Crypto

Generated by Doxygen 1.8.6

Wed Jun 26 2019 15:26:49

Contents

1 Data encryption program Crypto. **1**

2 Crypto - Advanced File Encryptor, based on one simple XOR and on a reliable AES encryption method **3**

3 Todo List **5**

4 Namespace Index **7**

4.1 Namespace List 7

5 Hierarchical Index **9**

5.1 Class Hierarchy 9

6 Class Index **11**

6.1 Class List 11

7 File Index **13**

7.1 File List 13

8 Namespace Documentation **15**

8.1 Ui Namespace Reference 15

9 Class Documentation **17**

9.1 CryptFileDevice Class Reference 17

9.1.1 Member Enumeration Documentation 21

9.1.1.1 AesKeyLength 21

9.1.1.2 EncryptionMethod 21

9.1.2 Constructor & Destructor Documentation 22

9.1.2.1 CryptFileDevice 22

9.1.2.2 CryptFileDevice 22

9.1.2.3 CryptFileDevice 22

9.1.2.4 CryptFileDevice 22

9.1.2.5 ~CryptFileDevice 22

9.1.3 Member Function Documentation 22

9.1.3.1 atEnd 22

9.1.3.2 bytesAvailable . . . 22
9.1.3.3 close . . . 22
9.1.3.4 decrypt . . . 23
9.1.3.5 encrypt . . . 23
9.1.3.6 errorMessage . . . 24
9.1.3.7 exists . . . 24
9.1.3.8 fileName . . . 25
9.1.3.9 flush . . . 25
9.1.3.10 initCipher . . . 26
9.1.3.11 initCtr . . . 26
9.1.3.12 insertHeader . . . 27
9.1.3.13 isEncrypted . . . 27
9.1.3.14 open . . . 27
9.1.3.15 pos . . . 28
9.1.3.16 readBlock . . . 29
9.1.3.17 readData . . . 30
9.1.3.18 remove . . . 31
9.1.3.19 rename . . . 31
9.1.3.20 seek . . . 32
9.1.3.21 setEncryptionMethod . . . 33
9.1.3.22 setFileDevice . . . 33
9.1.3.23 setFileName . . . 33
9.1.3.24 setKeyLength . . . 34
9.1.3.25 setNumRounds . . . 34
9.1.3.26 setPassword . . . 34
9.1.3.27 setSalt . . . 34
9.1.3.28 size . . . 35
9.1.3.29 tryParseHeader . . . 35
9.1.3.30 writeData . . . 36
9.1.4 Member Data Documentation . . . 36
9.1.4.1 m_aesKey . . . 36
9.1.4.2 m_aesKeyLength . . . 36
9.1.4.3 m_ctrState . . . 36
9.1.4.4 m_device . . . 37
9.1.4.5 m_deviceOwner . . . 37
9.1.4.6 m_encMethod . . . 37
9.1.4.7 m_encrypted . . . 37
9.1.4.8 m_numRounds . . . 37
9.1.4.9 m_password . . . 37
9.1.4.10 m_salt . . . 37

9.2 CtrState Struct Reference . . . 37
9.2.1 Member Data Documentation . . . 38
9.2.1.1 ecount . . . 38
9.2.1.2 ivec . . . 38
9.2.1.3 num . . . 38
9.3 MainWindow Class Reference . . . 38
9.3.1 Detailed Description . . . 43
9.3.2 Member Enumeration Documentation . . . 43
9.3.2.1 DataType . . . 43
9.3.2.2 ProcessStatus . . . 43
9.3.3 Constructor & Destructor Documentation . . . 43
9.3.3.1 MainWindow . . . 43
9.3.3.2 ~MainWindow . . . 44
9.3.4 Member Function Documentation . . . 44
9.3.4.1 about . . . 44
9.3.4.2 addDirs . . . 45
9.3.4.3 addFiles . . . 45
9.3.4.4 clearList . . . 46
9.3.4.5 closeEvent . . . 46
9.3.4.6 deleteItem . . . 47
9.3.4.7 editItem . . . 47
9.3.4.8 execute . . . 48
9.3.4.9 fileProcessing . . . 49
9.3.4.10 getCount . . . 50
9.3.4.11 getDirFiles . . . 51
9.3.4.12 getSettings . . . 51
9.3.4.13 getSize . . . 52
9.3.4.14 getTextSize . . . 53
9.3.4.15 on_actionAbout_crypto_triggered . . . 54
9.3.4.16 on_actionAbout_Qt_triggered . . . 54
9.3.4.17 on_actionAdd_Directory_triggered . . . 54
9.3.4.18 on_actionAdd_file_s_triggered . . . 55
9.3.4.19 on_actionContents_triggered . . . 55
9.3.4.20 on_actionEncryption_triggered . . . 55
9.3.4.21 on_actionFont_triggered . . . 55
9.3.4.22 on_actionQuit_triggered . . . 56
9.3.4.23 on_actionSettings_triggered . . . 56
9.3.4.24 on_addDir_clicked . . . 56
9.3.4.25 on_addFile_clicked . . . 56
9.3.4.26 on_clearList_clicked . . . 57

9.3.4.27 on_deleteEntry_clicked . . . 57
9.3.4.28 on_editEntry_clicked . . . 57
9.3.4.29 on_execButton_clicked . . . 57
9.3.4.30 on_hidPassMode_clicked . . . 58
9.3.4.31 on_passConfirmLine_textChanged . . . 58
9.3.4.32 on_passLine_textChanged . . . 58
9.3.4.33 on_recurseDirs_clicked . . . 58
9.3.4.34 on_targetsList_currentCellChanged . . . 59
9.3.4.35 readSettings . . . 59
9.3.4.36 updateStatusBar . . . 59
9.3.4.37 wErrorMessage . . . 60
9.3.4.38 writeSettings . . . 61
9.3.5 Member Data Documentation . . . 61
9.3.5.1 currentSettings . . . 61
9.3.5.2 deleteItemAction . . . 62
9.3.5.3 editItemAction . . . 62
9.3.5.4 encryptFile . . . 62
9.3.5.5 fullSize . . . 62
9.3.5.6 headview . . . 62
9.3.5.7 lastUsedDir . . . 62
9.3.5.8 lastUsedPath . . . 62
9.3.5.9 processError . . . 62
9.3.5.10 settings . . . 62
9.3.5.11 status . . . 62
9.3.5.12 targets . . . 62
9.3.5.13 ui . . . 63
9.4 Settings Struct Reference . . . 63
9.4.1 Member Data Documentation . . . 63
9.4.1.1 configFile . . . 63
9.4.1.2 enableLog . . . 63
9.4.1.3 maxSizeLog . . . 63
9.4.1.4 pathToLog . . . 64
9.5 SettingsDialog Class Reference . . . 64
9.5.1 Constructor & Destructor Documentation . . . 66
9.5.1.1 SettingsDialog . . . 66
9.5.1.2 ~SettingsDialog . . . 66
9.5.2 Member Function Documentation . . . 66
9.5.2.1 fillSettings . . . 66
9.5.2.2 fillSettingsUi . . . 66
9.5.2.3 getSettings . . . 67

9.5.2.4 on_buttonBox_accepted . . . 67
9.5.2.5 on_enableLog_clicked . . . 67
9.5.2.6 updateSettings . . . 67
9.5.3 Member Data Documentation . . . 68
9.5.3.1 currentSettings . . . 68
9.5.3.2 ui . . . 68

10 File Documentation **69**

10.1 cryptfiledevice.cpp File Reference . . . 69
10.1.1 Variable Documentation . . . 69
10.1.1.1 kHeaderLength . . . 69
10.1.1.2 kSaltMaxLength . . . 69
10.2 cryptfiledevice.h File Reference . . . 70
10.3 main.cpp File Reference . . . 70
10.3.1 Detailed Description . . . 71
10.3.2 Macro Definition Documentation . . . 71
10.3.2.1 ONEKB . . . 71
10.3.3 Function Documentation . . . 71
10.3.3.1 logMessageOutput . . . 71
10.3.3.2 main . . . 72
10.3.4 Variable Documentation . . . 73
10.3.4.1 m_logFile . . . 73
10.4 mainwindow.cpp File Reference . . . 73
10.4.1 Detailed Description . . . 74
10.4.2 Macro Definition Documentation . . . 74
10.4.2.1 COEFF . . . 74
10.4.2.2 ONEKB . . . 74
10.5 mainwindow.h File Reference . . . 74
10.5.1 Detailed Description . . . 75
10.6 README.md File Reference . . . 75
10.7 settings.h File Reference . . . 75
10.8 settingsdialog.cpp File Reference . . . 76
10.9 settingsdialog.h File Reference . . . 77

Index **78**

Chapter 1

Data encryption program Crypto.

Crypto - Advanced File Encryptor, based on simple XOR and reliable AES methods

Author

SergejBre sergej1@email.ua

Chapter 2

Crypto - Advanced File Encryptor, based on one simple XOR and on a reliable AES encryption method

- Description of the Project
- Project folders
- Main features
- Specification
- System requirements
- Compilation and installation
- Further development

Description of the Project

TODO

Project folders

TODO

Main features

TODO

Specification

TODO

System requirements

TODO

Compilation and installation

Here is a link to the installation program for Windows XP, Vista, 7, 8, 8.1 `crypto-setup.zip`

Further development

TODO

Chapter 3

Todo List

Member MainWindow::execute (void)

Password salt is taken from the release time of the program, taken in microseconds.

Member MainWindow::fileProcessing (const QString &file)

Make an extension for encrypted files! (".enc")

Member MainWindow::on_actionContents_triggered (void)

Add help for the program!

Chapter 4

Namespace Index

4.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Ui 15

Chapter 5

Hierarchical Index

5.1 Class Hierarchy

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

CtrState 37
QDialog
    SettingsDialog 64
QIODevice
    CryptFileDevice 17
QMainWindow
    MainWindow 38
Settings 63

Chapter 6

Class Index

6.1 Class List

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

CryptFileDevice 17
CtrState 37
MainWindow
    Back-end user interface 38
Settings 63
SettingsDialog 64

Chapter 7

File Index

7.1 File List

Here is a list of all files with brief descriptions:

cryptfiledevice.cpp 69
cryptfiledevice.h 70
main.cpp
    The file contains two important functions, main and logMessageOutput 70
mainwindow.cpp
    This file contains the definition of methods and interfaces of the MainWindow class 73
mainwindow.h
    This file contains the declaration of the class MainWindow 74
settings.h 75
settingsdialog.cpp 76
settingsdialog.h 77

Chapter 8

Namespace Documentation

8.1 Ui Namespace Reference

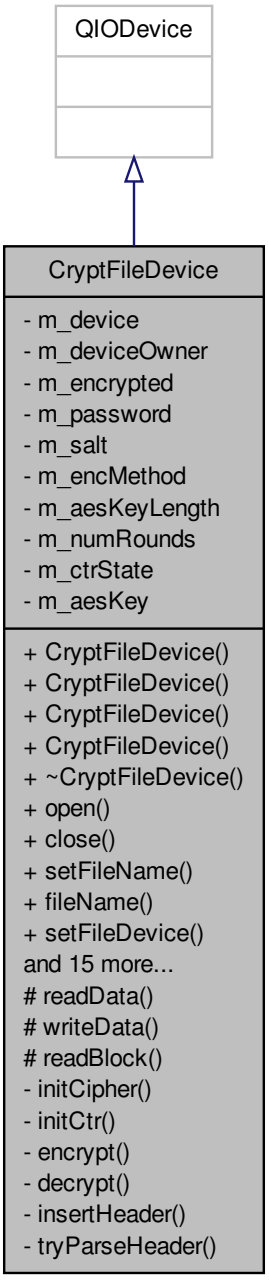
Chapter 9

Class Documentation

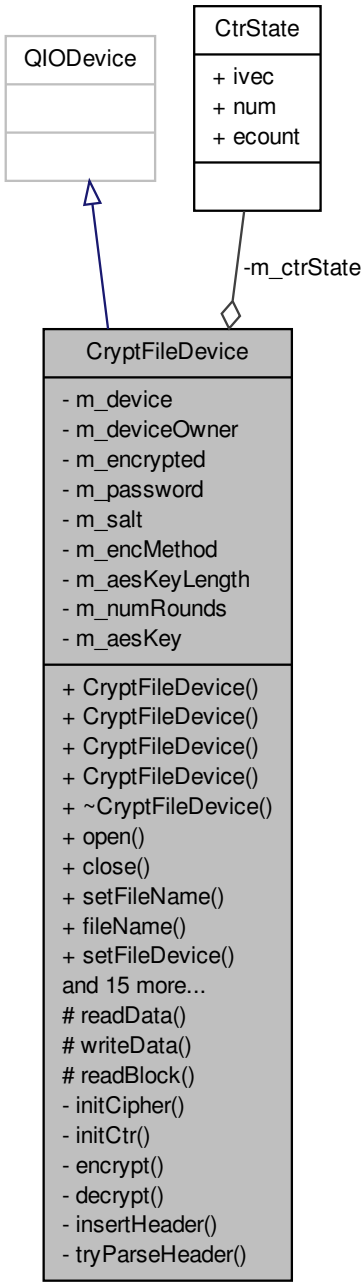
9.1 CryptFileDevice Class Reference

```
#include <cryptfiledevice.h>
```

Inheritance diagram for CryptFileDevice:



Collaboration diagram for CryptFileDevice:



Public Types

- enum AesKeyLength { kAesKeyLength128, kAesKeyLength192, kAesKeyLength256 }
- enum EncryptionMethod { XorCipher, AesCipher }

Signals

- void errorMessage (const QVariant &msg) const

Public Member Functions

- CryptFileDevice (QObject *parent=0)
- CryptFileDevice (QFileDevice *device, QObject *parent=0)
- CryptFileDevice (QFileDevice *device, const QByteArray &password, const QByteArray &salt, QObject *parent=0)
- CryptFileDevice (const QString &fileName, const QByteArray &password, const QByteArray &salt, QObject *parent=0)
- ~CryptFileDevice ()
- bool open (OpenMode flags)

  CryptFileDevice::open.
- void close (void)

  CryptFileDevice::close.
- void setFileName (const QString &fileName)

  CryptFileDevice::setFileName.
- QString fileName (void) const

  CryptFileDevice::fileName.
- void setFileDevice (QFileDevice *device)

  CryptFileDevice::setFileDevice.
- void setPassword (const QByteArray &password)

  CryptFileDevice::setPassword.
- void setSalt (const QByteArray &salt)

  CryptFileDevice::setSalt.
- void setKeyLength (AesKeyLength keyLength)

  CryptFileDevice::setKeyLength.
- void setNumRounds (int numRounds)

  CryptFileDevice::setNumRounds.
- void setEncryptionMethod (EncryptionMethod enc)

  CryptFileDevice::setEncryptionMethod.
- bool isEncrypted (void) const

  CryptFileDevice::isEncrypted.
- qint64 size (void) const

  CryptFileDevice::size.
- bool atEnd (void) const

  CryptFileDevice::atEnd.
- qint64 bytesAvailable (void) const

  CryptFileDevice::bytesAvailable.
- qint64 pos (void) const

  CryptFileDevice::pos.
- bool seek (qint64 pos)

  CryptFileDevice::seek.
- bool flush (void)

  CryptFileDevice::flush.
- bool remove (void)

  CryptFileDevice::remove.
- bool exists (void) const

  CryptFileDevice::exists.
- bool rename (const QString &newName)

  CryptFileDevice::rename.

Protected Member Functions

- qint64 readData (char *data, qint64 length)
  CryptFileDevice::readData.
- qint64 writeData (const char *data, qint64 length)
  CryptFileDevice::writeData.
- qint64 readBlock (qint64 length, QByteArray &block)
  CryptFileDevice::readBlock.

Private Member Functions

- bool initCipher (void)
  CryptFileDevice::initCipher.
- void initCtr (CtrState *state, const unsigned char *iv)
  CryptFileDevice::initCtr.
- char * encrypt (const char *plainText, qint64 length)
  CryptFileDevice::encrypt.
- char * decrypt (const char *cipherText, qint64 length)
  CryptFileDevice::decrypt.
- void insertHeader (void)
  CryptFileDevice::insertHeader.
- bool tryParseHeader (void)
  CryptFileDevice::tryParseHeader.

Private Attributes

- QFileDevice * m_device = nullptr
- bool m_deviceOwner = false
- bool m_encrypted = false
- QByteArray m_password
- QByteArray m_salt
- EncryptionMethod m_encMethod
- AesKeyLength m_aesKeyLength = kAesKeyLength256
- int m_numRounds = 5
- CtrState m_ctrState
- AES_KEY m_aesKey

9.1.1 Member Enumeration Documentation

9.1.1.1 enum CryptFileDevice::AesKeyLength

Enumerator

kAesKeyLength128

kAesKeyLength192

kAesKeyLength256

9.1.1.2 enum CryptFileDevice::EncryptionMethod

Enumerator

XorCipher

AesCipher

9.1.2 Constructor & Destructor Documentation

9.1.2.1 CryptFileDevice::CryptFileDevice (QObject * *parent* = 0) [explicit]

9.1.2.2 CryptFileDevice::CryptFileDevice (QFileDevice * *device,* QObject * *parent* = 0) [explicit]

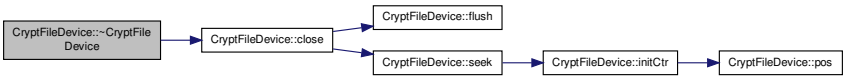
9.1.2.3 CryptFileDevice::CryptFileDevice (QFileDevice * *device,* const QByteArray & *password,* const QByteArray & *salt,* QObject * *parent* = 0) [explicit]

9.1.2.4 CryptFileDevice::CryptFileDevice (const QString & *fileName,* const QByteArray & *password,* const QByteArray & *salt,* QObject * *parent* = 0) [explicit]

9.1.2.5 CryptFileDevice::~CryptFileDevice ( )

References close(), m_device, and m_deviceOwner.

Here is the call graph for this function:



9.1.3 Member Function Documentation

9.1.3.1 bool CryptFileDevice::atEnd (void) const

CryptFileDevice::atEnd.

Returns

9.1.3.2 qint64 CryptFileDevice::bytesAvailable (void) const

CryptFileDevice::bytesAvailable.

Returns

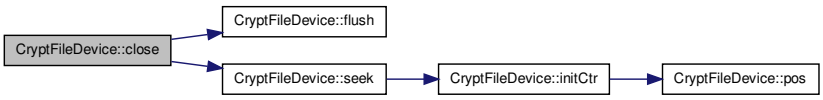
9.1.3.3 void CryptFileDevice::close (void)

CryptFileDevice::close.

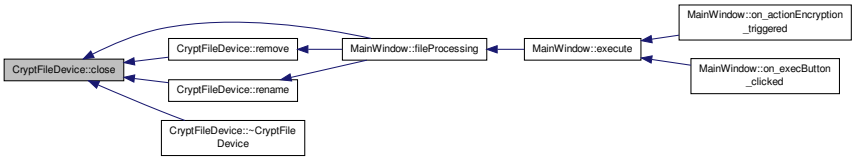
References flush(), m_device, m_encrypted, and seek().

Referenced by MainWindow::fileProcessing(), remove(), rename(), and ~CryptFileDevice().

Here is the call graph for this function:



Here is the caller graph for this function:



9.1.3.4 char * CryptFileDevice::decrypt (const char * *cipherText*, qint64 *len*) [private]

CryptFileDevice::decrypt.

Parameters

cipherText	
len	

Returns

References CtrState::ecount, CtrState::ivec, m_aesKey, m_ctrState, and CtrState::num.

Referenced by readBlock().

Here is the caller graph for this function:

9.1.3.5 char * CryptFileDevice::encrypt (const char * *plainText*, qint64 *length*) [private]

CryptFileDevice::encrypt.

Parameters

plainText	
length	

Returns

References AesCipher, CtrState::ecount, errorMessage(), CtrState::ivec, m_aesKey, m_ctrState, m_encMethod, m_password, CtrState::num, and XorCipher.

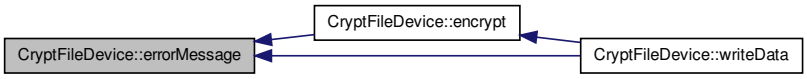
Referenced by writeData().

Here is the caller graph for this function:

9.1.3.6 void CryptFileDevice::errorMessage (const QVariant & *msg*) const [signal]

Referenced by encrypt(), and writeData().

Here is the caller graph for this function:



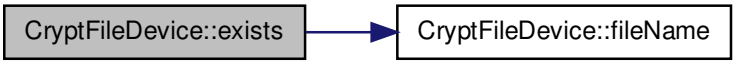
9.1.3.7 bool CryptFileDevice::exists (void) const

CryptFileDevice::exists.

Returns

References fileName(), and m_device.

Here is the call graph for this function:



9.1.3.8 QString CryptFileDevice::fileName (void) const

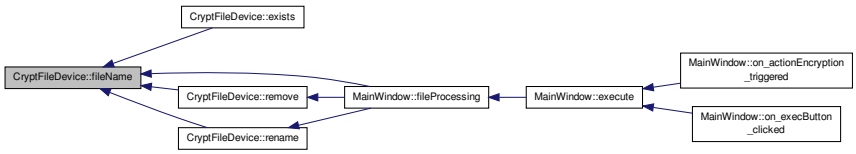
CryptFileDevice::fileName.

Returns

References m_device.

Referenced by exists(), MainWindow::fileProcessing(), remove(), and rename().

Here is the caller graph for this function:



9.1.3.9 bool CryptFileDevice::flush (void)

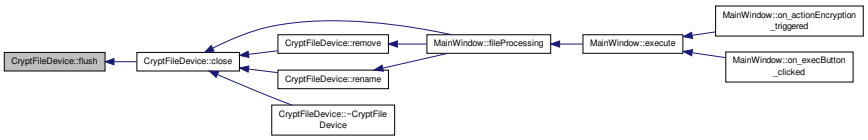
CryptFileDevice::flush.

Returns

References m_device.

Referenced by close().

Here is the caller graph for this function:



9.1.3.10 bool CryptFileDevice::initCipher (void) [private]

CryptFileDevice::initCipher.

Returns

References initCtr(), kAesKeyLength128, kAesKeyLength192, kAesKeyLength256, m_aesKey, m_aesKeyLength, m_ctrState, m_numRounds, m_password, and m_salt.

Referenced by open().

Here is the call graph for this function:

Here is the caller graph for this function:

9.1.3.11 void CryptFileDevice::initCtr (CtrState * *state*, const unsigned char * *iv*) [private]

CryptFileDevice::initCtr.

Parameters

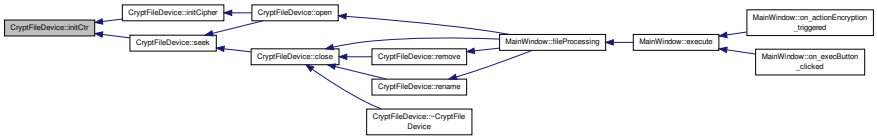
state	
iv	

References CtrState::ecount, CtrState::ivec, m_aesKey, CtrState::num, and pos().

Referenced by initCipher(), and seek().

Here is the call graph for this function:

Here is the caller graph for this function:



9.1.3.12 void CryptFileDevice::insertHeader (void) [private]

CryptFileDevice::insertHeader.

References kHeaderLength, m_aesKeyLength, m_device, m_numRounds, m_password, and m_salt.

9.1.3.13 bool CryptFileDevice::isEncrypted (void) const

CryptFileDevice::isEncrypted.

Returns

References m_encrypted.

9.1.3.14 bool CryptFileDevice::open (OpenMode *mode*)

CryptFileDevice::open.

Parameters

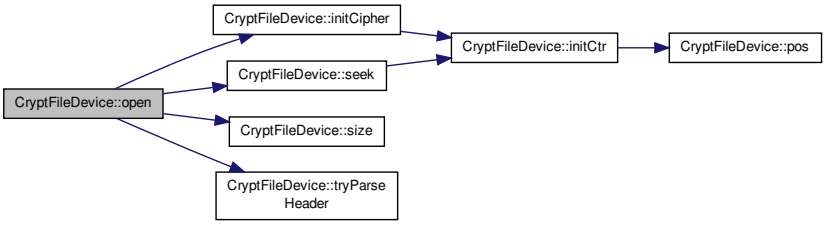
mode	

Returns

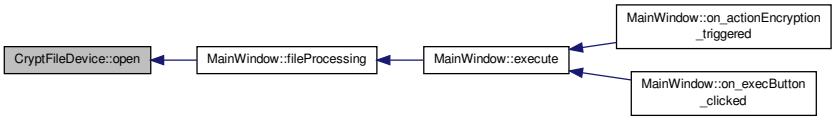
References AesCipher, initCipher(), kHeaderLength, m_device, m_encMethod, m_encrypted, m_password, seek(), size(), and tryParseHeader().

Referenced by MainWindow::fileProcessing().

Here is the call graph for this function:



Here is the caller graph for this function:



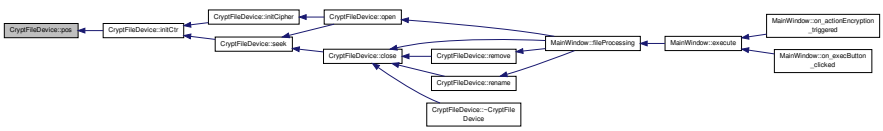
9.1.3.15 qint64 CryptFileDevice::pos (void) const

CryptFileDevice::pos.

Returns

Referenced by initCtr().

Here is the caller graph for this function:



9.1.3.16 qint64 CryptFileDevice::readBlock (qint64 *len,* QByteArray & *block*) [protected]

CryptFileDevice::readBlock.

Parameters

len	
block	

Returns

References decrypt(), and m_device.

Referenced by readData().

Here is the call graph for this function:

Here is the caller graph for this function:

9.1.3.17 qint64 CryptFileDevice::readData (char * *data*, qint64 *len*) [protected]

CryptFileDevice::readData.

Parameters

data	
len	

Returns

References m_device, m_encrypted, readBlock(), and size().

Here is the call graph for this function:

9.1.3.18 bool CryptFileDevice::remove (void)

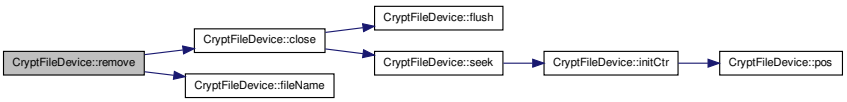
CryptFileDevice::remove.

Returns

References close(), fileName(), and m_device.

Referenced by MainWindow::fileProcessing().

Here is the call graph for this function:



Here is the caller graph for this function:

9.1.3.19 bool CryptFileDevice::rename (const QString & *newName*)

CryptFileDevice::rename.

Parameters

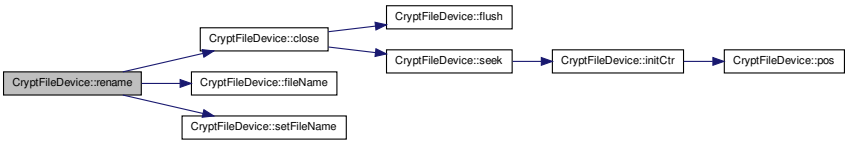
newName	

Returns

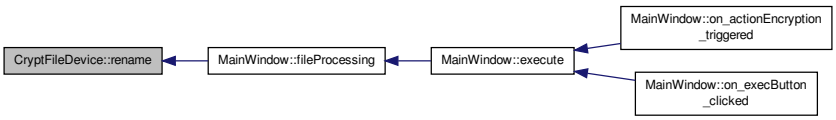
References close(), fileName(), m_device, and setFileName().

Referenced by MainWindow::fileProcessing().

Here is the call graph for this function:



Here is the caller graph for this function:



9.1.3.20 bool CryptFileDevice::seek (qint64 *pos*)

CryptFileDevice::seek.

Parameters

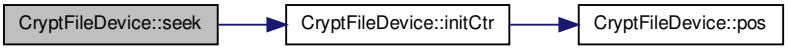
pos	

Returns

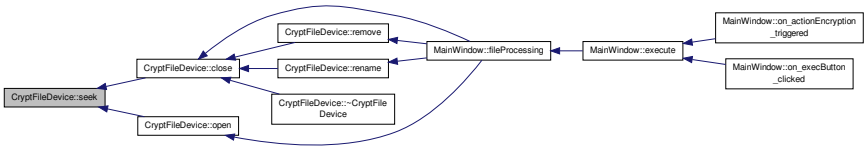
References initCtr(), CtrState::ivec, kHeaderLength, m_ctrState, m_device, and m_encrypted.

Referenced by close(), and open().

Here is the call graph for this function:



Here is the caller graph for this function:



9.1.3.21 void CryptFileDevice::setEncryptionMethod (CryptFileDevice::EncryptionMethod *enc*)

CryptFileDevice::setEncryptionMethod.

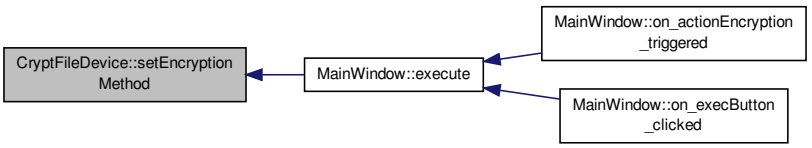
Parameters

enc	

References m_encMethod.

Referenced by MainWindow::execute().

Here is the caller graph for this function:



9.1.3.22 void CryptFileDevice::setFileDevice (QFileDevice * *device*)

CryptFileDevice::setFileDevice.

Parameters

device	

References m_device, and m_deviceOwner.

9.1.3.23 void CryptFileDevice::setFileName (const QString & *fileName*)

CryptFileDevice::setFileName.

Parameters

fileName	

References m_device, and m_deviceOwner.

Referenced by MainWindow::fileProcessing(), and rename().

Here is the caller graph for this function:

9.1.3.24 void CryptFileDevice::setKeyLength (AesKeyLength *keyLength*)

CryptFileDevice::setKeyLength.

Parameters

keyLength	

References m_aesKeyLength.

9.1.3.25 void CryptFileDevice::setNumRounds (int *numRounds*)

CryptFileDevice::setNumRounds.

Parameters

numRounds	

References m_numRounds.

9.1.3.26 void CryptFileDevice::setPassword (const QByteArray & *password*)

CryptFileDevice::setPassword.

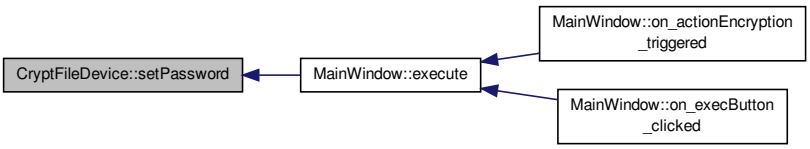
Parameters

password	

References m_password.

Referenced by MainWindow::execute().

Here is the caller graph for this function:



9.1.3.27 void CryptFileDevice::setSalt (const QByteArray & *salt*)

CryptFileDevice::setSalt.

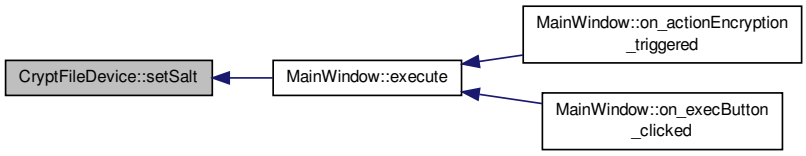
Parameters

salt	

References kSaltMaxLength, and m_salt.

Referenced by MainWindow::execute().

Here is the caller graph for this function:



9.1.3.28 qint64 CryptFileDevice::size (void) const

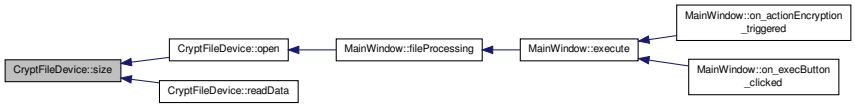
CryptFileDevice::size.

Returns

References kHeaderLength, m_device, and m_encrypted.

Referenced by open(), and readData().

Here is the caller graph for this function:



9.1.3.29 bool CryptFileDevice::tryParseHeader (void) [private]

CryptFileDevice::tryParseHeader.

Returns

References kHeaderLength, m_aesKeyLength, m_device, m_numRounds, m_password, and m_salt.

Referenced by open().

Here is the caller graph for this function:

9.1.3.30 qint64 CryptFileDevice::writeData (const char * *data*, qint64 *length*) [protected]

CryptFileDevice::writeData.

Parameters

data	
length	

Returns

References encrypt(), errorMessage(), m_device, and m_encrypted.

Here is the call graph for this function:

9.1.4 Member Data Documentation

9.1.4.1 AES_KEY CryptFileDevice::m_aesKey [private]

Referenced by decrypt(), encrypt(), initCipher(), and initCtr().

9.1.4.2 AesKeyLength CryptFileDevice::m_aesKeyLength = kAesKeyLength256 [private]

Referenced by initCipher(), insertHeader(), setKeyLength(), and tryParseHeader().

9.1.4.3 CtrState CryptFileDevice::m_ctrState [private]

Referenced by decrypt(), encrypt(), initCipher(), and seek().

9.1.4.4 QFileDevice* CryptFileDevice::m_device = nullptr [private]

Referenced by close(), exists(), fileName(), flush(), insertHeader(), open(), readBlock(), readData(), remove(), rename(), seek(), setFileDevice(), setFileName(), size(), tryParseHeader(), writeData(), and ~CryptFileDevice().

9.1.4.5 bool CryptFileDevice::m_deviceOwner = false [private]

Referenced by setFileDevice(), setFileName(), and ~CryptFileDevice().

9.1.4.6 EncryptionMethod CryptFileDevice::m_encMethod [private]

Referenced by encrypt(), open(), and setEncryptionMethod().

9.1.4.7 bool CryptFileDevice::m_encrypted = false [private]

Referenced by close(), isEncrypted(), open(), readData(), seek(), size(), and writeData().

9.1.4.8 int CryptFileDevice::m_numRounds = 5 [private]

Referenced by initCipher(), insertHeader(), setNumRounds(), and tryParseHeader().

9.1.4.9 QByteArray CryptFileDevice::m_password [private]

Referenced by encrypt(), initCipher(), insertHeader(), open(), setPassword(), and tryParseHeader().

9.1.4.10 QByteArray CryptFileDevice::m_salt [private]

Referenced by initCipher(), insertHeader(), setSalt(), and tryParseHeader().

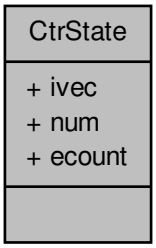
The documentation for this class was generated from the following files:

- cryptfiledevice.h
- cryptfiledevice.cpp

9.2 CtrState Struct Reference

`#include <cryptfiledevice.h>`

Collaboration diagram for CtrState:



Public Attributes

- unsigned char ivec [AES_BLOCK_SIZE]
- unsigned int num
- unsigned char ecount [AES_BLOCK_SIZE]

9.2.1 Member Data Documentation

9.2.1.1 unsigned char CtrState::ecount[AES_BLOCK_SIZE]

Referenced by CryptFileDevice::decrypt(), CryptFileDevice::encrypt(), and CryptFileDevice::initCtr().

9.2.1.2 unsigned char CtrState::ivec[AES_BLOCK_SIZE]

Referenced by CryptFileDevice::decrypt(), CryptFileDevice::encrypt(), CryptFileDevice::initCtr(), and CryptFileDevice::seek().

9.2.1.3 unsigned int CtrState::num

Referenced by CryptFileDevice::decrypt(), CryptFileDevice::encrypt(), and CryptFileDevice::initCtr().

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

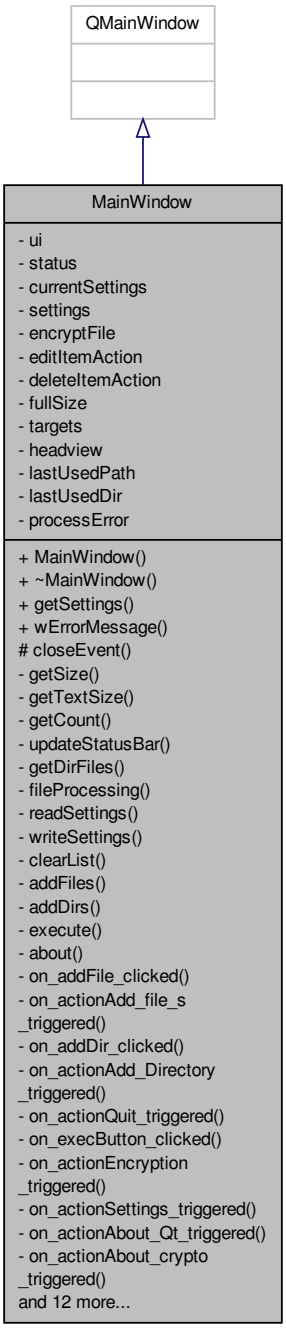
- cryptfiledevice.h

9.3 MainWindow Class Reference

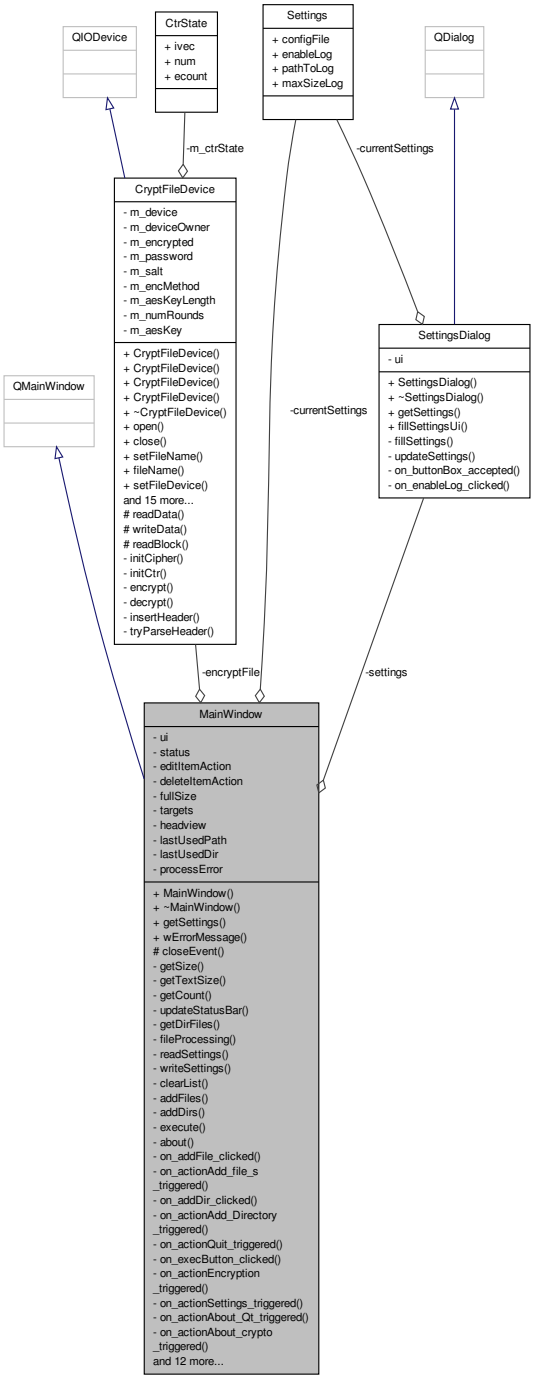
The MainWindow class is a back-end user interface.

`#include <mainwindow.h>`

Inheritance diagram for MainWindow:



Collaboration diagram for MainWindow:



Public Types

- enum ProcessStatus { PROCESS_STATUS_SUCCESS, PROCESS_STATUS_CONTINUE, PROCESS_STATUS_BREAK, PROCESS_STATUS_STATE_ERROR }

  The ProcessStatus type is used to handle errors that occur during encryption and data processing.

- enum DataType { File, Dir }

  The DataType type is used to distinguish data types in user selection dialogs.

Public Slots

- void wErrorMessage (const QVariant &message)

  Critical error message in a separate window.

Public Member Functions

- MainWindow (QWidget *parent=0)

  The constructor of the class MainWindow.
- ~MainWindow ()

  The destructor of the class MainWindow.
- Settings * getSettings (void) const

  get-function for the settings

Protected Member Functions

- void closeEvent (QCloseEvent *event) Q_DECL_OVERRIDE

  Handle program completion event.

Private Slots

- void on_addFile_clicked (void)

  MainWindow::on_addFile_clicked.
- void on_actionAdd_file_s_triggered (void)

  MainWindow::on_actionAdd_file_s_triggered.
- void on_addDir_clicked (void)

  MainWindow::on_addDir_clicked.
- void on_actionAdd_Directory_triggered (void)

  MainWindow::on_actionAdd_Directory_triggered.
- void on_actionQuit_triggered (void)

  MainWindow::on_actionQuit_triggered.
- void on_execButton_clicked (void)

  MainWindow::on_execButton_clicked.
- void on_actionEncryption_triggered (void)

  MainWindow::on_actionEncryption_triggered.
- void on_actionSettings_triggered (void)

  MainWindow::on_actionSettings_triggered.
- void on_actionAbout_Qt_triggered (void)

  MainWindow::on_actionAbout_Qt_triggered.
- void on_actionAbout_crypto_triggered (void)

  MainWindow::on_actionAbout_crypto_triggered.
- void editItem (void)

  The function of editing an item from the list.
- void on_editEntry_clicked (void)

  MainWindow::on_editEntry_clicked.
- void deleteItem (void)

  The function removes an item from the list.
- void on_deleteEntry_clicked (void)

  MainWindow::on_deleteEntry_clicked.
- void on_actionContents_triggered (void)

MainWindow::on_actionContents_triggered.

- void on_targetsList_currentCellChanged (int, int, int, int)

  MainWindow::on_targetsList_currentCellChanged.
- void on_hidPassMode_clicked (bool checked)

  MainWindow::on_hidPassMode_clicked.
- void on_passLine_textChanged (const QString &arg)

  MainWindow::on_passLine_textChanged.
- void on_passConfirmLine_textChanged (const QString &arg)

  MainWindow::on_passConfirmLine_textChanged.
- void on_clearList_clicked (void)

  MainWindow::on_clearList_clicked.
- void on_recurseDirs_clicked (void)

  MainWindow::on_recurseDirs_clicked.
- void on_actionFont_triggered (void)

  MainWindow::on_actionFont_triggered.

Private Member Functions

- qint64 getSize (const QString &obj, DataType type) const

  The function solves the total size of the data selected for encryption.
- QString getTextSize (const qint64 size) const

  The function converts data size to text format (bytes/Kb/Mb/Gb)
- qint64 getCount (void) const

  The function return value is the number of data list items(files).
- void updateStatusBar (void) const

  The function displays on the status bar of the main window the number of list items and their total size.
- QStringList getDirFiles (const QString &dirPath) const

  The function reads the list of files of a given directory and all files of its subdirectories.
- ProcessStatus fileProcessing (const QString &file)

  The function encrypts / decrypts data.
- void readSettings (void)

  The function reads the parameters necessary for the user interface that were saved in the previous session.
- void writeSettings (void) const

  The function saves the user interface parameters that have been changed by the user in the current session.
- void clearList (void) const

  MainWindow::clearList.
- void addFiles (void)

  The function adds the selected file to the list of items.
- void addDirs (void)

  The function adds the selected file directory to the list of items.
- void execute (void)

  The helper performs the data encryption / decryption.
- void about (void)

  Information about the program.

Private Attributes

- Ui::MainWindow * ui
- QLabel * status
- Settings * currentSettings
- SettingsDialog * settings
- CryptFileDevice * encryptFile
- QAction * editItemAction
- QAction * deleteItemAction
- qint64 fullSize
- QList< QPair< DataType, qint64 > > targets
- QHeaderView * headview
- QString lastUsedPath
- QString lastUsedDir
- bool processError

9.3.1 Detailed Description

The MainWindow class is a back-end user interface.

The MainWindow class provides the user with a number of Back-End functions that handle user events and reactions to these events.

9.3.2 Member Enumeration Documentation

9.3.2.1 enum MainWindow::DataType

The DataType type is used to distinguish data types in user selection dialogs.

Enumerator

File The data type is single file.

Dir The data type is a directory.

9.3.2.2 enum MainWindow::ProcessStatus

The ProcessStatus type is used to handle errors that occur during encryption and data processing.

Enumerator

PROCESS_STATUS_SUCCESS Execution has been successful.

PROCESS_STATUS_CONTINUE Provided file path(s) are invalid.

PROCESS_STATUS_BREAK I/O Error or not enough storage space.

PROCESS_STATUS_STATE_ERROR Bad allocation memory, etc.

9.3.3 Constructor & Destructor Documentation

9.3.3.1 MainWindow::MainWindow (QWidget * *parent* = 0) [explicit]

The constructor of the class MainWindow.

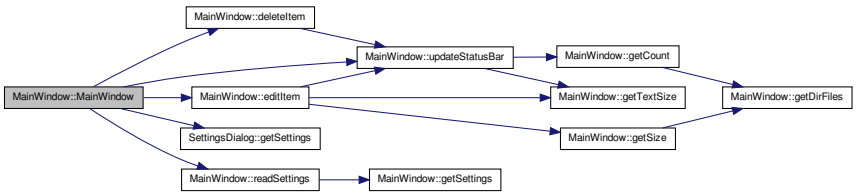
Sets default user interface parameters or uses saved values as parameters.

Parameters

parent	of the type QWidget∗, optional parameter.

References currentSettings, deleteItem(), deleteItemAction, editItem(), editItemAction, SettingsDialog::getSettings(), headview, readSettings(), settings, status, ui, and updateStatusBar().

Here is the call graph for this function:



9.3.3.2 MainWindow::∼MainWindow ( )

The destructor of the class MainWindow.

References ui.

9.3.4 Member Function Documentation

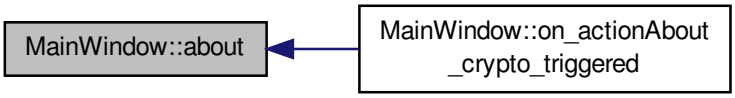
9.3.4.1 void MainWindow::about (void) [private]

Information about the program.

- Brief description of features.
- The date and release number of the program.
- Licensing restrictions and distribution of the program.
- Links to third-party libraries.

Referenced by on_actionAbout_crypto_triggered().

Here is the caller graph for this function:



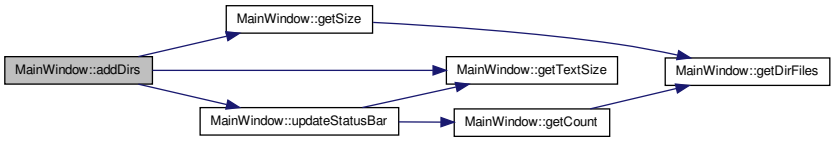
9.3.4.2 void MainWindow::addDirs (void) [private]

The function adds the selected file directory to the list of items.

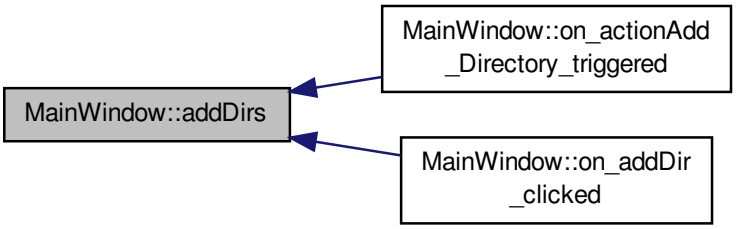
References Dir, fullSize, getSize(), getTextSize(), headview, lastUsedDir, targets, ui, and updateStatusBar().

Referenced by on_actionAdd_Directory_triggered(), and on_addDir_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



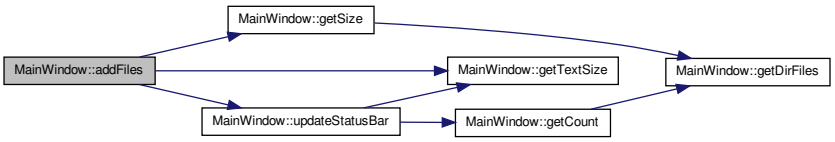
9.3.4.3 void MainWindow::addFiles (void) [private]

The function adds the selected file to the list of items.

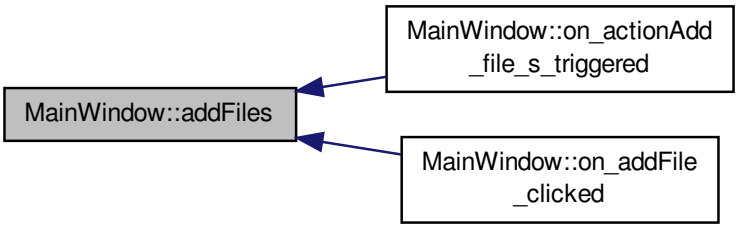
References File, fullSize, getSize(), getTextSize(), headview, lastUsedPath, targets, ui, and updateStatusBar().

Referenced by on_actionAdd_file_s_triggered(), and on_addFile_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



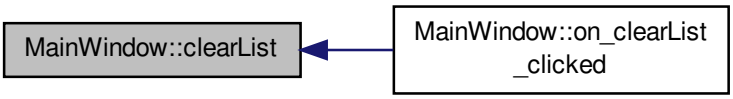
9.3.4.4 void MainWindow::clearList (void) const [private]

MainWindow::clearList.

References ui.

Referenced by on_clearList_clicked().

Here is the caller graph for this function:



9.3.4.5 void MainWindow::closeEvent (QCloseEvent * *event*) [protected]

Handle program completion event.

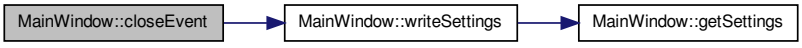
Before exiting the program, the user interface parameters are automatically saved.

Parameters

event	of type QCloseEvent*

References writeSettings().

Here is the call graph for this function:



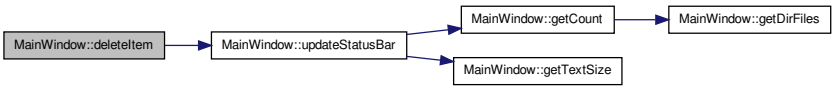
9.3.4.6 void MainWindow::deleteItem (void) [private], [slot]

The function removes an item from the list.

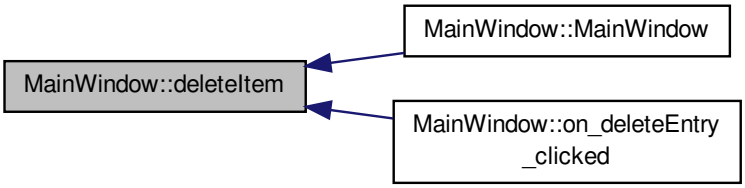
References fullSize, targets, ui, and updateStatusBar().

Referenced by MainWindow(), and on_deleteEntry_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



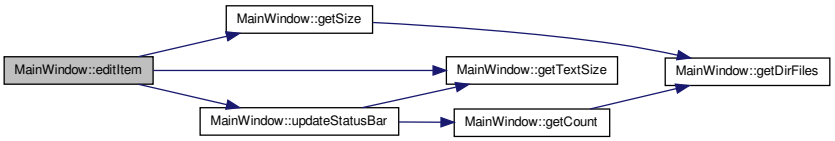
9.3.4.7 void MainWindow::editItem (void) [private], [slot]

The function of editing an item from the list.

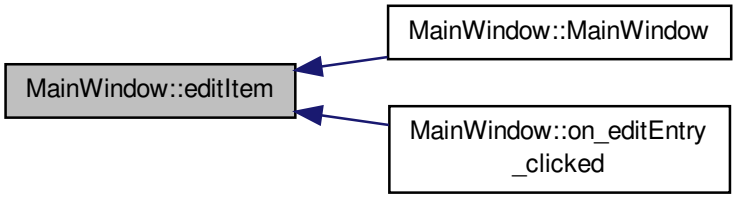
References Dir, File, fullSize, getSize(), getTextSize(), headview, lastUsedDir, lastUsedPath, targets, ui, and updateStatusBar().

Referenced by MainWindow(), and on_editEntry_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



9.3.4.8 void MainWindow::execute (void) [private]

The helper performs the data encryption / decryption.

Note

In the body of this function, a password is getting for encryption and an additional salt to the password is set.

Warning

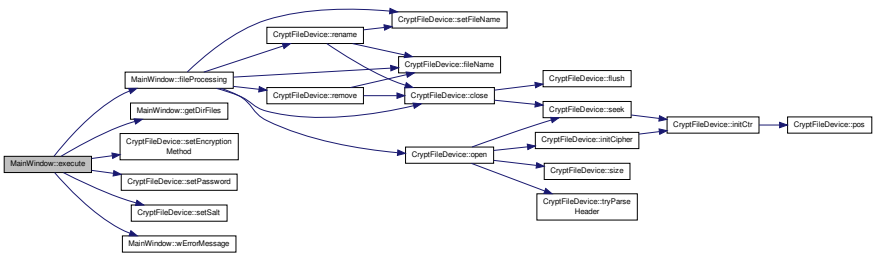
Password salt is taken from the release time of the program, taken in microseconds. Therefore, different editions of the program will not be fully compatible with each other! Encoded data from one release will not be decrypted by another release of the program, even if the password is known.

Todo Password salt is taken from the release time of the program, taken in microseconds.

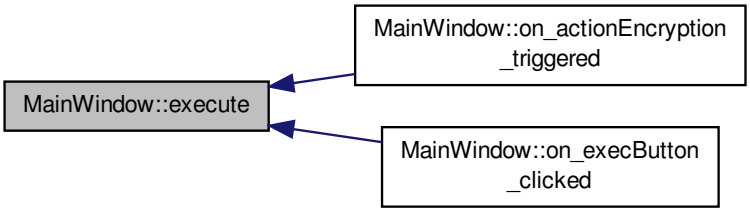
References CryptFileDevice::AesCipher, COEFF, Dir, encryptFile, File, fileProcessing(), fullSize, getDirFiles(), ONEKB, PROCESS_STATUS_BREAK, PROCESS_STATUS_CONTINUE, PROCESS_STATUS_STATE_ERROR, PROCESS_STATUS_SUCCESS, processError, CryptFileDevice::setEncryptionMethod(), CryptFileDevice::setPassword(), CryptFileDevice::setSalt(), targets, ui, wErrorMessage(), and CryptFileDevice::XorCipher.

Referenced by on_actionEncryption_triggered(), and on_execButton_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



9.3.4.9 MainWindow::ProcessStatus MainWindow::fileProcessing (const QString & *f*) [private]

The function encrypts / decrypts data.

Parameters

f	of the type QString&, path to the file.

Returns

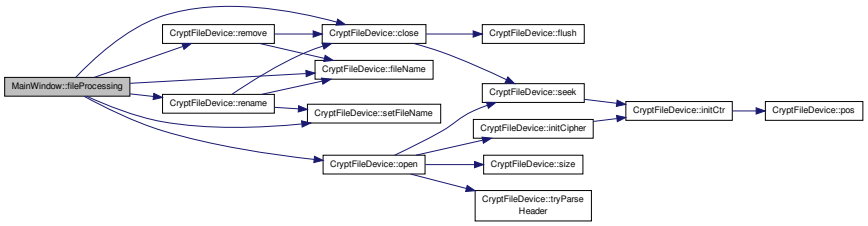
status of the coding/encoding process.

Todo Make an extension for encrypted files! (".enc")

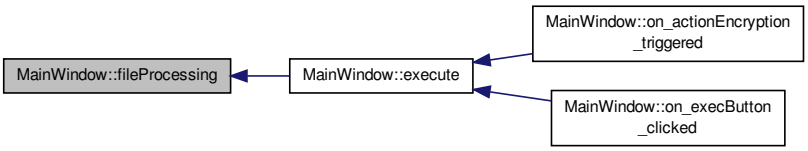
References CryptFileDevice::close(), COEFF, encryptFile, CryptFileDevice::fileName(), CryptFileDevice::open(), PROCESS_STATUS_BREAK, PROCESS_STATUS_CONTINUE, PROCESS_STATUS_SUCCESS, processError, CryptFileDevice::remove(), CryptFileDevice::rename(), CryptFileDevice::setFileName(), and ui.

Referenced by execute().

Here is the call graph for this function:



Here is the caller graph for this function:



9.3.4.10 qint64 MainWindow::getCount (void) const [private]

The function return value is the number of data list items(files).

Returns

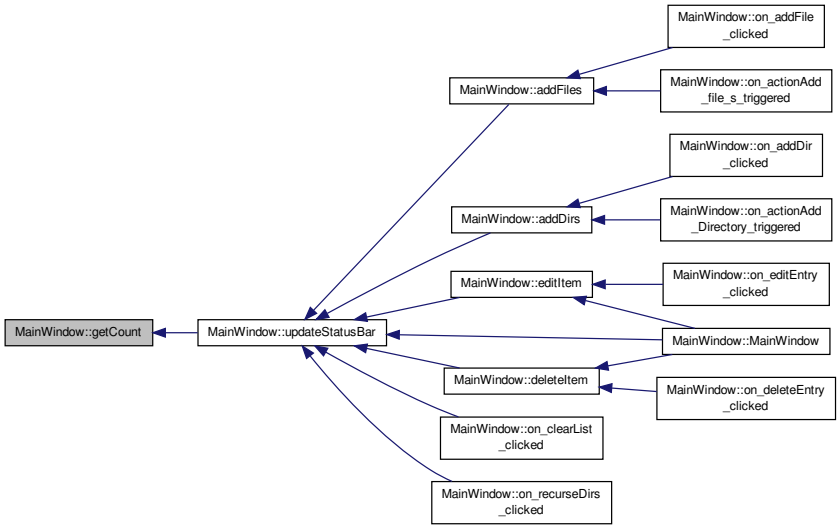
number of data list files

References Dir, File, getDirFiles(), targets, and ui.

Referenced by updateStatusBar().

Here is the call graph for this function:

Here is the caller graph for this function:



9.3.4.11 QStringList MainWindow::getDirFiles (const QString & *dirPath*) const [private]

The function reads the list of files of a given directory and all files of its subdirectories.

Parameters

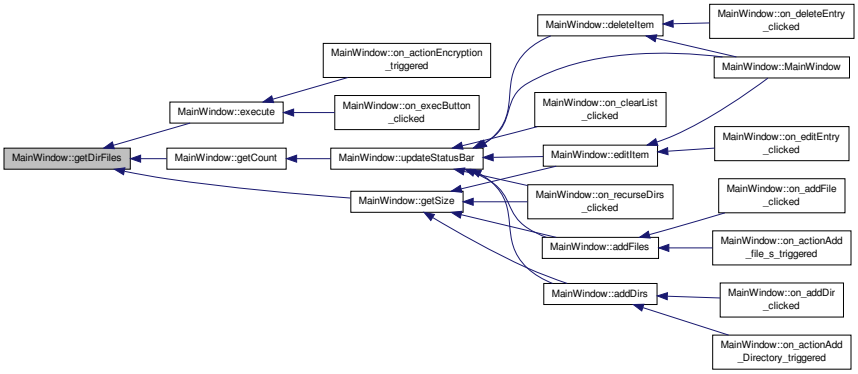
dirPath	of the type QString&

Returns

fileNames of the type QStringList a list of the files

Referenced by execute(), getCount(), and getSize().

Here is the caller graph for this function:



9.3.4.12 Settings * MainWindow::getSettings (void) const

get-function for the settings

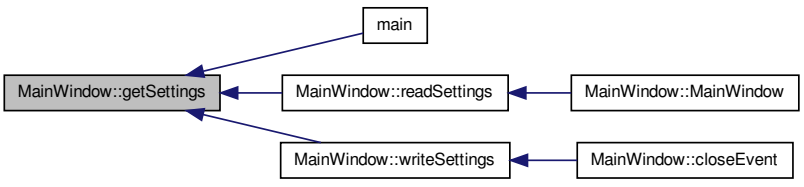
Returns

currentSettings of the type Settings*

References currentSettings.

Referenced by main(), readSettings(), and writeSettings().

Here is the caller graph for this function:



9.3.4.13 qint64 MainWindow::getSize (const QString & *obj,* DataType *type*) const [private]

The function solves the total size of the data selected for encryption.

Parameters

obj	of the type QString&, path to the data
type	of the type enum DataType {File, Dir}

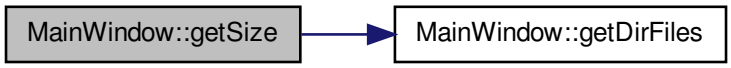
Returns

size of the type qint64, the size of the data.

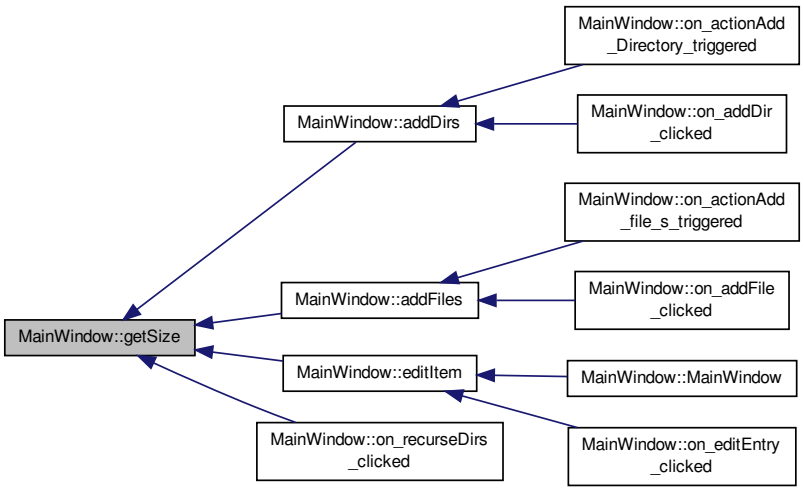
References Dir, File, getDirFiles(), and ui.

Referenced by addDirs(), addFiles(), editItem(), and on_recurseDirs_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



9.3.4.14 QString MainWindow::getTextSize (const qint64 *size*) const [private]

The function converts data size to text format (bytes/Kb/Mb/Gb)

Parameters

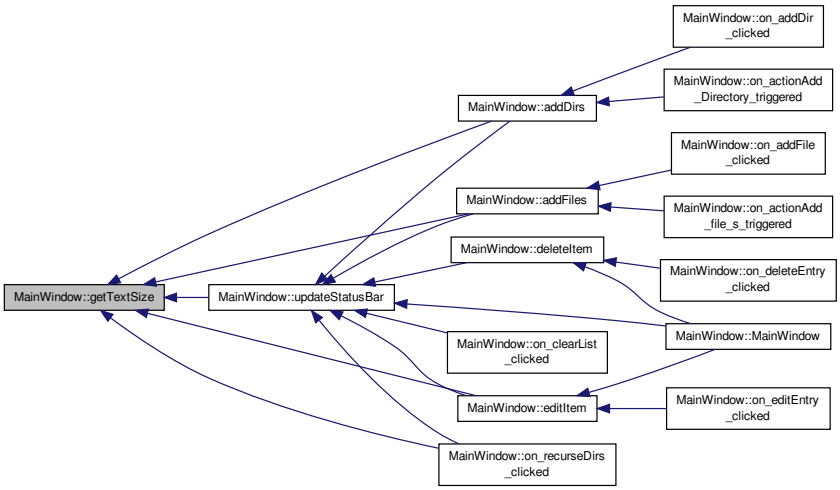
size	of the type qint64, the size of the data

Returns

string, as the text.

Referenced by addDirs(), addFiles(), editItem(), on_recurseDirs_clicked(), and updateStatusBar().

Here is the caller graph for this function:

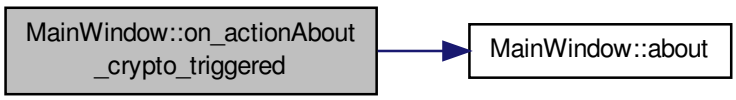


9.3.4.15 void MainWindow::on_actionAbout_crypto_triggered (void) [private], [slot]

MainWindow::on_actionAbout_crypto_triggered.

References about().

Here is the call graph for this function:



9.3.4.16 void MainWindow::on_actionAbout_Qt_triggered (void) [private], [slot]

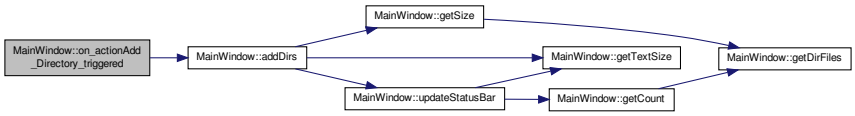
MainWindow::on_actionAbout_Qt_triggered.

9.3.4.17 void MainWindow::on_actionAdd_Directory_triggered (void) [private], [slot]

MainWindow::on_actionAdd_Directory_triggered.

References addDirs().

Here is the call graph for this function:

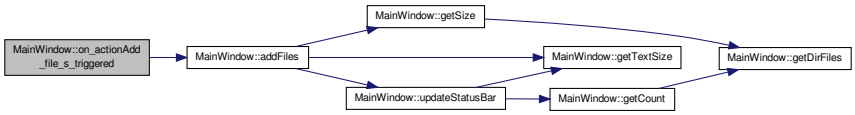


9.3.4.18 void MainWindow::on_actionAdd_file_s_triggered (void) [private], [slot]

MainWindow::on_actionAdd_file_s_triggered.

References addFiles().

Here is the call graph for this function:



9.3.4.19 void MainWindow::on_actionContents_triggered (void) [private], [slot]

MainWindow::on_actionContents_triggered.

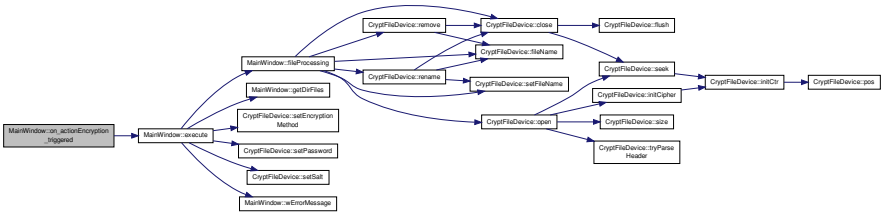
Todo Add help for the program!

9.3.4.20 void MainWindow::on_actionEncryption_triggered (void) [private], [slot]

MainWindow::on_actionEncryption_triggered.

References execute().

Here is the call graph for this function:



9.3.4.21 void MainWindow::on_actionFont_triggered (void) [private], [slot]

MainWindow::on_actionFont_triggered.

9.3.4.22 void MainWindow::on_actionQuit_triggered (void) [private], [slot]

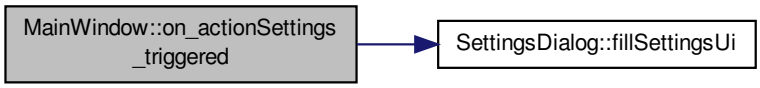
MainWindow::on_actionQuit_triggered.

9.3.4.23 void MainWindow::on_actionSettings_triggered (void) [private], [slot]

MainWindow::on_actionSettings_triggered.

References SettingsDialog::fillSettingsUi(), and settings.

Here is the call graph for this function:

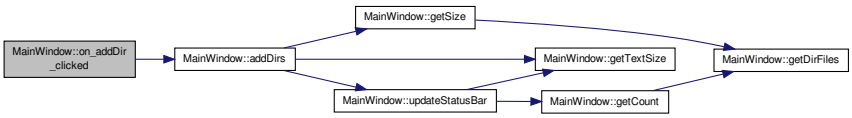


9.3.4.24 void MainWindow::on_addDir_clicked (void) [private], [slot]

MainWindow::on_addDir_clicked.

References addDirs().

Here is the call graph for this function:

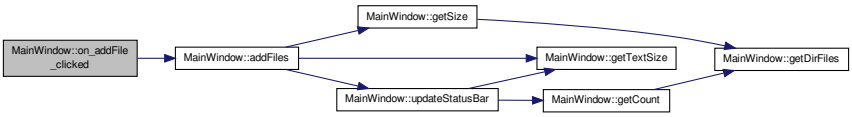


9.3.4.25 void MainWindow::on_addFile_clicked (void) [private], [slot]

MainWindow::on_addFile_clicked.

References addFiles().

Here is the call graph for this function:

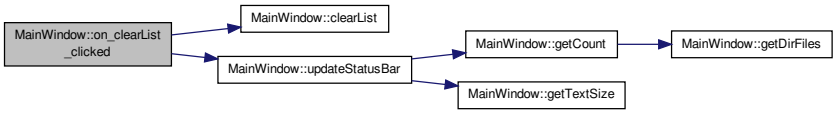


9.3.4.26 void MainWindow::on_clearList_clicked (void) [private], [slot]

MainWindow::on_clearList_clicked.

References clearList(), fullSize, targets, ui, and updateStatusBar().

Here is the call graph for this function:



9.3.4.27 void MainWindow::on_deleteEntry_clicked (void) [private], [slot]

MainWindow::on_deleteEntry_clicked.

References deleteItem().

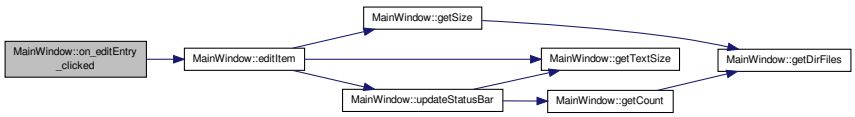
Here is the call graph for this function:

9.3.4.28 void MainWindow::on_editEntry_clicked (void) [private], [slot]

MainWindow::on_editEntry_clicked.

References editItem().

Here is the call graph for this function:

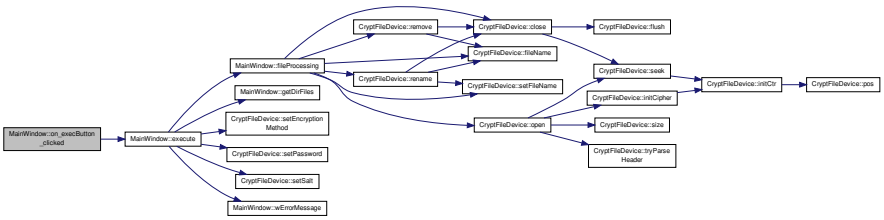


9.3.4.29 void MainWindow::on_execButton_clicked (void) [private], [slot]

MainWindow::on_execButton_clicked.

References execute().

Here is the call graph for this function:



9.3.4.30 void MainWindow::on_hidPassMode_clicked (bool *checked*) [private], [slot]

MainWindow::on_hidPassMode_clicked.

Parameters

checked	

References ui.

9.3.4.31 void MainWindow::on_passConfirmLine_textChanged (const QString & *arg*) [private], [slot]

MainWindow::on_passConfirmLine_textChanged.

Parameters

arg	

References ui.

9.3.4.32 void MainWindow::on_passLine_textChanged (const QString & *arg*) [private], [slot]

MainWindow::on_passLine_textChanged.

Parameters

arg	

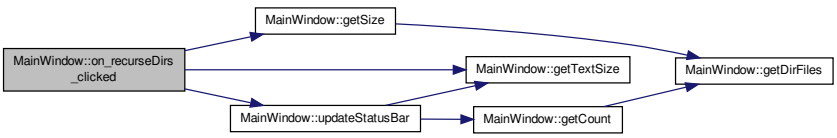
References ui.

9.3.4.33 void MainWindow::on_recurseDirs_clicked (void) [private], [slot]

MainWindow::on_recurseDirs_clicked.

References Dir, fullSize, getSize(), getTextSize(), headview, targets, ui, and updateStatusBar().

Here is the call graph for this function:



9.3.4.34 void MainWindow::on_targetsList_currentCellChanged (int , int , int , int) [private], [slot]

MainWindow::on_targetsList_currentCellChanged.

References deleteItemAction, editItemAction, and ui.

9.3.4.35 void MainWindow::readSettings (void) [private]

The function reads the parameters necessary for the user interface that were saved in the previous session.

Such important parameters will be read as

- the position of the window on the screen and window size,
- interface font and its size,
- the user interface settings (overwrite of the data, recurse of dir's, etc.)
- error and event logging options.

References Settings::enableLog, getSettings(), lastUsedDir, lastUsedPath, Settings::maxSizeLog, Settings::pathToLog, settings, and ui.

Referenced by MainWindow().

Here is the call graph for this function:

Here is the caller graph for this function:

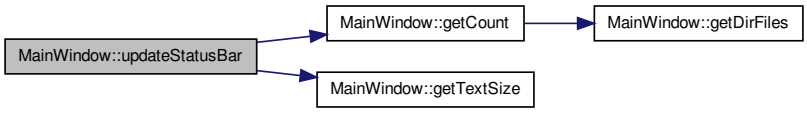
9.3.4.36 void MainWindow::updateStatusBar (void) const [private]

The function displays on the status bar of the main window the number of list items and their total size.

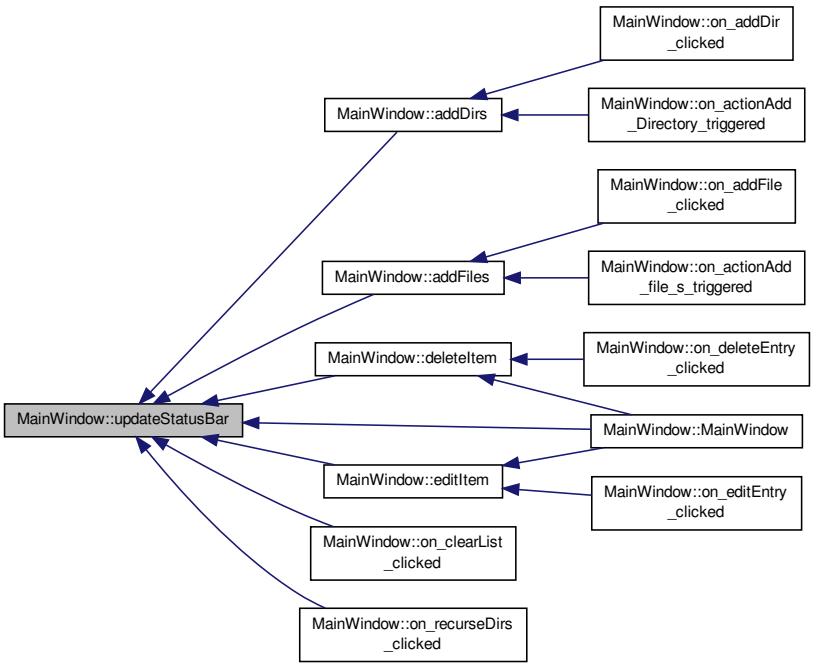
References fullSize, getCount(), getTextSize(), and status.

Referenced by addDirs(), addFiles(), deleteItem(), editItem(), MainWindow(), on_clearList_clicked(), and on_recurseDirs_clicked().

Here is the call graph for this function:



Here is the caller graph for this function:



9.3.4.37 void MainWindow::wErrorMessage (const QVariant & *message*) [slot]

Critical error message in a separate window.

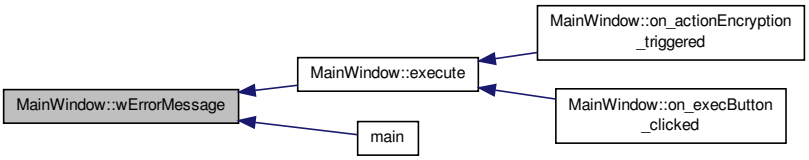
Parameters

message	of the type QString, error message.

References processError.

Referenced by execute(), and main().

Here is the caller graph for this function:



9.3.4.38 void MainWindow::writeSettings (void) const [private]

The function saves the user interface parameters that have been changed by the user in the current session.

Such parameters will be updated as

- the position of the window on the screen and window size,
- interface font and its size,
- the user interface settings (overwrite of the data, recurse of dir's, etc.)
- error and event logging options.

References getSettings(), lastUsedDir, lastUsedPath, settings, and ui.

Referenced by closeEvent().

Here is the call graph for this function:

Here is the caller graph for this function:

9.3.5 Member Data Documentation

9.3.5.1 Settings* MainWindow::currentSettings [private]

Referenced by getSettings(), and MainWindow().

9.3.5.2 QAction* MainWindow::deleteItemAction [private]

Referenced by MainWindow(), and on_targetsList_currentCellChanged().

9.3.5.3 QAction* MainWindow::editItemAction [private]

Referenced by MainWindow(), and on_targetsList_currentCellChanged().

9.3.5.4 CryptFileDevice* MainWindow::encryptFile [private]

Referenced by execute(), and fileProcessing().

9.3.5.5 qint64 MainWindow::fullSize [private]

Referenced by addDirs(), addFiles(), deleteItem(), editItem(), execute(), on_clearList_clicked(), on_recurseDirs_clicked(), and updateStatusBar().

9.3.5.6 QHeaderView* MainWindow::headview [private]

Referenced by addDirs(), addFiles(), editItem(), MainWindow(), and on_recurseDirs_clicked().

9.3.5.7 QString MainWindow::lastUsedDir [private]

Referenced by addDirs(), editItem(), readSettings(), and writeSettings().

9.3.5.8 QString MainWindow::lastUsedPath [private]

Referenced by addFiles(), editItem(), readSettings(), and writeSettings().

9.3.5.9 bool MainWindow::processError [private]

Referenced by execute(), fileProcessing(), and wErrorMessage().

9.3.5.10 SettingsDialog* MainWindow::settings [private]

Referenced by MainWindow(), on_actionSettings_triggered(), readSettings(), and writeSettings().

9.3.5.11 QLabel* MainWindow::status [private]

Referenced by MainWindow(), and updateStatusBar().

9.3.5.12 QList<QPair<DataType, qint64> > MainWindow::targets [private]

Referenced by addDirs(), addFiles(), deleteItem(), editItem(), execute(), getCount(), on_clearList_clicked(), and on_recurseDirs_clicked().

9.3.5.13 Ui::MainWindow* MainWindow::ui [private]

Referenced by addDirs(), addFiles(), clearList(), deleteItem(), editItem(), execute(), fileProcessing(), getCount(), getSize(), MainWindow(), on_clearList_clicked(), on_hidPassMode_clicked(), on_passConfirmLine_textChanged(), on_passLine_textChanged(), on_recurseDirs_clicked(), on_targetsList_currentCellChanged(), readSettings(), writeSettings(), and ~MainWindow().

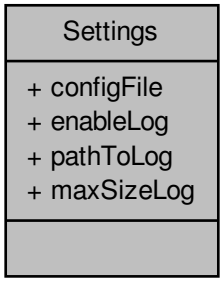
The documentation for this class was generated from the following files:

- mainwindow.h
- mainwindow.cpp

9.4 Settings Struct Reference

`#include <settings.h>`

Collaboration diagram for Settings:



Public Attributes

- QString configFile
- bool enableLog
- QString pathToLog
- quint32 maxSizeLog

9.4.1 Member Data Documentation

9.4.1.1 QString Settings::configFile

9.4.1.2 bool Settings::enableLog

Referenced by SettingsDialog::fillSettingsUi(), main(), MainWindow::readSettings(), and SettingsDialog::updateSettings().

9.4.1.3 quint32 Settings::maxSizeLog

Referenced by SettingsDialog::fillSettingsUi(), main(), MainWindow::readSettings(), and SettingsDialog::updateSettings().

9.4.1.4 QString Settings::pathToLog

Referenced by SettingsDialog::fillSettingsUi(), main(), MainWindow::readSettings(), and SettingsDialog::updateSettings().

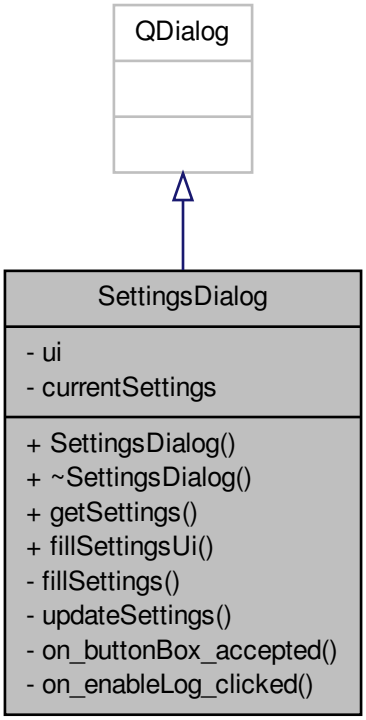
The documentation for this struct was generated from the following file:

- settings.h

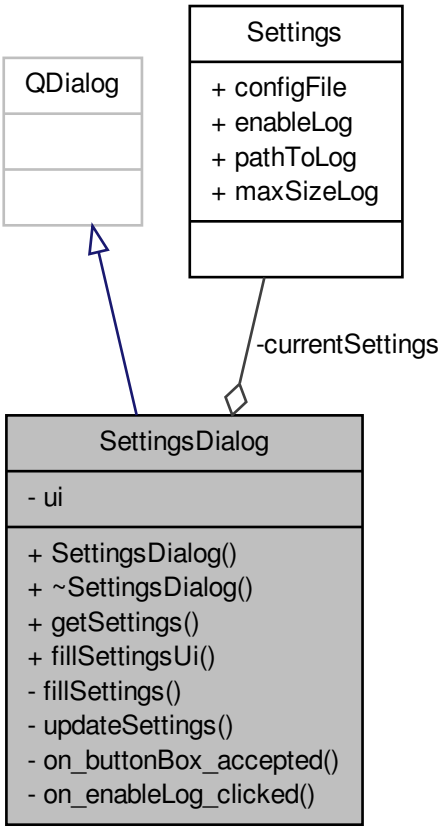
9.5 SettingsDialog Class Reference

`#include <settingsdialog.h>`

Inheritance diagram for SettingsDialog:



Collaboration diagram for SettingsDialog:



Public Member Functions

- SettingsDialog (QWidget ∗parent=0)

  SettingsDialog::SettingsDialog.
- ∼SettingsDialog ()

  SettingsDialog::∼SettingsDialog.
- Settings ∗ getSettings (void)

  SettingsDialog::getSettings.
- void fillSettingsUi (void)

  SettingsDialog::fillSettingsUi.

Private Slots

- void on_buttonBox_accepted (void)

  SettingsDialog::on_buttonBox_accepted.
- void on_enableLog_clicked (bool checked)

  SettingsDialog::on_enableLog_clicked.

Private Member Functions

- void fillSettings (void)

  SettingsDialog::fillSettings.
- void updateSettings (void)

  SettingsDialog::updateSettings.

Private Attributes

- Ui::SettingsDialog * ui
- Settings currentSettings

9.5.1 Constructor & Destructor Documentation

9.5.1.1 SettingsDialog::SettingsDialog (QWidget * *parent* = 0) [explicit]

SettingsDialog::SettingsDialog.

Parameters

parent	

9.5.1.2 SettingsDialog::~SettingsDialog ( )

SettingsDialog::~SettingsDialog.

References ui.

9.5.2 Member Function Documentation

9.5.2.1 void SettingsDialog::fillSettings (void) [private]

SettingsDialog::fillSettings.

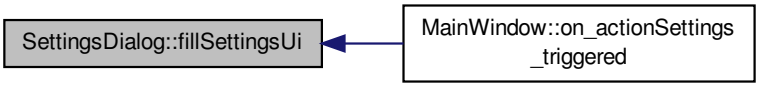
9.5.2.2 void SettingsDialog::fillSettingsUi (void)

SettingsDialog::fillSettingsUi.

References currentSettings, Settings::enableLog, Settings::maxSizeLog, Settings::pathToLog, and ui.

Referenced by MainWindow::on_actionSettings_triggered().

Here is the caller graph for this function:



9.5.2.3 Settings * SettingsDialog::getSettings (void)

SettingsDialog::getSettings.

Returns

References currentSettings.

Referenced by MainWindow::MainWindow().

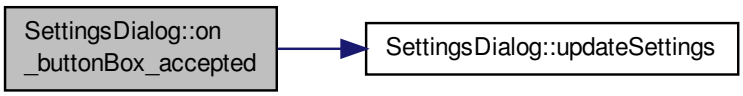
Here is the caller graph for this function:

9.5.2.4 void SettingsDialog::on_buttonBox_accepted (void) [private], [slot]

SettingsDialog::on_buttonBox_accepted.

References updateSettings().

Here is the call graph for this function:



9.5.2.5 void SettingsDialog::on_enableLog_clicked (bool *checked*) [private], [slot]

SettingsDialog::on_enableLog_clicked.

Parameters

checked	

References ui.

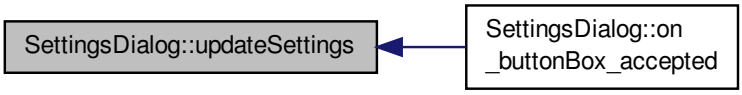
9.5.2.6 void SettingsDialog::updateSettings (void) [private]

SettingsDialog::updateSettings.

References currentSettings, Settings::enableLog, Settings::maxSizeLog, Settings::pathToLog, and ui.

Referenced by on_buttonBox_accepted().

Here is the caller graph for this function:



9.5.3 Member Data Documentation

9.5.3.1 Settings SettingsDialog::currentSettings [private]

Referenced by fillSettingsUi(), getSettings(), and updateSettings().

9.5.3.2 Ui::SettingsDialog* SettingsDialog::ui [private]

Referenced by fillSettingsUi(), on_enableLog_clicked(), updateSettings(), and ~SettingsDialog().

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

- settingsdialog.h
- settingsdialog.cpp

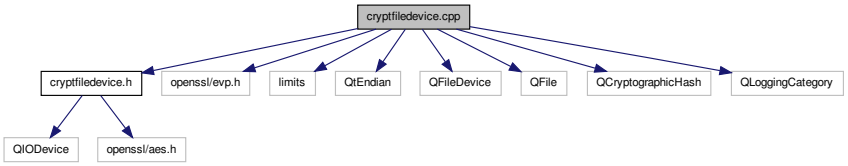
Chapter 10

File Documentation

10.1 cryptfiledevice.cpp File Reference

```
#include "cryptfiledevice.h"
#include <openssl/evp.h>
#include <limits>
#include <QtEndian>
#include <QFileDevice>
#include <QFile>
#include <QCryptographicHash>
#include <QLoggingCategory>
```

Include dependency graph for cryptfiledevice.cpp:



Variables

- static int const kHeaderLength = 128
- static int const kSaltMaxLength = 8

10.1.1 Variable Documentation

10.1.1.1 int const kHeaderLength = 128 [static]

Referenced by CryptFileDevice::insertHeader(), CryptFileDevice::open(), CryptFileDevice::seek(), CryptFileDevice::size(), and CryptFileDevice::tryParseHeader().

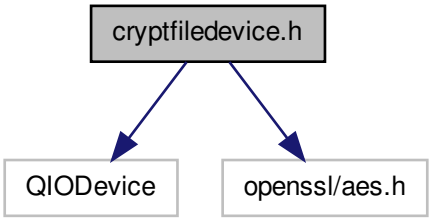
10.1.1.2 int const kSaltMaxLength = 8 [static]

Referenced by CryptFileDevice::setSalt().

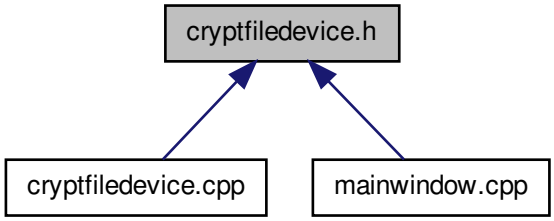
10.2 cryptfiledevice.h File Reference

```
#include <QIODevice>
#include <openssl/aes.h>
```

Include dependency graph for cryptfiledevice.h:



This graph shows which files directly or indirectly include this file:



Classes

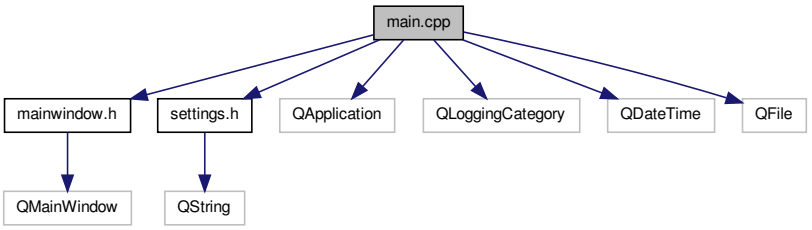
- struct CtrState
- class CryptFileDevice

10.3 main.cpp File Reference

The file contains two important functions, main and logMessageOutput.

```
#include "mainwindow.h"
#include "settings.h"
#include <QApplication>
#include <QLoggingCategory>
#include <QDateTime>
#include <QFile>
```

Include dependency graph for main.cpp:



Macros

- #define ONEKB 1024

Functions

- void logMessageOutput (const QtMsgType type, const QMessageLogContext &context, const QString &msg)
  The function logMessageOutput is a message handler.
- int main (int argc, char ∗argv[])
  main function

Variables

- static QScopedPointer< QFile > m_logFile

10.3.1 Detailed Description

The file contains two important functions, main and logMessageOutput. The main function executes an instance of a GUI Qt application, sets it up with the specified special parameters, and installs a Qt message handler defined in the logMessageOutput function. In addition, a log journal of the application messages is set up.

10.3.2 Macro Definition Documentation

10.3.2.1 #define ONEKB 1024

Referenced by main().

10.3.3 Function Documentation

10.3.3.1 void logMessageOutput (const QtMsgType *type,* const QMessageLogContext & *context,* const QString & *msg*)

The function logMessageOutput is a message handler.

This function redirects the messages by their category (QtDebugMsg, QtInfoMsg, QtWarningMsg, QtCriticalMsg, QtFatalMsg) to the log file (m_logFile). The message handler is a function that prints out debug messages, warnings, critical and fatal error messages. The Qt library (debug mode) contains hundreds of warning messages that are printed when internal errors (usually invalid function arguments) occur. Qt built in release mode also contains such warnings unless QT_NO_WARNING_OUTPUT and/ or QT_NO_DEBUG_OUTPUT have been set during compilation. If you implement your own message handler, you get total control of these messages.

Parameters

in	*type*	of the type QtMsgType
in	*context*	of type QMessageLogContext
in	*msg*	of the type QString

Note

- The output of messages is also output to the terminal console. This is for debugging purposes.
- Additional information, such as a line of code, the name of the source file, function names cannot be displayed for the release of the program.

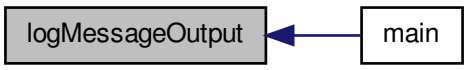
Warning

- The default message handler prints the message to the standard output under X11 or to the debugger under Windows. If it is a fatal message, the application aborts immediately.
- Only one message handler can be defined, since this is usually done on an application-wide basis to control debug output.

References m_logFile.

Referenced by main().

Here is the caller graph for this function:



10.3.3.2 int main (int *argc*, char * *argv[]*)

main function

In this function, an instance of a GUI Qt application app is executed and set up with the parameters entered.

Parameters

argc	this parameter is ignored because it is a GUI application.
argv	this parameter is ignored because it is a GUI application.

Returns

value of the function QApplication::exec() Enters the main event loop and waits until exit() is called. Returns the value that was set to exit() (which is 0 if exit() is called via quit()).

Note

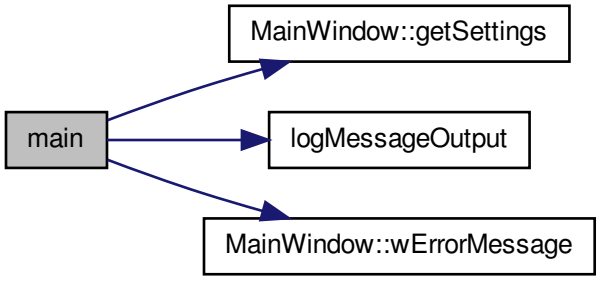
The program parameters (argc, argv) are ignored.

Warning

none

References Settings::enableLog, MainWindow::getSettings(), logMessageOutput(), Settings::maxSizeLog, ONEKB, Settings::pathToLog, and MainWindow::wErrorMessage().

Here is the call graph for this function:



10.3.4 Variable Documentation

10.3.4.1 QScopedPointer<QFile> m_logFile [static]

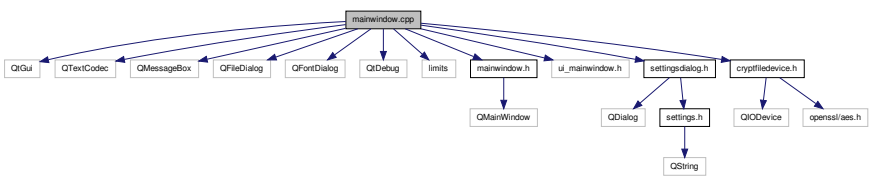
Referenced by logMessageOutput().

10.4 mainwindow.cpp File Reference

This file contains the definition of methods and interfaces of the MainWindow class.

```
#include <QtGui>
#include <QTextCodec>
#include <QMessageBox>
#include <QFileDialog>
#include <QFontDialog>
#include <QtDebug>
#include <limits>
#include "mainwindow.h"
#include "ui_mainwindow.h"
#include "settingsdialog.h"
#include "cryptfiledevice.h"
```

Include dependency graph for mainwindow.cpp:



Macros

- #define COEFF 1048576
- #define ONEKB 1024

10.4.1 Detailed Description

This file contains the definition of methods and interfaces of the MainWindow class.

10.4.2 Macro Definition Documentation

10.4.2.1 #define COEFF 1048576

Referenced by MainWindow::execute(), and MainWindow::fileProcessing().

10.4.2.2 #define ONEKB 1024

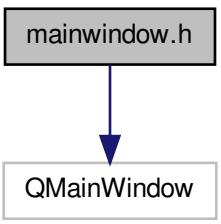
Referenced by MainWindow::execute().

10.5 mainwindow.h File Reference

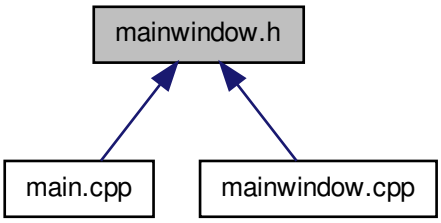
This file contains the declaration of the class MainWindow.

```
#include <QMainWindow>
```

Include dependency graph for mainwindow.h:



This graph shows which files directly or indirectly include this file:



Classes

- class MainWindow

  The MainWindow class is a back-end user interface.

Namespaces

- Ui

10.5.1 Detailed Description

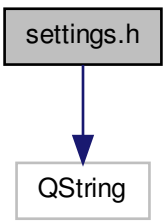
This file contains the declaration of the class MainWindow.

10.6 README.md File Reference

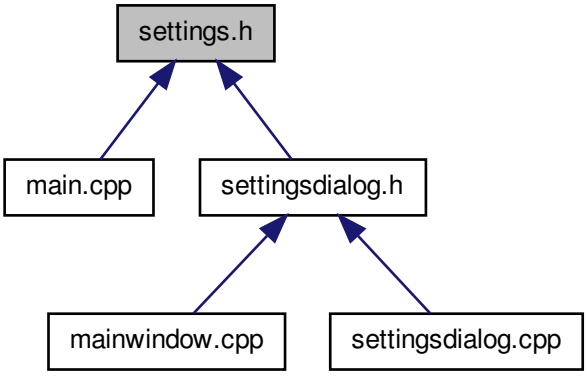
10.7 settings.h File Reference

```
#include <QString>
```

Include dependency graph for settings.h:



This graph shows which files directly or indirectly include this file:



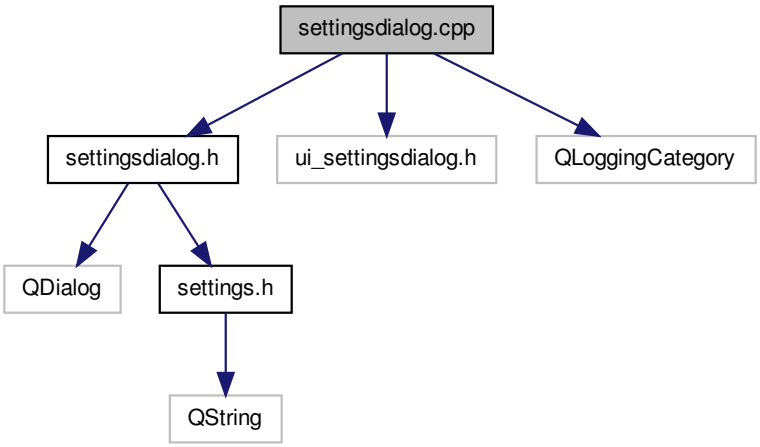
Classes

- struct Settings

10.8 settingsdialog.cpp File Reference

```
#include "settingsdialog.h"
#include "ui_settingsdialog.h"
#include <QLoggingCategory>
```

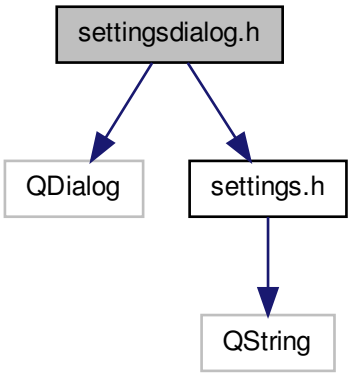
Include dependency graph for settingsdialog.cpp:



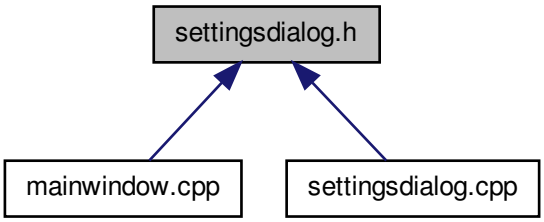
10.9 settingsdialog.h File Reference

```
#include <QDialog>
#include "settings.h"
```

Include dependency graph for settingsdialog.h:



This graph shows which files directly or indirectly include this file:



Classes

- class SettingsDialog

Namespaces

- Ui

Index

~CryptFileDevice
    CryptFileDevice, 22
~MainWindow
    MainWindow, 44
~SettingsDialog
    SettingsDialog, 66

about
    MainWindow, 44
addDirs
    MainWindow, 44
addFiles
    MainWindow, 45
AesCipher
    CryptFileDevice, 21
AesKeyLength
    CryptFileDevice, 21
atEnd
    CryptFileDevice, 22

bytesAvailable
    CryptFileDevice, 22

COEFF
    mainwindow.cpp, 74
clearList
    MainWindow, 46
close
    CryptFileDevice, 22
closeEvent
    MainWindow, 46
configFile
    Settings, 63
CryptFileDevice
    AesCipher, 21
    kAesKeyLength128, 21
    kAesKeyLength192, 21
    kAesKeyLength256, 21
    XorCipher, 21
CryptFileDevice, 17
    ~CryptFileDevice, 22
    AesKeyLength, 21
    atEnd, 22
    bytesAvailable, 22
    close, 22
    CryptFileDevice, 22
    CryptFileDevice, 22
    decrypt, 23
    encrypt, 23
    EncryptionMethod, 21
    errorMessage, 24
    exists, 24
    fileName, 25
    flush, 25
    initCipher, 26
    initCtr, 26
    insertHeader, 27
    isEncrypted, 27
    m_aesKey, 36
    m_aesKeyLength, 36
    m_ctrState, 36
    m_device, 36
    m_deviceOwner, 37
    m_encMethod, 37
    m_encrypted, 37
    m_numRounds, 37
    m_password, 37
    m_salt, 37
    open, 27
    pos, 28
    readBlock, 28
    readData, 30
    remove, 31
    rename, 31
    seek, 32
    setEncryptionMethod, 33
    setFileDevice, 33
    setFileName, 33
    setKeyLength, 34
    setNumRounds, 34
    setPassword, 34
    setSalt, 34
    size, 35
    tryParseHeader, 35
    writeData, 36
cryptfiledevice.cpp, 69
    kHeaderLength, 69
    kSaltMaxLength, 69
cryptfiledevice.h, 70
CtrState, 37
    ecount, 38
    ivec, 38
    num, 38
currentSettings
    MainWindow, 61
    SettingsDialog, 68

DataType
    MainWindow, 43
decrypt

CryptFileDevice, 23
deleteItem
MainWindow, 46
deleteItemAction
MainWindow, 61
Dir
MainWindow, 43

ecount
CtrState, 38
editItem
MainWindow, 47
editItemAction
MainWindow, 62
enableLog
Settings, 63
encrypt
CryptFileDevice, 23
encryptFile
MainWindow, 62
EncryptionMethod
CryptFileDevice, 21
errorMessage
CryptFileDevice, 24
execute
MainWindow, 48
exists
CryptFileDevice, 24

File
MainWindow, 43
fileName
CryptFileDevice, 25
fileProcessing
MainWindow, 49
fillSettings
SettingsDialog, 66
fillSettingsUi
SettingsDialog, 66
flush
CryptFileDevice, 25
fullSize
MainWindow, 62

getCount
MainWindow, 50
getDirFiles
MainWindow, 51
getSettings
MainWindow, 51
SettingsDialog, 66
getSize
MainWindow, 51
getTextSize
MainWindow, 53

headview
MainWindow, 62

initCipher
CryptFileDevice, 26
initCtr
CryptFileDevice, 26
insertHeader
CryptFileDevice, 27
isEncrypted
CryptFileDevice, 27
ivec
CtrState, 38

kAesKeyLength128
CryptFileDevice, 21
kAesKeyLength192
CryptFileDevice, 21
kAesKeyLength256
CryptFileDevice, 21
kHeaderLength
cryptfiledevice.cpp, 69
kSaltMaxLength
cryptfiledevice.cpp, 69

lastUsedDir
MainWindow, 62
lastUsedPath
MainWindow, 62
logMessageOutput
main.cpp, 71

m_aesKey
CryptFileDevice, 36
m_aesKeyLength
CryptFileDevice, 36
m_ctrState
CryptFileDevice, 36
m_device
CryptFileDevice, 36
m_deviceOwner
CryptFileDevice, 37
m_encMethod
CryptFileDevice, 37
m_encrypted
CryptFileDevice, 37
m_logFile
main.cpp, 73
m_numRounds
CryptFileDevice, 37
m_password
CryptFileDevice, 37
m_salt
CryptFileDevice, 37
main
main.cpp, 72
main.cpp, 70
logMessageOutput, 71
m_logFile, 73
main, 72
ONEKB, 71
MainWindow
Dir, 43

File, 43
PROCESS_STATUS_BREAK, 43
PROCESS_STATUS_CONTINUE, 43
PROCESS_STATUS_STATE_ERROR, 43
PROCESS_STATUS_SUCCESS, 43
MainWindow, 38
~MainWindow, 44
about, 44
addDirs, 44
addFiles, 45
clearList, 46
closeEvent, 46
currentSettings, 61
DataType, 43
deleteItem, 46
deleteItemAction, 61
editItem, 47
editItemAction, 62
encryptFile, 62
execute, 48
fileProcessing, 49
fullSize, 62
getCount, 50
getDirFiles, 51
getSettings, 51
getSize, 51
getTextSize, 53
headview, 62
lastUsedDir, 62
lastUsedPath, 62
MainWindow, 43
MainWindow, 43
on_actionAbout_Qt_triggered, 54
on_actionAbout_crypto_triggered, 54
on_actionAdd_Directory_triggered, 54
on_actionAdd_file_s_triggered, 55
on_actionContents_triggered, 55
on_actionEncryption_triggered, 55
on_actionFont_triggered, 55
on_actionQuit_triggered, 55
on_actionSettings_triggered, 56
on_addDir_clicked, 56
on_addFile_clicked, 56
on_clearList_clicked, 56
on_deleteEntry_clicked, 57
on_editEntry_clicked, 57
on_execButton_clicked, 57
on_hidPassMode_clicked, 58
on_passConfirmLine_textChanged, 58
on_passLine_textChanged, 58
on_recurseDirs_clicked, 58
on_targetsList_currentCellChanged, 58
processError, 62
ProcessStatus, 43
readSettings, 59
settings, 62
status, 62
targets, 62
ui, 62
updateStatusBar, 59
wErrorMessage, 60
writeSettings, 61
mainwindow.cpp, 73
COEFF, 74
ONEKB, 74
mainwindow.h, 74
maxSizeLog
Settings, 63

num
CtrState, 38

ONEKB
main.cpp, 71
mainwindow.cpp, 74
on_actionAbout_Qt_triggered
MainWindow, 54
on_actionAbout_crypto_triggered
MainWindow, 54
on_actionAdd_Directory_triggered
MainWindow, 54
on_actionAdd_file_s_triggered
MainWindow, 55
on_actionContents_triggered
MainWindow, 55
on_actionEncryption_triggered
MainWindow, 55
on_actionFont_triggered
MainWindow, 55
on_actionQuit_triggered
MainWindow, 55
on_actionSettings_triggered
MainWindow, 56
on_addDir_clicked
MainWindow, 56
on_addFile_clicked
MainWindow, 56
on_buttonBox_accepted
SettingsDialog, 67
on_clearList_clicked
MainWindow, 56
on_deleteEntry_clicked
MainWindow, 57
on_editEntry_clicked
MainWindow, 57
on_enableLog_clicked
SettingsDialog, 67
on_execButton_clicked
MainWindow, 57
on_hidPassMode_clicked
MainWindow, 58
on_passConfirmLine_textChanged
MainWindow, 58
on_passLine_textChanged
MainWindow, 58
on_recurseDirs_clicked
MainWindow, 58

on_targetsList_currentCellChanged
MainWindow, 58
open
CryptFileDevice, 27

PROCESS_STATUS_BREAK
MainWindow, 43
PROCESS_STATUS_CONTINUE
MainWindow, 43
PROCESS_STATUS_STATE_ERROR
MainWindow, 43
PROCESS_STATUS_SUCCESS
MainWindow, 43
pathToLog
Settings, 63
pos
CryptFileDevice, 28
processError
MainWindow, 62
ProcessStatus
MainWindow, 43

README.md, 75
readBlock
CryptFileDevice, 28
readData
CryptFileDevice, 30
readSettings
MainWindow, 59
remove
CryptFileDevice, 31
rename
CryptFileDevice, 31

seek
CryptFileDevice, 32
setEncryptionMethod
CryptFileDevice, 33
setFileDevice
CryptFileDevice, 33
setFileName
CryptFileDevice, 33
setKeyLength
CryptFileDevice, 34
setNumRounds
CryptFileDevice, 34
setPassword
CryptFileDevice, 34
setSalt
CryptFileDevice, 34
Settings, 63
configFile, 63
enableLog, 63
maxSizeLog, 63
pathToLog, 63
settings
MainWindow, 62
settings.h, 75
SettingsDialog, 64
~SettingsDialog, 66
currentSettings, 68
fillSettings, 66
fillSettingsUi, 66
getSettings, 66
on_buttonBox_accepted, 67
on_enableLog_clicked, 67
SettingsDialog, 66
SettingsDialog, 66
ui, 68
updateSettings, 67
settingsdialog.cpp, 76
settingsdialog.h, 77
size
CryptFileDevice, 35
status
MainWindow, 62

targets
MainWindow, 62
tryParseHeader
CryptFileDevice, 35

Ui, 15
ui
MainWindow, 62
SettingsDialog, 68
updateSettings
SettingsDialog, 67
updateStatusBar
MainWindow, 59

wErrorMessage
MainWindow, 60
writeData
CryptFileDevice, 36
writeSettings
MainWindow, 61

XorCipher
CryptFileDevice, 21