTimeStamp Bds::DataInfo::startTime

The Start Time.

9.32.2.2 BTimeStamp Bds::DataInfo::endTime

The End Time.

9.32.2.3 BString Bds::DataInfo::array

The Seismic Array that all of the channels are from, if just one.

9.32.2.4 BString Bds::DataInfo::description

The Comment.

9.32.2.5 BUInt32 Bds::DataInfo::synchronous

The channels are synchronously sampled.

9.32.2.6 BArray<BArray<DataChannel > > Bds::DataInfo::channels

The Data channels. Each channel can have multiple segments of data.

9.32.2.7 BDict<BString > Bds::DataInfo::info

Extra info on the set of channels.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.33 Bds::Digitiser Class Reference

This class defines a [Digitiser](#).

```
#include <BdsD.h>
```

Public Member Functions

- [Digitiser](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pname=BString(), BString ptype=BString(), BString pserialNumber=BString(), BUInt32 pnumberChannels=BUInt32(), BFloat64 pbaseSamplingFrequency=BFloat64(), BFloat64 pinitialSamplingFrequency=BFloat64(), BFloat64 pgain=BFloat64())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time the channel was available.
- BString [name](#)
The Digitisers name.
- BString [type](#)
The Digitisers type.
- BString [serialNumber](#)
The digitisers's serial number.
- BUInt32 [numberChannels](#)
The number of supported channels.
- BFloat64 [baseSamplingFrequency](#)
The base sampling frequency.
- BFloat64 [initialSamplingFrequency](#)
The initial pre-decimation sampling frequency.
- BFloat64 [gain](#)
The overall gain of the digitiser at the manufacturers calibration frequency. (For information only).

9.33.1 Detailed Description

This class defines a [Digitiser](#).

9.33.2 Constructor & Destructor Documentation

9.33.2.1 Bds::Digitiser::Digitiser (BUInt32 *pid* = BUInt32(), BTimeStamp *pstartTime* = BTimeStamp(), BTimeStamp *pendTime* = BTimeStamp(), BString *pname* = BString(), BString *ptype* = BString(), BString *pserialNumber* = BString(), BUInt32 *pnumberChannels* = BUInt32(), BFloat64 *pbaseSamplingFrequency* = BFloat64(), BFloat64 *pinitialSamplingFrequency* = BFloat64(), BFloat64 *pgain* = BFloat64())

9.33.3 Member Function Documentation

9.33.3.1 BString Bds::Digitiser::getType ()

9.33.3.2 BError Bds::Digitiser::setMembers (BDictString & *members*)

9.33.3.3 BError Bds::Digitiser::getMembers (BDictString & *members*)

9.33.4 Member Data Documentation

9.33.4.1 BUInt32 Bds::Digitiser::id

The ID.

9.33.4.2 BTimeStamp Bds::Digitiser::startTime

The Start Time.

9.33.4.3 BTimeStamp Bds::Digitiser::endTime

The End Time the channel was available.

9.33.4.4 BString Bds::Digitiser::name

The Digitisers name.

9.33.4.5 BString Bds::Digitiser::type

The Digitisers type.

9.33.4.6 BString Bds::Digitiser::serialNumber

The digitisers's serial number.

9.33.4.7 BUInt32 Bds::Digitiser::numberChannels

The number of supported channels.

9.33.4.8 BFloat64 Bds::Digitiser::baseSamplingFrequency

The base sampling frequency.

9.33.4.9 BFloat64 Bds::Digitiser::initialSamplingFrequency

The initial pre-decimation sampling frequency.

9.33.4.10 BFloat64 Bds::Digitiser::gain

The overall gain of the digitiser at the manufacturers calibration frequency. (For information only).

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.34 Bds::Fap Class Reference

This class defines a Amplitude/Phase [Response](#).

```
#include <BdsD.h>
```

Public Member Functions

- [Fap](#) (BFloat64 pfrequency=BFloat64(), BFloat64 pamplitude=BFloat64(), BFloat64 pphase=BFloat64())

Public Attributes

- BFloat64 [frequency](#)
The frequency.
- BFloat64 [amplitude](#)
The Amplitude.
- BFloat64 [phase](#)
The Phase.

9.34.1 Detailed Description

This class defines a Amplitude/Phase [Response](#).

9.34.2 Constructor & Destructor Documentation

- 9.34.2.1 Bds::Fap::Fap (BFloat64 pfrequency = BFloat64(), BFloat64 pamplitude = BFloat64(), BFloat64 pphase = BFloat64())**

9.34.3 Member Data Documentation

9.34.3.1 BFloat64 Bds::Fap::frequency

The frequency.

9.34.3.2 BFloat64 Bds::Fap::amplitude

The Amplitude.

9.34.3.3 BFloat64 Bds::Fap::phase

The Phase.

The documentation for this class was generated from the following files:

- [BdsD.h](#)

- [BdsD.cc](#)

9.35 Bds::FileDataHeaderTape_1v1 Struct Reference

Public Attributes

- uint32_t [type](#)
Type of file header.
- uint32_t [headerLength](#)
Header length in bytes.
- uint32_t [dataLength](#)
Data length in bytes.
- uint32_t [dataType](#)
The type of a data sample.
- uint32_t [numChannels](#)
The number of channels of data.
- uint32_t [numSamples](#)
The number of samples of data per channel.
- BTimeStampMs [startTime](#)
The time of the first sample.
- BTimeStampMs [endTime](#)
The time of the last sample + 1.
- BTimeStampMs [tapeLastVelaCode](#)
The last VELA code decoded.
- float [tapeSignalLevelErrors](#)
The number of seconds the tape's FM signal was below a minimum level.
- float [tapeSpeedVariationErrors](#)
The number of seconds the FM carrier was above a defined maximum deviation.
- float [tapeVelaBitErrors](#)
The number of VELA timecode bit errors per second.
- float [tapeFmSignalLevels](#) [24]
The FM signal levels for each channel.

9.35.1 Member Data Documentation

9.35.1.1 uint32_t Bds::FileDataHeaderTape_1v1::type

Type of file header.

9.35.1.2 uint32_t Bds::FileDataHeaderTape_1v1::headerLength

Header length in bytes.

9.35.1.3 uint32_t Bds::FileDataHeaderTape_1v1::dataLength

Data length in bytes.

9.35.1.4 uint32_t Bds::FileDataHeaderTape_1v1::dataType

The type of a data sample.

9.35.1.5 uint32_t Bds::FileDataHeaderTape_1v1::numChannels

The number of channels of data.

9.35.1.6 uint32_t Bds::FileDataHeaderTape_1v1::numSamples

The number of samples of data per channel.

9.35.1.7 BTimeStampMs Bds::FileDataHeaderTape_1v1::startTime

The time of the first sample.

9.35.1.8 BTimeStampMs Bds::FileDataHeaderTape_1v1::endTime

The time of the last sample + 1.

9.35.1.9 BTimeStampMs Bds::FileDataHeaderTape_1v1::tapeLastVelaCode

The last VELA code decoded.

9.35.1.10 float Bds::FileDataHeaderTape_1v1::tapeSignalLevelErrors

The number of seconds the tape's FM signal was below a minimum level.

9.35.1.11 float Bds::FileDataHeaderTape_1v1::tapeSpeedVariationErrors

The number of seconds the FM carrier was above a defined maximum deviation.

9.35.1.12 float Bds::FileDataHeaderTape_1v1::tapeVelaBitErrors

The number of VELA timecode bit errors per second.

9.35.1.13 float Bds::FileDataHeaderTape_1v1::tapeFmSignalLevels[24]

The FM signal levels for each channel.

The documentation for this struct was generated from the following file:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileTapeDigitiser.cpp](#)

9.36 Bds::FileDataHeaderTape_2v0 Struct Reference

Public Attributes

- uint32_t [type](#)
Type of file header.
- uint32_t [headerLength](#)
Header length in bytes.
- uint32_t [dataLength](#)
Data length in bytes.
- uint32_t [dataType](#)
The type of a data sample.
- uint32_t [numChannels](#)
The number of channels of data.
- uint32_t [numSamples](#)
The number of samples of data per channel.
- BTimeStampMs [startTime](#)
The time of the first sample.
- BTimeStampMs [endTime](#)
The time of the last sample + 1.
- BTimeStampMs [tapeLastVelaCode](#)
The last VELA code decoded.
- float [tapeSignalLevelErrors](#)
The number of seconds the tape's FM signal was below a minimum level.
- float [tapeSpeedVariationErrors](#)
The number of seconds the FM carrier was above a defined maximum deviation.
- float [tapeVelaBitErrors](#)
The number of VELA timecode bit errors per second.
- float [tapeFmSignalLevels](#) [24]
The FM signal levels for each channel.
- uint32_t [headerChecksum](#)
Checksum for header.
- uint32_t [dataChecksum](#)
Checksum for data.

9.36.1 Member Data Documentation

9.36.1.1 uint32_t Bds::FileDataHeaderTape_2v0::type

Type of file header.

9.36.1.2 uint32_t Bds::FileDataHeaderTape_2v0::headerLength

Header length in bytes.

9.36.1.3 uint32_t Bds::FileDataHeaderTape_2v0::dataLength

Data length in bytes.

9.36.1.4 uint32_t Bds::FileDataHeaderTape_2v0::dataType

The type of a data sample.

9.36.1.5 uint32_t Bds::FileDataHeaderTape_2v0::numChannels

The number of channels of data.

9.36.1.6 uint32_t Bds::FileDataHeaderTape_2v0::numSamples

The number of samples of data per channel.

9.36.1.7 BTimeStampMs Bds::FileDataHeaderTape_2v0::startTime

The time of the first sample.

9.36.1.8 BTimeStampMs Bds::FileDataHeaderTape_2v0::endTime

The time of the last sample + 1.

9.36.1.9 BTimeStampMs Bds::FileDataHeaderTape_2v0::tapeLastVelaCode

The last VELA code decoded.

9.36.1.10 float Bds::FileDataHeaderTape_2v0::tapeSignalLevelErrors

The number of seconds the tape's FM signal was below a minimum level.

9.36.1.11 float Bds::FileDataHeaderTape_2v0::tapeSpeedVariationErrors

The number of seconds the FM carrier was above a defined maximum deviation.

9.36.1.12 float Bds::FileDataHeaderTape_2v0::tapeVelaBitErrors

The number of VELA timecode bit errors per second.

9.36.1.13 float Bds::FileDataHeaderTape_2v0::tapeFmSignalLevels[24]

The FM signal levels for each channel.

9.36.1.14 uint32_t Bds::FileDataHeaderTape_2v0::headerChecksum

Checksum for header.

9.36.1.15 uint32_t Bds::FileDataHeaderTape_2v0::dataChecksum

Checksum for data.

The documentation for this struct was generated from the following file:

- [/src/blacknest/bds/bds/bdsDataLib/BdsDataFileTapeDigitiser.cpp](#)

9.37 Bds::Group Class Reference

This holds information on a groups.

```
#include <BdsD.h>
```

Public Member Functions

- [Group](#) (BUInt32 pid=BUInt32(), BString pgroup=BString(), BString pdescription=BString())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The unique id.
- BString [group](#)
The [Group](#) name.
- BString [description](#)
The Groups description.

9.37.1 Detailed Description

This holds information on a groups.

9.37.2 Constructor & Destructor Documentation

9.37.2.1 Bds::Group::Group (BUInt32 *pid* = BUInt32 (), BString *pgroup* = BString (), BString *pdescription* = BString ())

9.37.3 Member Function Documentation

9.37.3.1 BString Bds::Group::getType ()

9.37.3.2 BError Bds::Group::setMembers (BDictString & *members*)

9.37.3.3 BError Bds::Group::getMembers (BDictString & *members*)

9.37.4 Member Data Documentation

9.37.4.1 BUInt32 Bds::Group::id

The unique id.

9.37.4.2 BString Bds::Group::group

The [Group](#) name.

9.37.4.3 BString Bds::Group::description

The Groups description.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.38 Bds::ListRange Class Reference

This class defines a [TimePeriod](#).

```
#include <BdsD.h>
```

Public Member Functions

- [ListRange](#) (BUInt32 pstart=BUInt32(), BUInt32 pnumber=BUInt32(), BInt32 preverse=BInt32())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [start](#)
The start position.
- BUInt32 [number](#)
The number of items.
- BInt32 [reverse](#)
List from end.

9.38.1 Detailed Description

This class defines a [TimePeriod](#).

9.38.2 Constructor & Destructor Documentation

9.38.2.1 Bds::ListRange::ListRange (BUInt32 pstart = BUInt32(), BUInt32 pnumber = BUInt32(), BInt32 preverse = BInt32())

9.38.3 Member Function Documentation

9.38.3.1 BString Bds::ListRange::getType ()

9.38.3.2 BError Bds::ListRange::setMembers (BDictString & members)

9.38.3.3 BError Bds::ListRange::getMembers (BDictString & members)

9.38.4 Member Data Documentation

9.38.4.1 BUInt32 Bds::ListRange::start

The start position.

9.38.4.2 BUInt32 Bds::ListRange::number

The number of items.

9.38.4.3 BInt32 Bds::ListRange::reverse

List from end.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.39 Bds::Location Class Reference

This class defines a [Location](#). This will be the stations location.

```
#include <BdsD.h>
```

Public Member Functions

- [Location](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pnetwork=BString(), BString pstation=BString(), BString pdatum=BString(), BFloat64 plongitude=BFloat64(), BFloat64 platitude=BFloat64(), BFloat64 pelevation=BFloat64(), BFloat64 parrayOffsetEast=BFloat64(), BFloat64 parrayOffsetNorth=BFloat64())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time the channel was available.
- BString [network](#)
The Network/Organisation Name.
- BString [station](#)
The station this location is for.
- BString [datum](#)
The locations Datum.
- BFloat64 [longitude](#)
The longitude in degrees using the WGS84 datum.
- BFloat64 [latitude](#)
The Latitude in degrees using the WGS84 datum.
- BFloat64 [elevation](#)
The ground level elevation in meters from the WGS84 ellipsoid (Sea level).
- BFloat64 [arrayOffsetEast](#)
The Array offset in in an array in an easterly direction.
- BFloat64 [arrayOffsetNorth](#)
The Array offset in in an array in a northerly direction.

9.39.1 Detailed Description

This class defines a [Location](#). This will be the stations location.

9.39.2 Constructor & Destructor Documentation

9.39.2.1 **Bds::Location::Location** (BUInt32 *pid* = BUInt32(), BTimeStamp *pstartTime* = BTimeStamp(), BTimeStamp *pendTime* = BTimeStamp(), BString *pnetwork* = BString(), BString *pstation* = BString(), BString *pdatum* = BString(), BFloat64 *plongitude* = BFloat64(), BFloat64 *platitude* = BFloat64(), BFloat64 *pelevation* = BFloat64(), BFloat64 *parrayOffsetEast* = BFloat64(), BFloat64 *parrayOffsetNorth* = BFloat64())

9.39.3 Member Function Documentation

9.39.3.1 BString Bds::Location::getType ()

9.39.3.2 BError Bds::Location::setMembers (BDictString & *members*)

9.39.3.3 BError Bds::Location::getMembers (BDictString & *members*)

9.39.4 Member Data Documentation

9.39.4.1 BUInt32 Bds::Location::id

The ID.

9.39.4.2 BTimeStamp Bds::Location::startTime

The Start Time.

9.39.4.3 BTimeStamp Bds::Location::endTime

The End Time the channel was available.

9.39.4.4 BString Bds::Location::network

The Network/Organisation Name.

9.39.4.5 BString Bds::Location::station

The station this location is for.

9.39.4.6 BString Bds::Location::datum

The locations Datum.

9.39.4.7 BFloat64 Bds::Location::longitude

The longitude in degrees using the WGS84 datum.

9.39.4.8 BFloat64 Bds::Location::latitude

The Latitude in degrees using the WGS84 datum.

9.39.4.9 BFloat64 Bds::Location::elevation

The ground level elevation in meters from the WGS84 ellipsoid (Sea level).

9.39.4.10 BFloat64 Bds::Location::arrayOffsetEast

The Array offset in in an array in an easterly direction.

9.39.4.11 BFloat64 Bds::Location::arrayOffsetNorth

The Array offset in in an array in a northerly direction.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.40 Bds::Network Class Reference

This class defines a [Network](#) organisation. Could have other information here like website, contacts etc.

```
#include <BdsD.h>
```

Public Member Functions

- [Network](#) (BUInt32 pid=BUInt32(), BString pnetwork=BString(), BString pdescription=BString(), BList< BString > pstations=BList< BString >())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
ID.
- BString [network](#)
The name.
- BString [description](#)
The organisations description.
- BList< BString > [stations](#)
The list of arrays/stations the [Network](#) uses.

9.40.1 Detailed Description

This class defines a [Network](#) organisation. Could have other information here like website, contacts etc.

9.40.2 Constructor & Destructor Documentation

9.40.2.1 `Bds::Network::Network (BUInt32 pid = BUInt32 (), BString pnetwork = BString (), BString pdescription = BString (), BList< BString > pstations = BList<BString > ())`

9.40.3 Member Function Documentation

9.40.3.1 `BString Bds::Network::getType ()`

9.40.3.2 `BError Bds::Network::setMembers (BDictString & members)`

9.40.3.3 `BError Bds::Network::getMembers (BDictString & members)`

9.40.4 Member Data Documentation

9.40.4.1 `BUInt32 Bds::Network::id`

ID.

9.40.4.2 `BString Bds::Network::network`

The name.

9.40.4.3 `BString Bds::Network::description`

The organisations description.

9.40.4.4 `BList<BString > Bds::Network::stations`

The list of arrays/stations the [Network](#) uses.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.41 Bds::Note Class Reference

This holds information on a [Note](#).

```
#include <BdsD.h>
```

Public Member Functions

- [Note](#) (BUInt32 pid=BUInt32(), BTimeStamp ptime=BTimeStamp(), BString ptype=BString(), BString puser=BString(), BString ptitle=BString(), BString pdescription=BString())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The unique id.
- BTimeStamp [time](#)
The Time.
- BString [type](#)
The Type.
- BString [user](#)
The user.
- BString [title](#)
The Changes title.
- BString [description](#)
The Description of the change.

9.41.1 Detailed Description

This holds information on a [Note](#).

9.41.2 Constructor & Destructor Documentation

9.41.2.1 Bds::Note::Note (BUInt32 *pid* = BUInt32 (), BTimeStamp *ptime* = BTimeStamp (), BString *pctype* = BString (), BString *puser* = BString (), BString *ptitle* = BString (), BString *pdescription* = BString ())

9.41.3 Member Function Documentation

9.41.3.1 BString Bds::Note::getType ()

9.41.3.2 BError Bds::Note::setMembers (BDictString & *members*)

9.41.3.3 BError Bds::Note::getMembers (BDictString & *members*)

9.41.4 Member Data Documentation

9.41.4.1 BUInt32 Bds::Note::id

The unique id.

9.41.4.2 BTimeStamp Bds::Note::time

The Time.

9.41.4.3 BString Bds::Note::type

The Type.

9.41.4.4 BString Bds::Note::user

The user.

9.41.4.5 BString Bds::Note::title

The Changes title.

9.41.4.6 BString Bds::Note::description

The Description of the change.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.42 Bds::Point Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [Point](#) (BFloat64 px=BFloat64(), BFloat64 py=BFloat64())

Public Attributes

- BFloat64 [x](#)
- BFloat64 [y](#)

9.42.1 Constructor & Destructor Documentation

9.42.1.1 [Bds::Point::Point](#) (BFloat64 *px* = BFloat64(), BFloat64 *py* = BFloat64())

9.42.2 Member Data Documentation

9.42.2.1 BFloat64 [Bds::Point::x](#)

9.42.2.2 BFloat64 [Bds::Point::y](#)

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.43 Bds::PoleZero Class Reference

This class defines a Pole/Zero [Response](#).

```
#include <BdsD.h>
```

Public Member Functions

- [PoleZero](#) (BArray< [Point](#) > ppoles=BArray< [Point](#) >(), BArray< [Point](#) > pzeros=BArray< [Point](#) >())

Public Attributes

- BArray< [Point](#) > [poles](#)
Poles.
- BArray< [Point](#) > [zeros](#)
Zeros.

9.43.1 Detailed Description

This class defines a Pole/Zero [Response](#).

9.43.2 Constructor & Destructor Documentation

9.43.2.1 **Bds::PoleZero::PoleZero** (BArray< **Point** > *ppoles* = BArray<**Point** >(), BArray< **Point** > *pzeros* = BArray<**Point** >())

9.43.3 Member Data Documentation

9.43.3.1 BArray<Point> Bds::PoleZero::poles

Poles.

9.43.3.2 BArray<Point> Bds::PoleZero::zeros

Zeros.

The documentation for this class was generated from the following files:

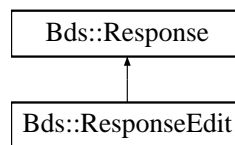
- [BdsD.h](#)
- [BdsD.cc](#)

9.44 Bds::Response Class Reference

This class defines a [Response](#).

```
#include <BdsD.h>
```

Inheritance diagram for Bds::Response::



Public Member Functions

- [Response](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pnetwork=BString(), BString pstation=BString(), BString pchannel=BString(), BString pname=BString(), BString ptype=BString(), [PoleZero](#) ppoleZeros=[PoleZero](#)(), BArray< [Fap](#) > pfaps=BArray< [Fap](#) >(), BArray< BFloat64 > pfirCoefficients=BArray< BFloat64 >(), BFloat64 pgain=BFloat64(), BFloat64 pgainFrequency=BFloat64(), BFloat64 pdecimation=BFloat64(), BString psymmetry=BString())

Public Attributes

- BUInt32 [id](#)
The ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time the channel was available.
- BString [network](#)
The Network/Organisation Name.
- BString [station](#)
The station.
- BString [channel](#)
The channel.
- BString [name](#)
The response name. (Anti-Aliasing filter, [Digitiser](#), post filter etc).
- BString [type](#)
The type of response ([PoleZero](#),AmplitudePhase or FIR Coefficients).
- [PoleZero](#) [poleZeros](#)

PoleZero, AmplitudePhase or FIR Coefficient data.

- BArray< [Fap](#) > [faps](#)
The Frequency/Amplitude/Phase table.
- BArray< BFloat64 > [firCoefficients](#)
The FIR filters coefficients.
- BFloat64 [gain](#)
Overall gain at gain frequency. (For information) (Do we need this ?).
- BFloat64 [gainFrequency](#)
Frequency that gain is valid for. (For information) (Do we need this ?).
- BFloat64 [decimation](#)
Decimation performed post filter.
- BString [symmetry](#)
Symmetry for FIR coefficients (A = asymmetric, B = symmetric[odd], C = symmetric[even]) ??

9.44.1 Detailed Description

This class defines a [Response](#).

9.44.2 Constructor & Destructor Documentation

9.44.2.1 Bds::Response::Response (BUInt32 *pid* = BUInt32(), BTimeStamp *pstartTime* = BTimeStamp(), BTimeStamp *pendTime* = BTimeStamp(), BString *pnetwork* = BString(), BString *pstation* = BString(), BString *pchannel* = BString(), BString *pname* = BString(), BString *ptype* = BString(), PoleZero *ppoleZeros* = PoleZero(), BArray< [Fap](#) > *pfaps* = BArray< [Fap](#) >(), BArray< BFloat64 > *pfirCoefficients* = BArray< BFloat64 >(), BFloat64 *pgain* = BFloat64(), BFloat64 *pgainFrequency* = BFloat64(), BFloat64 *pdecimation* = BFloat64(), BString *psymmetry* = BString())

9.44.3 Member Data Documentation

9.44.3.1 BUInt32 Bds::Response::id

The ID.

9.44.3.2 BTimeStamp Bds::Response::startTime

The Start Time.

9.44.3.3 BTimeStamp Bds::Response::endTime

The End Time the channel was available.

9.44.3.4 BString Bds::Response::network

The Network/Organisation Name.

9.44.3.5 BString Bds::Response::station

The station.

9.44.3.6 BString Bds::Response::channel

The channel.

9.44.3.7 BString Bds::Response::name

The response name. (Anti-Aliasing filter, [Digitiser](#), post filter etc).

9.44.3.8 BString Bds::Response::type

The type of response ([PoleZero](#), AmplitudePhase or FIR Coefficients).

9.44.3.9 PoleZero Bds::Response::poleZeros

[PoleZero](#), AmplitudePhase or FIR Coefficient data.

9.44.3.10 BArray<Fap > Bds::Response::faps

The Frequency/Amplitude/Phase table.

9.44.3.11 BArray<BFloat64 > Bds::Response::firCoefficients

The FIR filters coefficients.

9.44.3.12 BFloat64 Bds::Response::gain

Overall gain at gain frequency. (For information) (Do we need this ?).

9.44.3.13 BFloat64 Bds::Response::gainFrequency

Frequency that gain is valid for. (For information) (Do we need this ?).

9.44.3.14 BFloat64 Bds::Response::decimation

Decimation performed post filter.

9.44.3.15 BString Bds::Response::symmetry

Symmetry for FIR coefficients (A = asymmetric, B = symmetric[odd], C = symmetric[even]) ??

The documentation for this class was generated from the following files:

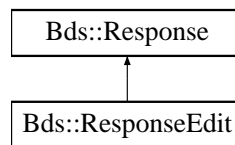
- [BdsD.h](#)
- [BdsD.cc](#)

9.45 Bds::ResponseEdit Class Reference

[Response](#) Editor object.

```
#include <BdsLib.h>
```

Inheritance diagram for Bds::ResponseEdit::



Public Member Functions

- [ResponseEdit](#) (const [Response](#) &response)
- [~ResponseEdit](#) ()
- BString [getString](#) ()
- void [setString](#) (BString str)

9.45.1 Detailed Description

[Response](#) Editor object.

9.45.2 Constructor & Destructor Documentation

9.45.2.1 Bds::ResponseEdit::ResponseEdit (const Response & *response*)

9.45.2.2 Bds::ResponseEdit::~~ResponseEdit ()

9.45.3 Member Function Documentation

9.45.3.1 BString Bds::ResponseEdit::getString ()

9.45.3.2 void Bds::ResponseEdit::setString (BString *str*)

The documentation for this class was generated from the following files:

- [BdsLib.h](#)
- [BdsLib.cpp](#)

9.46 Bds::Selection Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [Selection](#) ([ListRange](#) prange=[ListRange](#)(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BList< [SelectionChannel](#) > pchannels=BList< [SelectionChannel](#) >(), BUInt32 pchannelId=BUInt32(), BUInt32 pdigitiserId=BUInt32(), BUInt32 psensorId=BUInt32(), BUInt32 psensorOldId=BUInt32())

Public Attributes

- [ListRange](#) [range](#)
The range of data to return.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BList< [SelectionChannel](#) > [channels](#)
The data channels to select.
- BUInt32 [channelId](#)
The [Channel](#) id.
- BUInt32 [digitiserId](#)
The [Digitiser](#) id.
- BUInt32 [sensorId](#)
The [Sensor](#) id.
- BUInt32 [sensorOldId](#)
The [Sensor](#) old id.

9.46.1 Constructor & Destructor Documentation

9.46.1.1 `Bds::Selection::Selection (ListRange prange = ListRange (), BTimeStamp pstartTime = BTimeStamp (), BTimeStamp pendTime = BTimeStamp (), BList< SelectionChannel > pchannels = BList< SelectionChannel > (), BUInt32 pchannelId = BUInt32 (), BUInt32 pdigitiserId = BUInt32 (), BUInt32 psensorId = BUInt32 (), BUInt32 psensorOldId = BUInt32 ())`

9.46.2 Member Data Documentation

9.46.2.1 ListRange Bds::Selection::range

The range of data to return.

9.46.2.2 BTimeStamp Bds::Selection::startTime

The Start Time.

9.46.2.3 BTimeStamp Bds::Selection::endTime

The End Time.

9.46.2.4 BList< SelectionChannel > Bds::Selection::channels

The data channels to select.

9.46.2.5 BUInt32 Bds::Selection::channelId

The [Channel](#) id.

9.46.2.6 BUInt32 Bds::Selection::digitiserId

The [Digitiser](#) id.

9.46.2.7 BUInt32 Bds::Selection::sensorId

The [Sensor](#) id.

9.46.2.8 BUInt32 Bds::Selection::sensorOldId

The [Sensor](#) old id.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.47 Bds::SelectionChannel Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [SelectionChannel](#) (BString pnetwork=BString(), BString pstation=BString(), BString pchannel=BString(), BString psource=BString())

Public Attributes

- BString [network](#)
- BString [station](#)
- BString [channel](#)
- BString [source](#)

9.47.1 Constructor & Destructor Documentation

9.47.1.1 Bds::SelectionChannel::SelectionChannel (BString *pnetwork* = BString(), BString *ystation* = BString(), BString *pchannel* = BString(), BString *psource* = BString())

9.47.2 Member Data Documentation

9.47.2.1 BString Bds::SelectionChannel::network

9.47.2.2 BString Bds::SelectionChannel::station

9.47.2.3 BString Bds::SelectionChannel::channel

9.47.2.4 BString Bds::SelectionChannel::source

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.48 Bds::SelectionInfo Class Reference

This class defines the set of data selection criteria.

```
#include <BdsD.h>
```

Public Member Functions

- [SelectionInfo](#) (BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BList< BString > pnetworks=BList< BString >(), BList< BString > pstations=BList< BString >(), BList< BString > pchannels=BList< BString >(), BList< BString > psources=BList< BString >(), BUInt32 pnnumDataChannels=BUInt32())

Public Attributes

- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BList< BString > [networks](#)
The list of [Network](#) Names.
- BList< BString > [stations](#)
The list of Array or [Station](#) names.
- BList< BString > [channels](#)
The list of Channels.
- BList< BString > [sources](#)
The list of Data Sources.
- BUInt32 [numDataChannels](#)
The number of sets of data in the system.

9.48.1 Detailed Description

This class defines the set of data selection criteria.

9.48.2 Constructor & Destructor Documentation

9.48.2.1 `Bds::SelectionInfo::SelectionInfo (BTimeStamp pstartTime = BTimeStamp(), BTimeStamp pendTime = BTimeStamp(), BList< BString > pnetworks = BList<BString >(), BList< BString > pstations = BList<BString >(), BList< BString > pchannels = BList<BString >(), BList< BString > psources = BList<BString >(), BUInt32 pnumDataChannels = BUInt32())`

9.48.3 Member Data Documentation

9.48.3.1 BTimeStamp Bds::SelectionInfo::startTime

The Start Time.

9.48.3.2 BTimeStamp Bds::SelectionInfo::endTime

The End Time.

9.48.3.3 BList<BString> Bds::SelectionInfo::networks

The list of [Network](#) Names.

9.48.3.4 BList<BString> Bds::SelectionInfo::stations

The list of Array or [Station](#) names.

9.48.3.5 BList<BString> Bds::SelectionInfo::channels

The list of Channels.

9.48.3.6 BList<BString> Bds::SelectionInfo::sources

The list of Data Sources.

9.48.3.7 BUInt32 Bds::SelectionInfo::numDataChannels

The number of sets of data in the system.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.49 Bds::Sensor Class Reference

This class defines a [Sensor](#).

```
#include <BdsD.h>
```

Public Member Functions

- [Sensor](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BString pname=BString(), BString ptype=BString(), BString pserialNumber=BString(), BUInt32 pnumberChannels=BUInt32(), BString pgainUnits=BString(), BFloat64 pgain=BFloat64(), BUInt32 poldId=BUInt32())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BString [name](#)
The Sensors name.
- BString [type](#)
The type of sensor. (Seismometer, Hydrophone etc).
- BString [serialNumber](#)
The sensor's serial number. Only used when there is a unique physical sensor.
- BUInt32 [numberChannels](#)
The number of supported channels.
- BString [gainUnits](#)
The gain units.
- BFloat64 [gain](#)
The overall gain of the sensor at the manufacturers calibration frequency. (For information only).
- BUInt32 [oldId](#)
The Id from the old Autodrm database.

9.49.1 Detailed Description

This class defines a [Sensor](#).

9.49.2 Constructor & Destructor Documentation

9.49.2.1 **Bds::Sensor::Sensor** (BUInt32 *pid* = BUInt32 (), BTimeStamp *pstartTime* = BTimeStamp (), BTimeStamp *pendTime* = BTimeStamp (), BString *pname* = BString (), BString *ptype* = BString (), BString *pserialNumber* = BString (), BUInt32 *pnumberChannels* = BUInt32 (), BString *pgainUnits* = BString (), BFloat64 *pgain* = BFloat64 (), BUInt32 *poldId* = BUInt32 ())

9.49.3 Member Function Documentation

9.49.3.1 BString Bds::Sensor::getType ()

9.49.3.2 BError Bds::Sensor::setMembers (BDictString & *members*)

9.49.3.3 BError Bds::Sensor::getMembers (BDictString & *members*)

9.49.4 Member Data Documentation

9.49.4.1 BUInt32 Bds::Sensor::id

The ID.

9.49.4.2 BTimeStamp Bds::Sensor::startTime

The Start Time.

9.49.4.3 BTimeStamp Bds::Sensor::endTime

The End Time.

9.49.4.4 BString Bds::Sensor::name

The Sensors name.

9.49.4.5 BString Bds::Sensor::type

The type of sensor. (Seismometer, Hydrophone etc).

9.49.4.6 BString Bds::Sensor::serialNumber

The sensor's serial number. Only used when there is a unique physical sensor.

9.49.4.7 BUInt32 Bds::Sensor::numberChannels

The number of supported channels.

9.49.4.8 BString Bds::Sensor::gainUnits

The gain units.

9.49.4.9 BFloat64 Bds::Sensor::gain

The overall gain of the sensor at the manufacturers calibration frequency. (For information only).

9.49.4.10 BUInt32 Bds::Sensor::oldId

The Id from the old Autodrm database.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.50 Bds::SensorLocation Class Reference

This class defines a [Sensor](#) location.

```
#include <BdsD.h>
```

Public Member Functions

- [SensorLocation](#) (BUInt32 pid=BUInt32(), BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp(), BUInt32 psensorId=BUInt32(), BFloat64 pdepth=BFloat64(), BFloat64 phorizontalAngle=BFloat64(), BFloat64 pverticalAngle=BFloat64())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The ID.
- BTimeStamp [startTime](#)
The Start Time.
- BTimeStamp [endTime](#)
The End Time.
- BUInt32 [sensorId](#)
The sensor ID.
- BFloat64 [depth](#)
The depth of the sensor below ground level in meters.
- BFloat64 [horizontalAngle](#)
The Sensors placement horizontal angle in degrees clockwise from north.
- BFloat64 [verticalAngle](#)
The Sensors placement vertical angle in degrees degrees with zero = vertically up.

9.50.1 Detailed Description

This class defines a [Sensor](#) location.

9.50.2 Constructor & Destructor Documentation

9.50.2.1 `Bds::SensorLocation::SensorLocation (BUInt32 pid = BUInt32 (), BTimeStamp pstartTime = BTimeStamp (), BTimeStamp pendTime = BTimeStamp (), BUInt32 psensorId = BUInt32 (), BFloat64 pdepth = BFloat64 (), BFloat64 phorizontalAngle = BFloat64 (), BFloat64 pverticalAngle = BFloat64 ())`

9.50.3 Member Function Documentation

9.50.3.1 `BString Bds::SensorLocation::getType ()`

9.50.3.2 `BError Bds::SensorLocation::setMembers (BDictString & members)`

9.50.3.3 `BError Bds::SensorLocation::getMembers (BDictString & members)`

9.50.4 Member Data Documentation

9.50.4.1 `BUInt32 Bds::SensorLocation::id`

The ID.

9.50.4.2 `BTimeStamp Bds::SensorLocation::startTime`

The Start Time.

9.50.4.3 `BTimeStamp Bds::SensorLocation::endTime`

The End Time.

9.50.4.4 `BUInt32 Bds::SensorLocation::sensorId`

The sensor ID.

9.50.4.5 `BFloat64 Bds::SensorLocation::depth`

The depth of the sensor below ground level in meters.

9.50.4.6 `BFloat64 Bds::SensorLocation::horizontalAngle`

The Sensors placement horizontal angle in degrees clockwise from north.

9.50.4.7 `BFloat64 Bds::SensorLocation::verticalAngle`

The Sensors placement vertical angle in degrees degrees with zero = vertically up.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.51 Bds::Station Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [Station](#) (BUInt32 pid=BUInt32(), BString pname=BString(), BString ptype=BString(), BString pdescription=BString(), BList< [ArrayChannel](#) > pchannels=BList< [ArrayChannel](#) >())

Public Attributes

- BUInt32 [id](#)
ID.
- BString [name](#)
The name.
- BString [type](#)
Array or [Station](#).
- BString [description](#)
Description.
- BList< [ArrayChannel](#) > [channels](#)
List of channels if an Array.

9.51.1 Constructor & Destructor Documentation

- 9.51.1.1** **Bds::Station::Station** (BUInt32 *pid* = BUInt32(), BString *pname* = BString(), BString *ptype* = BString(), BString *pdescription* = BString(), BList< [ArrayChannel](#) > *pchannels* = BList<[ArrayChannel](#) >())

9.51.2 Member Data Documentation

9.51.2.1 BUInt32 Bds::Station::id

ID.

9.51.2.2 BString Bds::Station::name

The name.

9.51.2.3 BString Bds::Station::type

Array or [Station](#).

9.51.2.4 BString Bds::Station::description

Description.

9.51.2.5 BList<ArrayChannel > Bds::Station::channels

List of channels if an Array.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.52 Bds::TimePeriod Class Reference

```
#include <BdsD.h>
```

Public Member Functions

- [TimePeriod](#) (BTimeStamp pstartTime=BTimeStamp(), BTimeStamp pendTime=BTimeStamp())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BTimeStamp [startTime](#)
The Start time to the nearest us.
- BTimeStamp [endTime](#)
The End time to the nearest us.

9.52.1 Constructor & Destructor Documentation

9.52.1.1 **Bds::TimePeriod::TimePeriod** (BTimeStamp *pstartTime* = BTimeStamp(), BTimeStamp *pendTime* = BTimeStamp())

9.52.2 Member Function Documentation

9.52.2.1 BString Bds::TimePeriod::getType ()

9.52.2.2 BError Bds::TimePeriod::setMembers (BDictString & *members*)

9.52.2.3 BError Bds::TimePeriod::getMembers (BDictString & *members*)

9.52.3 Member Data Documentation

9.52.3.1 BTimeStamp Bds::TimePeriod::startTime

The Start time to the nearest us.

9.52.3.2 BTimeStamp Bds::TimePeriod::endTime

The End time to the nearest us.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

9.53 Bds::User Class Reference

This holds information on a user.

```
#include <BdsD.h>
```

Public Member Functions

- **User** (BUInt32 pid=BUInt32(), BString puser=BString(), BString ppassword=BString(), BString pname=BString(), BString pemail=BString(), BString ptelephone=BString(), BString pad-
dress=BString(), BInt32 penabled=BInt32(), BList< BString > pgroups=BList< BString >())
- BString [getType](#) ()
- BError [setMembers](#) (BDictString &members)
- BError [getMembers](#) (BDictString &members)

Public Attributes

- BUInt32 [id](#)
The unique user ID.
- BString [user](#)
The [User](#) ID.
- BString [password](#)
The Users password.
- BString [name](#)
The Users full name.
- BString [email](#)
The users email Address.
- BString [telephone](#)
The Users telephone number.
- BString [address](#)
The Users postal address.
- BInt32 [enabled](#)
Whether the users account is enabled.
- BList< BString > [groups](#)
The security groups the user belongs to.

9.53.1 Detailed Description

This holds information on a user.

9.53.2 Constructor & Destructor Documentation

9.53.2.1 `Bds::User::User (BUInt32 pid = BUInt32 (), BString puser = BString (), BString ppassword = BString (), BString pname = BString (), BString pemail = BString (), BString ptelephone = BString (), BString paddress = BString (), BInt32 penabled = BInt32 (), BList< BString > pgroups = BList<BString > ())`

9.53.3 Member Function Documentation

9.53.3.1 `BString Bds::User::getType ()`

9.53.3.2 `BError Bds::User::setMembers (BDictString & members)`

9.53.3.3 `BError Bds::User::getMembers (BDictString & members)`

9.53.4 Member Data Documentation

9.53.4.1 `BUInt32 Bds::User::id`

The unique user ID.

9.53.4.2 `BString Bds::User::user`

The [User](#) ID.

9.53.4.3 `BString Bds::User::password`

The Users password.

9.53.4.4 `BString Bds::User::name`

The Users full name.

9.53.4.5 `BString Bds::User::email`

The users email Address.

9.53.4.6 `BString Bds::User::telephone`

The Users telephone number.

9.53.4.7 `BString Bds::User::address`

The Users postal address.

9.53.4.8 `BInt32 Bds::User::enabled`

Whether the users account is enabled.

9.53.4.9 `BList<BString> Bds::User::groups`

The security groups the user belongs to.

The documentation for this class was generated from the following files:

- [BdsD.h](#)
- [BdsD.cc](#)

Chapter 10

File Documentation

10.1 /src/blacknest/bds/bds/bdsDataLib/BdsCompress.cpp File Reference

```
#include <BdsCompress.h>
```

Namespaces

- namespace [Bds](#)

Functions

- BError [Bds::bdsUnCompressCm8](#) (BUInt8 *buffer, BUInt n, BArray< BInt32 > &data)

10.2 /src/blacknest/bds/bds/bdsDataLib/BdsCompress.h File Reference

```
#include <BError.h>
#include <BArray.h>
```

Namespaces

- namespace [Bds](#)

Functions

- BError [Bds::bdsUnCompressCm8](#) (BUInt8 *buffer, BUInt n, BArray< BInt32 > &data)

10.3 /src/blacknest/bds/bds/bdsDataLib/BdsDataCollate.cpp File Reference

```
#include <BdsDataCollate.h>
```

Namespaces

- namespace [Bds](#)

10.4 /src/blacknest/bds/bds/bdsDataLib/BdsDataCollate.h File Reference

```
#include <BString.h>
#include <BFile.h>
#include <BTimeStamp.h>
#include <BdsD.h>
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataCollate](#)

This class defines the interface for generic data file access.

10.5 /src/blacknest/bds/bds/bdsDataLib/BdsDataFile.cpp File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

10.6 /src/blacknest/bds/bds/bdsDataLib/BdsDataFile.h File Reference

```
#include <BString.h>
#include <BFile.h>
#include <BTimeStamp.h>
#include <BdsD.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFile](#)

This class defines the interface for generic data file access.

10.7 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileAscii.cpp File Reference

```
#include <BdsDataFileAscii.h>
#include <BTimeStamp.h>
```

Namespaces

- namespace [Bds](#)

10.8 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileAscii.h File Reference

```
#include <BdsDataFile.h>
#include <BdsD.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileAscii](#)

10.9 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs-1.cpp File Reference

```
#include <BdsDataFileBdrs.h>
#include <BDebug.h>
#include <errno.h>
```

Namespaces

- namespace [Bds](#)

10.10 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs-1.h File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileBdrs](#)

10.11 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs.cpp File Reference

```
#include <BdsDataFileBdrs.h>
#include <BDebug.h>
#include <errno.h>
```

Namespaces

- namespace [Bds](#)

10.12 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBdrs.h File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileBdrs](#)

10.13 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.cpp File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
#include <errno.h>
#include <byteswap.h>
#include <BdsLib.h>
#include <BdsDataLib.h>
#include <BdsDataFileBds.h>
#include <BBuffer.h>
#include <zlib.h>
#include <canada_compress.h>
```

Namespaces

- namespace [Bds](#)

Defines

- #define [LDEBUG](#) 0
- #define [dprintf](#)(fmt, a...)

Functions

- BUInt32 [Bds::crc](#) (BUInt32 crc, void *data, int numBytes)

Variables

- const BString [Bds::BdsVersion](#) = "1.0.0"

10.13.1 Define Documentation

10.13.1.1 [#define dprintf\(fmt, a...\)](#)

10.13.1.2 [#define LDEBUG 0](#)

10.14 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBds.h File Reference

```
#include <BdsDataFile.h>
#include <BBuffer.h>
```

Namespaces

- namespace [Bds](#)

Classes

- struct [Bds::BdsDataBlockHeader](#)
- struct [Bds::BdsDataBlock](#)
- struct [Bds::BdsDataPacketHeader](#)
- class [Bds::BdsDataPacket](#)
- class [Bds::BdsDataStreamlet](#)
- class [Bds::DataFileBds](#)

This class implements the BDS Data File/Stream access system.

Defines

- #define [BdsDataFileBds_H](#) 1

Enumerations

- enum [Bds::BdsDataType](#) { [Bds::BdsDataTypeBlock](#) = 0x42534442, [Bds::BdsDataTypeInfo](#) = 0x30534442, [Bds::BdsDataTypeData](#) = 0x31534442 }

10.14.1 Define Documentation

10.14.1.1 #define BdsDataFileBds_H 1

10.15 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBknas.cpp File Reference

```
#include <BdsDataFileBknas.h>  
#include <BTimeStamp.h>
```

Namespaces

- namespace [Bds](#)

10.16 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileBknas.h File Reference

```
#include <BdsDataFile.h>
#include <BdsD.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileBknas](#)

10.17 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileGcf.cpp File Reference

```
#include <BdsDataFileGcf.h>
#include <arpa/inet.h>
#include <errno.h>
#include <gcf2.h>
```

Namespaces

- namespace [Bds](#)

Defines

- #define [DEBUG](#) 0

10.17.1 Define Documentation

10.17.1.1 #define [DEBUG](#) 0

10.18 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileGcf.h File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileGcf](#)

10.19 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileIms.cpp File Reference

```
#include <BdsDataFileIms.h>
#include <BTimeStamp.h>
```

Namespaces

- namespace [Bds](#)

Functions

- void [Bds::dataCalculateDifference](#) (BInt32 &prevValue, BArray< BInt32 > &data)
- BInt32 [Bds::dataChecksum](#) (BInt32 checksum, BArray< BInt32 > &data)
- BError [Bds::dataCompressCm6](#) (int &prevValue1, int &prevValue2, BArray< BInt32 > &data, BString &d)
- void [Bds::dataConvert](#) (BArray< BFloat64 > &dataIn, BArray< BInt32 > &dataOut)

Variables

- static char [Bds::cm6Table](#) [64]

10.20 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileImgs.h **File Reference**

```
#include <BdsDataFile.h>
#include <BdsD.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileImgs](#)

10.21 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileTapeDigitiser.cpp File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
#include <errno.h>
#include <BdsDataFileTapeDigitiser.h>
#include <BTimeStampMs.h>
```

Namespaces

- namespace [Bds](#)

Classes

- struct [Bds::FileDataHeaderTape_1v1](#)
- struct [Bds::FileDataHeaderTape_2v0](#)

Enumerations

- enum [Bds::FileHeaderType](#) { [Bds::FileHeaderType_Standard](#) = 1, [Bds::FileHeaderType_TapeDigitiser](#) = 10 }
- enum [Bds::FileSampleType](#) {
[Bds::FileSampleType_Unknown](#), [Bds::FileSampleType_Float32](#), [Bds::FileSampleType_Float64](#),
[Bds::FileSampleType_Int16](#),
[Bds::FileSampleType_Int32](#) }

Variables

- const double [Bds::Scale](#) = 16777216.0

10.22 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileTapeDigitiser.h File Reference

```
#include <BTypes.h>
#include <BError.h>
#include <BFile.h>
#include <BEntry.h>
#include <BBuffer.h>
#include <BDict.h>
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileTapeDigitiser](#)

This class implements the TapeDigitiser's file output conversion and storing system.

Defines

- #define [BdsDataFileTapeDigitiser_H](#) 1

10.22.1 Define Documentation

10.22.1.1 #define BdsDataFileTapeDigitiser_H 1

10.23 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.cpp File Reference

```
#include <BdsDataFileWra.h>
#include <BDebug.h>
#include <errno.h>
```

Namespaces

- namespace [Bds](#)

10.24 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra-1.h File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileWra](#)

10.25 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra.cpp File Reference

```
#include <BdsDataFileWra.h>
#include <BDebug.h>
#include <errno.h>
```

Namespaces

- namespace [Bds](#)

10.26 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileWra.h File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileWra](#)

10.27 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileWraAgso.cpp File Reference

```
#include <BdsDataFileWraAgso.h>
#include <BdsCompress.h>
#include <BDebug.h>
#include <errno.h>
#include <math.h>
```

Namespaces

- namespace [Bds](#)

Functions

- static BList< BString > [parseStringFixedFields](#) (BString s, int *fieldWidths)

10.27.1 Function Documentation

10.27.1.1 static BList<BString> [parseStringFixedFields](#) (BString s, int **fieldWidths*)
[static]

10.28 /src/blacknest/bds/bds/bdsDataLib/BdsDataFileWraAgso.h

File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFileWraAgso](#)

10.29 /src/blacknest/bds/bds/bdsDataLib/BdsDataLib.cpp File Reference

```
#include <BdsDataLib.h>
#include <BdsDataFileAscii.h>
#include <BdsDataFileBknas.h>
#include <BdsDataFileBdrs.h>
#include <BdsDataFileBds.h>
#include <BdsDataFileGcf.h>
#include <BdsDataFileIms.h>
#include <BdsDataFileTapeDigitiser.h>
#include <BdsDataFileWra.h>
#include <BdsDataFileWraAgso.h>
```

Namespaces

- namespace [Bds](#)

Variables

- DataFormats [Bds::dataFormats](#)

10.30 /src/blacknest/bds/bds/bdsDataLib/BdsDataLib.h File Reference

```
#include <BdsDataFile.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataFormats](#)

This class defines the interface for generic data file access.

10.31 /src/blacknest/bds/bds/bdsDataLib/canada_compress.c File Reference

```
#include <stdlib.h>
#include "canada_compress.h"
```

Defines

- #define [htonl](#)(a) (a)
- #define [ntohl](#)(a) (a)

Functions

- static void [pack](#) (unsigned long m, unsigned long *y, unsigned char *b, int *j)
- static void [unpack](#) (uint32_t m, uint32_t *y, unsigned char *b, int *j)
- int [canada_compress](#) (unsigned char *b, unsigned long *y, int *n, int m, unsigned long *v0)
- int [canada_uncompress](#) (unsigned char *b, uint32_t *y, int *n, int samples, uint32_t *v0)

Variables

- static int [corrupt](#) = 0

10.31.1 Define Documentation

10.31.1.1 #define [htonl](#)(a) (a)

10.31.1.2 #define [ntohl](#)(a) (a)

10.31.2 Function Documentation

10.31.2.1 int [canada_compress](#) (unsigned char * *b*, unsigned long * *y*, int * *n*, int *m*, unsigned long * *v0*)

10.31.2.2 int [canada_uncompress](#) (unsigned char * *b*, uint32_t * *y*, int * *n*, int *samples*, uint32_t * *v0*)

10.31.2.3 static void [pack](#) (unsigned long *m*, unsigned long * *y*, unsigned char * *b*, int * *j*)
[static]

10.31.2.4 static void [unpack](#) (uint32_t *m*, uint32_t * *y*, unsigned char * *b*, int * *j*) [static]

10.31.3 Variable Documentation

10.31.3.1 int [corrupt](#) = 0 [static]

10.32 /src/blacknest/bds/bds/bdsDataLib/canada_compress.h File Reference

```
#include <arpa/inet.h>
```

Defines

- `#define CANCOMP_ERR -1`
- `#define CANCOMP_SUCCESS 0`
- `#define CANCOMP_NOT_20 1`
- `#define CANCOMP_CORRUPT 2`
- `#define CANCOMP_EXCEED 3`

Functions

- `int canada_uncompress (unsigned char *b, uint32_t *y, int *n, int m, uint32_t *v0)`
- `int canada_compress (unsigned char *b, unsigned long *y, int *n, int m, unsigned long *v0)`

10.32.1 Define Documentation

10.32.1.1 `#define CANCOMP_CORRUPT 2`

10.32.1.2 `#define CANCOMP_ERR -1`

10.32.1.3 `#define CANCOMP_EXCEED 3`

10.32.1.4 `#define CANCOMP_NOT_20 1`

10.32.1.5 `#define CANCOMP_SUCCESS 0`

10.32.2 Function Documentation

10.32.2.1 `int canada_compress (unsigned char * b, unsigned long * y, int * n, int m, unsigned long * v0)`

10.32.2.2 `int canada_uncompress (unsigned char * b, uint32_t * y, int * n, int m, uint32_t * v0)`

10.33 BdsC.cc File Reference

```
#include <BdsC.h>
```

Namespaces

- namespace [Bds](#)

10.34 BdsC.h File Reference

```
#include <stdlib.h>
#include <stdint.h>
#include <Boap.h>
#include <BString.h>
#include <BList.h>
#include <BArray.h>
#include <BdsD.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::DataAccess](#)
- class [Bds::DataAddAccess](#)

This is the DataAdd Access API interface.

- class [Bds::AdminAccess](#)

This is the AdminAccess API interface.

Defines

- #define [BDSC_H](#) 1

Variables

- const BUInt32 [Bds::apiVersion](#) = 0

10.34.1 Define Documentation

10.34.1.1 #define BDSC_H 1

10.35 BdsD.cc File Reference

```
#include <BdsD.h>
```

Namespaces

- namespace [Bds](#)

10.36 BdsD.h File Reference

```
#include <Boap.h>
#include <BObj.h>
#include <BList.h>
#include <BArray.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::Point](#)
- class [Bds::TimePeriod](#)
- class [Bds::ListRange](#)
This class defines a [TimePeriod](#).
- class [Bds::Network](#)
This class defines a [Network](#) organisation. Could have other information here like website, contacts etc.
- class [Bds::ArrayChannel](#)
This class defines an arrays channel.
- class [Bds::Station](#)
- class [Bds::Location](#)
This class defines a [Location](#). This will be the stations location.
- class [Bds::PoleZero](#)
This class defines a Pole/Zero [Response](#).
- class [Bds::Fap](#)
This class defines a Amplitude/Phase [Response](#).
- class [Bds::Response](#)
This class defines a [Response](#).
- class [Bds::Calibration](#)
This class defines a calibration setting.
- class [Bds::Digitiser](#)
This class defines a [Digitiser](#).
- class [Bds::Sensor](#)
This class defines a [Sensor](#).
- class [Bds::SensorLocation](#)
This class defines a [Sensor](#) location.

- class [Bds::ChannelInstrument](#)
- class [Bds::Channel](#)
This class defines a [Channel](#).
- class [Bds::SelectionInfo](#)
This class defines the set of data selection criteria.
- class [Bds::SelectionChannel](#)
- class [Bds::Selection](#)
- class [Bds::ChannelInfo](#)
- class [Bds::DataChannel](#)
This class defines information on a single channels set of data.
- class [Bds::DataInfo](#)
- class [Bds::DataHandle](#)
This defines a handle to a data stream/file.
- class [Bds::DataBlock](#)
- class [Bds::User](#)
This holds information on a user.
- class [Bds::Group](#)
This holds information on a groups.
- class [Bds::AccessGroup](#)
This holds information on data access groups.
- class [Bds::Change](#)
This holds information on a change.
- class [Bds::ChangeGroup](#)
This holds information on a change.
- class [Bds::Note](#)
This holds information on a [Note](#).

Defines

- #define [BDSD_H](#) 1

Enumerations

- enum [Bds::Errors](#) {
 [Bds::ErrorOk](#), [Bds::ErrorMisc](#), [Bds::ErrorWarning](#), [Bds::ErrorEndOfFile](#),
 [Bds::ErrorFile](#), [Bds::ErrorInit](#), [Bds::ErrorConfig](#), [Bds::ErrorResourceLimit](#),
 [Bds::ErrorParam](#), [Bds::ErrorNotImplemented](#), [Bds::ErrorComms](#), [Bds::ErrorTimeout](#),

```
Bds::ErrorValidate,    Bds::ErrorValidateMissingBlocks,    Bds::ErrorValidateTimeBackwards,  
Bds::ErrorValidateFilenameTime,  
  
Bds::ErrorValidateMetaData, Bds::ErrorValidateFix, Bds::ErrorFormat, Bds::ErrorTimeStamp,  
Bds::ErrorEndOfData, Bds::ErrorNoData, Bds::ErrorDataPresent, Bds::ErrorAccessDenied }  
• enum Bds::Priority { Bds::PriorityLow, Bds::PriorityNormal, Bds::PriorityHigh }  
• enum Bds::SelectionGroup { Bds::SelectionGroupData, Bds::SelectionGroupMetaData }  
• enum    Bds::SampleFormat    {    Bds::SampleFormatUnknown,    Bds::SampleFormatInt16,  
    Bds::SampleFormatInt32, Bds::SampleFormatFloat32 }
```

10.36.1 Define Documentation

10.36.1.1 #define BDSD_H 1

10.37 BdsLib.cpp File Reference

```
#include <BdsLib.h>
```

Namespaces

- namespace [Bds](#)

Functions

- void [Bds::bdsChannelGetTypeAux](#) (BString name, BString &type, BString &aux)
- BString [Bds::bdsChannelGetName](#) (BString type, BString aux)
- BError [Bds::bdsDataInfoSetTimeRange](#) (DataInfo &dataInfo)
- BError [Bds::bdsDataInfoFromInfo](#) (BDictString info, DataInfo &dataInfo)
Convert info to [DataInfo](#).
- BError [Bds::bdsInfoFromDataInfo](#) (DataInfo &dataInfo, BDictString &info)
- void [Bds::bdsDumpDataInfo](#) (DataInfo &dataInfo)

10.38 BdsLib.h File Reference

```
#include <BdsD.h>
#include <BString.h>
```

Namespaces

- namespace [Bds](#)

Classes

- class [Bds::ResponseEdit](#)
Response Editor object.

Functions

- void [Bds::bdsChannelGetTypeAux](#) (BString name, BString &type, BString &aux)
- BString [Bds::bdsChannelGetName](#) (BString type, BString aux)
- BError [Bds::bdsDataInfoSetTimeRange](#) (DataInfo &dataInfo)
- BError [Bds::bdsDataInfoFromInfo](#) (BDictString info, DataInfo &dataInfo)
Convert info to [DataInfo](#).
- BError [Bds::bdsInfoFromDataInfo](#) (DataInfo &dataInfo, BDictString &info)
- void [Bds::bdsDumpDataInfo](#) (DataInfo &dataInfo)

10.39 BdsS.cc File Reference

```
#include <BdsC.h>
```

```
#include <BdsS.h>
```

Namespaces

- namespace [Bds](#)

10.40 BdsT.cc File Reference

```
#include <stdlib.h>
#include <stdint.h>
#include <BdsT.h>
#include <Control.h>
```


10.41 overview.dox File Reference

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