



Delta3D Version 2.4.0

dtNetGM::

Reference Manual

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Main Page

Delta3D is an Open Source engine which can be used for games, simulations, or other graphical applications.

The **Delta3D** framework exists as a number of modules, each sitting in its own library, enclosed within its own namespace. At the very core lies the **dtCore** library. This contains basic, low-level functionality which is mostly required for all 3D applications written in C++.

Around and alongside this sit other supporting libraries, such as dtUtil (containing reusable features which are useful for most applications), dtTerrain (for rendering terrain databases), **dtGame**, dtNet, etc.

Extensive online documentation is available from the Delta3D **Docs** section to help in using Delta3D.

The project's original reference guides generated by Doxygen from the source code may be viewed at the Delta3D **API Documentation** section.

To download source code, binaries, dependencies and sample datasets visit the Delta3D **Downloads** page.

For more about dependencies see the Delta3D **Dependencies** page.

The documentation you are looking at can be downloaded from www.3draum.ch.

Enjoy!

Directory Documentation

2.1 inc/dtNetGM/ Directory Reference

Files

- file [clientconnectionlistener.h](#)
- file [clientnetworkcomponent.h](#)
- file [datastreampacket.h](#)
- file [dtnetgm.h](#)
- file [export.h](#)
- file [machineinfomessage.h](#)
- file [mainpage.h](#)
- file [messagepacket.h](#)
- file [networkbridge.h](#)
- file [networkcomponent.h](#)
- file [serverconnectionlistener.h](#)
- file [servernetworkcomponent.h](#)

2.2 src/dtNetGM/ Directory Reference

Files

- file [clientconnectionlistener.cpp](#)
- file [clientnetworkcomponent.cpp](#)
- file [datastreampacket.cpp](#)
- file [machineinfomessage.cpp](#)
- file [messagepacket.cpp](#)
- file [networkbridge.cpp](#)
- file [networkcomponent.cpp](#)
- file [serverconnectionlistener.cpp](#)
- file [servernetworkcomponent.cpp](#)

2.3 inc/ Directory Reference

Directories

- directory [dtNetGM](#)

2.4 src/ Directory Reference

Directories

- directory [dtNetGM](#)

Namespace Documentation

3.1 dtCore Namespace Reference

3.2 dtGame Namespace Reference

3.3 dtNetGM Namespace Reference

The [dtNetGM](#) namespace contains networking classes.

Classes

- class [ClientConnectionListener](#)
Provides the interface to a GNE::Connection.
- class [ClientNetworkComponent](#)
- class [DataStreamPacket](#)
A [DataStreamPacket](#) contains a dtGame::Message blocks to be sent over a Network of other connected dtGame::GameManager's.
- class [MachineInfoMessage](#)
A [MachineInfoMessage](#) contains a dtGame::MachineInfo to be used with different messages to send information about a GameManager accross the network.
- class [MessageActionCode](#)
- class [MessagePacket](#)
A [MessagePacket](#) contains a dtGame::Message to be sent over a Network of other connected dtGame::GameManager's.
- class [NetworkBridge](#)
contains GNE components for communication across a network This class represents a single host on the other side of the network
- class [NetworkComponent](#)
baseclass GMComponent to communicate as client - server
- class [ServerConnectionListener](#)
This class is used as an interface to the GNE::Server connection.
- class [ServerNetworkComponent](#)

Functions

- [IMPLEMENT_ENUM](#) ([NetworkComponent::DestinationType](#))
- [IMPLEMENT_ENUM](#) ([MessageActionCode](#))
- [IMPLEMENT_MANAGEMENT_LAYER](#) ([NetworkComponent](#))

3.3.1 Detailed Description

The [dtNetGM](#) namespace contains networking classes. [dtNetGM](#) uses the [Game Network Engine](#) and [HawkNL](#) for backbone functionality.

3.3.2 Function Documentation

3.3.2.1 dtNetGM::IMPLEMENT_ENUM (NetworkComponent::DestinationType)

3.3.2.2 dtNetGM::IMPLEMENT_ENUM (MessageActionCode)

3.3.2.3 dtNetGM::IMPLEMENT_MANAGEMENT_LAYER (NetworkComponent)

Class Documentation

4.1 ClientConnectionListener Class Reference

Provides the interface to a GNE::Connection.

```
#include <inc/dtNetGM/clientconnectionlistener.h>
```

Public Types

- typedef GNE::SmartPtr< [ClientConnectionListener](#) > [sptr](#)
- typedef GNE::WeakPtr< [ClientConnectionListener](#) > [wptr](#)

Public Member Functions

- virtual [~ClientConnectionListener](#) (void)
- virtual void [onConnect](#) (GNE::SyncConnection &conn)
- virtual void [onConnectFailure](#) (GNE::Connection &conn, const GNE::Error &error)
- virtual void [onDisconnect](#) (GNE::Connection &conn)
- virtual void [onError](#) (GNE::Connection &conn, const GNE::Error &error)
- virtual void [onExit](#) (GNE::Connection &conn)
- virtual void [onFailure](#) (GNE::Connection &conn, const GNE::Error &error)
- virtual void [onNewConn](#) (GNE::SyncConnection &conn)
- virtual void [onReceive](#) (GNE::Connection &conn)

Static Public Member Functions

- static [sptr](#) [Create](#) ([NetworkBridge](#) *netwBridge)
static method used to create a new [ClientConnectionListener](#)

Protected Member Functions

- [ClientConnectionListener](#) ([NetworkBridge](#) *netwBridge)

4.1.1 Detailed Description

Provides the interface to a GNE::Connection. This class is used internally by the NetMgr and is typically not used directly by the end user. This class contains a reference to an instance of NetMgr and calls it's virtual methods, mimicking the GNE interface.

4.1.2 Member Typedef Documentation

4.1.2.1 `typedef GNE::SmartPtr<ClientConnectionListener> sptr`

4.1.2.2 `typedef GNE::WeakPtr<ClientConnectionListener> wptr`

4.1.3 Constructor & Destructor Documentation

4.1.3.1 `~ClientConnectionListener (void) [virtual]`

4.1.3.2 `ClientConnectionListener (NetworkBridge * netwBridge) [protected]`

4.1.4 Member Function Documentation

4.1.4.1 `static sptr Create (NetworkBridge * netwBridge) [inline, static]`

static method used to create a new [ClientConnectionListener](#)

4.1.4.2 `void onConnect (GNE::SyncConnection & conn) [virtual]`

4.1.4.3 `void onConnectFailure (GNE::Connection & conn, const GNE::Error & error) [virtual]`

4.1.4.4 `void onDisconnect (GNE::Connection & conn) [virtual]`

4.1.4.5 `void onError (GNE::Connection & conn, const GNE::Error & error) [virtual]`

4.1.4.6 `void onExit (GNE::Connection & conn) [virtual]`

4.1.4.7 `void onFailure (GNE::Connection & conn, const GNE::Error & error) [virtual]`

4.1.4.8 `void onNewConn (GNE::SyncConnection & conn) [virtual]`

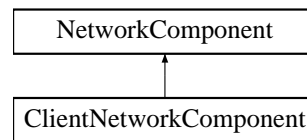
4.1.4.9 `void onReceive (GNE::Connection & conn) [virtual]`

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

- [clientconnectionlistener.h](#)
- [clientconnectionlistener.cpp](#)

4.2 ClientNetworkComponent Class Reference

#include <inc/dtNetGM/clientnetworkcomponent.h> Inheritance diagram for ClientNetworkComponent::



Public Member Functions

- [ClientNetworkComponent](#) (const std::string &gameName, const int gameVersion, const std::string &logFile="")
Construct a [ClientNetworkComponent](#) with a game name and version to be used by GNE Calls base class constructor to initialize GNE.
- const dtGame::MachineInfo * [GetServer](#) ()
Returns the MachineInfo of the Server, or NULL if we don't have a accepted connection.
- bool [IsConnectedClient](#) ()
Reveals if a server has accepted our connectionrequest.
- virtual void [OnDisconnect](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a connection disconnects.
- virtual void [ProcessInfoClientConnected](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::INFO_CLIENT_CONNECTED](#) Message.
- virtual void [ProcessNetClientNotifyDisconnect](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::NETCLIENT_NOTIFY_DISCONNECT](#) Message and removes the client from the connected clients vector.
- virtual void [ProcessNetServerAcceptConnection](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::NETSERVER_ACCEPT_CONNECTION](#) Message.
- virtual void [ProcessNetServerRejectConnection](#) (const dtGame::NetServerRejectMessage &msg)
Processes a [MessageType::NETSERVER_REJECT_CONNECTION](#) Message.
- virtual void [ProcessNetServerRejectMessage](#) (const dtGame::ServerMessageRejected &msg)
Processes a [MessageType::SERVER_REQUEST_REJECTED](#) Message.
- void [SendRequestConnectionMessage](#) ()
Utility method to put together a request connection message and send it.
- bool [SetupClient](#) (const std::string &host, const int portNum)
Setup a new network connection to a server.

Static Public Attributes

- static const std::string [DEFAULT_NAME](#) = "ClientNetworkComponent"

Protected Member Functions

- virtual [~ClientNetworkComponent](#) (void)
- virtual const dtGame::MachineInfo * [GetMachineInfo](#) (const dtCore::Uniqueld &uniqueld)
Retrieves a dtGame::MachineInfo* from the stored connections including all other connected clients If no matching connection is found, NULL is returned.

Protected Attributes

- `std::vector< dtCore::RefPtr< dtGame::MachineInfo > >` [mConnectedClients](#)

4.2.1 Constructor & Destructor Documentation

4.2.1.1 ClientNetworkComponent (const std::string & *gameName*, const int *gameVersion*, const std::string & *logFile* = "")

Construct a [ClientNetworkComponent](#) with a game name and version to be used by GNE Calls base class constructor to initialize GNE. Parameters

gameName The game name

gameVersion The game version

logFile The logfile name

4.2.1.2 ~ClientNetworkComponent (void) [protected, virtual]

4.2.2 Member Function Documentation

4.2.2.1 const dtGame::MachineInfo * GetMachineInfo (const dtCore::Uniqueld & *uniqueld*) [protected, virtual]

Retrieves a `dtGame::MachineInfo*` from the stored connections including all other connected clients If no matching connection is found, NULL is returned. Parameters

dtCore::Uniqueld of the MachineInfo

Returns Pointer to the `dtGame::MachineInfo*` or NULL

Reimplemented from [NetworkComponent](#).

4.2.2.2 const dtGame::MachineInfo * GetServer ()

Returns the MachineInfo of the Server, or NULL if we don't have a accepted connection. Returns MachineInfo

4.2.2.3 bool IsConnectedClient () [inline]

Reveals if a server has accepted our connectionrequest. Returns boolean indicating if the server has accepted our connection request

4.2.2.4 void OnDisconnect (NetworkBridge & *networkBridge*) [virtual]

Function called by a [NetworkBridge](#) if a connection disconnects. Parameters

The [NetworkBridge](#)

Reimplemented from [NetworkComponent](#).

4.2.2.5 void ProcessInfoClientConnected (const MachineInfoMessage & *msg*) [virtual]

Processes a `MessageType::INFO_CLIENT_CONNECTED` Message. Parameters

msg The message

Reimplemented from [NetworkComponent](#).

4.2.2.6 void ProcessNetClientNotifyDisconnect (const MachineInfoMessage & *msg*) [virtual]

Processes a `MessageType::NETCLIENT_NOTIFY_DISCONNECT` Message and removes the client from the connected clients vector. Parameters

msg The message

Reimplemented from [NetworkComponent](#).

4.2.2.7 void ProcessNetServerAcceptConnection (const MachineInfoMessage & msg) [virtual]

Processes a MessageType::NETSERVER_ACCEPT_CONNECTION Message. Parameters

msg The message

Reimplemented from [NetworkComponent](#).

4.2.2.8 void ProcessNetServerRejectConnection (const dtGame::NetServerRejectMessage & msg) [virtual]

Processes a MessageType::NETSERVER_REJECT_CONNECTION Message. Parameters

msg The message

Reimplemented from [NetworkComponent](#).

4.2.2.9 void ProcessNetServerRejectMessage (const dtGame::ServerMessageRejected & msg) [virtual]

Processes a MessageType::SERVER_REQUEST_REJECTED Message. Parameters

msg The message

Reimplemented from [NetworkComponent](#).

4.2.2.10 void SendRequestConnectionMessage ()

Utility method to put together a request connection message and send it. Note - Your client will not be able to send or receive messages from the server until you do this. This has no effect if you are not connected to a server yet.

4.2.2.11 bool SetupClient (const std::string & host, const int portNum)

Setup a new network connection to a server. Call ConnectToServer to establish a connection Parameters

host The hostname to connect to

portNum The port to connect to

Returns boolean indicating a successful connection

4.2.3 Member Data Documentation**4.2.3.1 const std::string DEFAULT_NAME = "ClientNetworkComponent" [static]****4.2.3.2 std::vector< dtCore::RefPtr<dtGame::MachineInfo> > mConnectedClients [protected]**

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

- [clientnetworkcomponent.h](#)
- [clientnetworkcomponent.cpp](#)

4.3 DataStreamPacket Class Reference

A [DataStreamPacket](#) contains a dtGame::Message blocks to be sent over a Network of other connected dtGame::GameManager's.

```
#include <inc/dtNetGM/datastreampacket.h>
```

Public Types

- typedef GNE::SmartPtr< [DataStreamPacket](#) > [sptr](#)
- typedef GNE::WeakPtr< [DataStreamPacket](#) > [wptr](#)

Public Member Functions

- [DataStreamPacket](#) (const [DataStreamPacket](#) &dataStreamPacket)
Copy constructor, used by the GNE::PacketParser to send a copy of the [DataStreamPacket](#) across the Network.
- [DataStreamPacket](#) (GNE::guint16 streamId, GNE::guint16 dataStreamSize, GNE::guint8 packetId=0)
Constructor.
- [DataStreamPacket](#) ()
Constructor.
- virtual [~DataStreamPacket](#) (void)
Destructor, public for GNE.....
- unsigned int [GetDataStreamId](#) ()
- unsigned int [GetDataStreamSize](#) ()
- unsigned int [GetIndex](#) ()
- unsigned int [GetPacketCount](#) ()
- GNE::gbyte * [GetPayloadBuffer](#) ()
- unsigned int [GetPayloadSize](#) ()
- virtual int [getSize](#) () const
Gets the size of the [DataStreamPacket](#), used by GNE::PacketParser.
- virtual void [readPacket](#) (GNE::Buffer &raw)
Reads a [DataStreamPacket](#) from a packet stream, used by GNE::PacketParser.
- void [SetDataStreamId](#) (GNE::guint16 id)
- void [SetDataStreamSize](#) (GNE::guint16 size)
- void [SetIndex](#) (GNE::guint8 index)
- void [SetPacketCount](#) (GNE::guint8 count)
- void [SetPayloadSize](#) (GNE::guint16 size)
- virtual void [writePacket](#) (GNE::Buffer &raw) const
Writes a [DataStreamPacket](#) into a packet stream, used by GNE::PacketParser.

Static Public Attributes

- static const int [ID](#) = GNE::PacketParser::MIN_USER_ID + 1
ID used by GNE to identify the [DataStreamPacket](#).
- static const int [MAX_PAYLOAD](#) = 500

4.3.1 Detailed Description

A [DataStreamPacket](#) contains a dtGame::Message blocks to be sent over a Network of other connected dtGame::GameManager's. See also dtGame::Message

4.3.2 Member Typedef Documentation

4.3.2.1 typedef GNE::SmartPtr<DataStreamPacket> *sptr*

4.3.2.2 typedef GNE::WeakPtr<DataStreamPacket> *wptr*

4.3.3 Constructor & Destructor Documentation

4.3.3.1 DataStreamPacket ()

Constructor.

4.3.3.2 DataStreamPacket (GNE::guint16 *streamId*, GNE::guint16 *dataStreamSize*, GNE::guint8 *packetId* = 0)

Constructor.

4.3.3.3 DataStreamPacket (const DataStreamPacket & *dataStreamPacket*)

Copy constructor, used by the GNE::PacketParser to send a copy of the [DataStreamPacket](#) across the Network. Parameters

messagePacket the [DataStreamPacket](#) to be copied.

4.3.3.4 ~DataStreamPacket (void) [virtual]

Destructor, public for GNE.....

4.3.4 Member Function Documentation

4.3.4.1 unsigned int GetDataStreamId () [inline]

4.3.4.2 unsigned int GetDataStreamSize () [inline]

4.3.4.3 unsigned int GetIndex () [inline]

4.3.4.4 unsigned int GetPacketCount () [inline]

4.3.4.5 GNE::gbyte* GetPayloadBuffer () [inline]

4.3.4.6 unsigned int GetPayloadSize () [inline]

4.3.4.7 int getSize () const [virtual]

Gets the size of the [DataStreamPacket](#), used by GNE::PacketParser. Returns The size

4.3.4.8 void readPacket (GNE::Buffer & *raw*) [virtual]

Reads a [DataStreamPacket](#) from a packet stream, used by GNE::PacketParser. Parameters

raw The buffer to read the [DataStreamPacket](#) from

4.3.4.9 void SetDataStreamId (GNE::guint16 *id*) [inline]

4.3.4.10 void SetDataStreamSize (GNE::guint16 *size*) [inline]

4.3.4.11 void SetIndex (GNE::guint8 *index*) [inline]

4.3.4.12 void SetPacketCount (GNE::guint8 *count*) [inline]

4.3.4.13 void SetPayloadSize (GNE::guint16 *size*) [inline]

4.3.4.14 void writePacket (GNE::Buffer & *raw*) const [virtual]

Writes a [DataStreamPacket](#) into a packet stream, used by GNE::PacketParser. Parameters

raw The buffer to write the [DataStreamPacket](#) to

4.3.5 Member Data Documentation

4.3.5.1 `const int ID = GNE::PacketParser::MIN_USER_ID + 1` [static]

ID used by GNE to identify the [DataStreamPacket](#). The [DataStreamPacket](#) has an ID of `GNE::PacketParser::MIN_USER_ID`

4.3.5.2 `const int MAX_PAYLOAD = 500` [static]

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

- [datastreampacket.h](#)
- [datastreampacket.cpp](#)

4.4 DestinationType Class Reference

enumeration class to address different stored connections

```
#include <inc/dtNetGM/networkcomponent.h>
```

Static Public Attributes

- static const [DestinationType ALL_CLIENTS](#)
- static const [DestinationType ALL_NOT_CLIENTS](#)
- static const [DestinationType DESTINATION](#)

4.4.1 Detailed Description

enumeration class to address different stored connections

4.4.2 Member Data Documentation

4.4.2.1 `const NetworkComponent::DestinationType ALL_CLIENTS` [static]

4.4.2.2 `const NetworkComponent::DestinationType ALL_NOT_CLIENTS` [static]

4.4.2.3 `const NetworkComponent::DestinationType DESTINATION` [static]

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

- [networkcomponent.h](#)
- [networkcomponent.cpp](#)

4.5 MachineInfoMessage Class Reference

A [MachineInfoMessage](#) contains a `dtGame::MachineInfo` to be used with different messages to send information about a `GameManager` across the network.

```
#include <inc/dtNetGM/machineinfomessage.h>
```

Public Member Functions

- [MachineInfoMessage](#) ()
- `const std::string & GetHostName () const`
Gets the HostName from the contained MachineInfo.
- `const std::string & GetIPAddress () const`
Gets the IpAddress from the contained MachineInfo.
- `dtCore::RefPtr< dtGame::MachineInfo > GetMachineInfo () const`
Gets the MachineInfo from the message.
- `const std::string & GetMachineInfoName () const`
Gets the Name from the contained MachineInfo.
- `const unsigned int & GetPing () const`
Gets the Ping from the contained MachineInfo.
- `const unsigned long & GetTimeStamp () const`
Gets the TimeStamp from the contained MachineInfo.
- `const std::string & GetUniqueld () const`
Gets the Uniqueld from the contained MachineInfo as string.
- `void SetHostName (const std::string &hostname)`
Sets the HostName associated with the MachineInfo.
- `void SetIPAddress (const std::string &ipAddress)`
Sets the IpAddress associated with the MachineInfo.
- `void SetMachineInfo (const dtGame::MachineInfo &machineInfo)`
Sets the MachineInfo.
- `void SetMachineInfoName (const std::string &name)`
Sets the name associated with the MachineInfo.
- `void SetPing (const unsigned int &ping)`
Sets the Ping associated with the MachineInfo.
- `void SetTimeStamp (const unsigned long &timeStamp)`
Sets the TimeStamp associated with the MachineInfo.
- `void SetUniqueld (const std::string &strId)`
Sets the Uniqueld associated with the MachineInfo.

Protected Member Functions

- `virtual ~MachineInfoMessage ()`
Destructor.

4.5.1 Detailed Description

A [MachineInfoMessage](#) contains a dtGame::MachineInfo to be used with different messages to send information about a GameManager across the network. See also dtGame::MachineInfo

4.5.2 Constructor & Destructor Documentation

4.5.2.1 MachineInfoMessage () [inline]

4.5.2.2 virtual ~MachineInfoMessage () [inline, protected, virtual]

Destructor.

4.5.3 Member Function Documentation

4.5.3.1 const std::string & GetHostName () const

Gets the HostName from the contained MachineInfo. Returns The hostname

4.5.3.2 const std::string & GetIPAddress () const

Gets the IpAddress from the contained MachineInfo. Returns The ipaddress

4.5.3.3 dtCore::RefPtr< dtGame::MachineInfo > GetMachineInfo () const

Gets the MachineInfo from the message. Returns The machineinfo

4.5.3.4 const std::string & GetMachineInfoName () const

Gets the Name from the contained MachineInfo. Returns The name

4.5.3.5 const unsigned int & GetPing () const

Gets the Ping from the contained MachineInfo. Returns The ping

4.5.3.6 const unsigned long & GetTimeStamp () const

Gets the TimeStamp from the contained MachineInfo. Returns The timestamp

4.5.3.7 const std::string & GetUniqueld () const

Gets the Uniqueld from the contained MachineInfo as string. Returns The uniqueid

4.5.3.8 void SetHostName (const std::string & *hostname*)

Sets the HostName associated with the MachineInfo. Parameters

The new hostname

4.5.3.9 void SetIPAddress (const std::string & *ipAddress*)

Sets the IpAddress associated with the MachineInfo. Parameters

The new ipaddress

4.5.3.10 void SetMachineInfo (const dtGame::MachineInfo & *machineInfo*)

Sets the MachineInfo. Parameters

The new machineinfo

4.5.3.11 void SetMachineInfoName (const std::string & *name*)

Sets the name associated with the MachineInfo. Parameters

The new name

4.5.3.12 void SetPing (const unsigned int & *ping*)

Sets the Ping associated with the MachineInfo. Parameters

The new ping

4.5.3.13 void SetTimeStamp (const unsigned long & *timeStamp*)

Sets the TimeStamp associated with the MachineInfo. Parameters

The new timestamp

4.5.3.14 void SetUniqueld (const std::string & *strId*)

Sets the Uniqueld associated with the MachineInfo. Parameters

The new uniqueid as string

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

- [machineinfomessage.h](#)
- [machineinfomessage.cpp](#)

4.6 MessageActionCode Class Reference

```
#include <inc/dtNetGM/networkcomponent.h>
```

Static Public Attributes

- static [MessageActionCode DROP](#)
- static [MessageActionCode REJECT](#)
- static [MessageActionCode SEND](#)
- static [MessageActionCode WAIT](#)

4.6.1 Member Data Documentation

4.6.1.1 MessageActionCode DROP [static]

4.6.1.2 MessageActionCode REJECT [static]

4.6.1.3 MessageActionCode SEND [static]

4.6.1.4 MessageActionCode WAIT [static]

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

- [networkcomponent.h](#)
- [networkcomponent.cpp](#)

4.7 MessagePacket Class Reference

A [MessagePacket](#) contains a `dtGame::Message` to be sent over a Network of other connected `dtGame::GameManager`'s.

```
#include <inc/dtNetGM/messagepacket.h>
```

Public Types

- typedef `GNE::SmartPtr< MessagePacket >` `sptr`
- typedef `GNE::WeakPtr< MessagePacket >` `wptr`

Public Member Functions

- [MessagePacket](#) (const `dtGame::Message` &message)
Construct a [MessagePacket](#) from a `dtGame::Message`.
- [MessagePacket](#) (const [MessagePacket](#) &messagePacket)
Copy constructor, used by the `GNE::PacketParser` to send a copy of the [MessagePacket](#) across the Network.
- [MessagePacket](#) ()
Constructor.
- virtual `~MessagePacket` (void)
Destructor, public for `GNE`.....
- void [BuildFromMessage](#) (const `dtGame::Message` &message)
Builds a [MessagePacket](#) from a message.
- void [FillMessage](#) (`dtGame::Message` &message) const
Fills the content of the encapsulated Message into a Message, The message should be created using the Message-Factory.
- const `dtCore::Uniqueld` [GetDestinatonId](#) () const
Gets the Uniqueld of the Message destination.
- const unsigned short [GetMessageld](#) () const
Gets the `MessageType::mID` of the Message contained in the [MessagePacket](#) This can be used to recreate the message with the Messagefactory.
- const `std::string` [GetMessageParameters](#) () const
Gets the message parameters as string.
- virtual int [getSize](#) () const
Gets the size of the [MessagePacket](#), used by `GNE::PacketParser`.
- const `dtCore::Uniqueld` [GetSourceId](#) () const
Gets the Uniqueld of the Message source.
- void [OverrideDestination](#) (const `dtGame::MachineInfo` &destination)
Overrides the destination of the contained Message.
- virtual void [readPacket](#) (`GNE::Buffer` &raw)
Reads a [MessagePacket](#) from a packet stream, used by `GNE::PacketParser`.
- virtual void [writePacket](#) (`GNE::Buffer` &raw) const
Writes a [MessagePacket](#) into a packet stream, used by `GNE::PacketParser`.

Static Public Attributes

- static const int **ID** = GNE::PacketParser::MIN_USER_ID
ID used by GNE to identify the [MessagePacket](#).

4.7.1 Detailed Description

A [MessagePacket](#) contains a dtGame::Message to be sent over a Network or other connected dtGame::GameManager's. The [MessagePacket](#) uses the dtGame::MachineInfo::Uniqueld to specify its source and destination dtGame::GameManager. Currently it is assumed all messagecontent fits into one packet. See also dtGame::Message

4.7.2 Member Typedef Documentation

4.7.2.1 typedef GNE::SmartPtr<MessagePacket> **sptr**

4.7.2.2 typedef GNE::WeakPtr<MessagePacket> **wptr**

4.7.3 Constructor & Destructor Documentation

4.7.3.1 MessagePacket ()

Constructor.

4.7.3.2 MessagePacket (const MessagePacket & messagePacket)

Copy constructor, used by the GNE::PacketParser to send a copy of the [MessagePacket](#) across the Network. Parameters

messagePacket the [MessagePacket](#) to be copied.

4.7.3.3 MessagePacket (const dtGame::Message & message)

Construct a [MessagePacket](#) from a dtGame::Message. Parameters

message the Message to be contained in the [MessagePacket](#).

4.7.3.4 ~MessagePacket (void) [virtual]

Destructor, public for GNE.....

4.7.4 Member Function Documentation

4.7.4.1 void BuildFromMessage (const dtGame::Message & message)

Builds a [MessagePacket](#) from a message. Parameters

the message to be encapsulated by the [MessagePacket](#)

4.7.4.2 void FillMessage (dtGame::Message & message) const

Fills the content of the encapsulated Message into a Message, The message should be created using the MessageFactory. Parameters

The message to write the content to.

4.7.4.3 const dtCore::Uniqueld GetDestinatonId () const [inline]

Gets the Uniqueld of the Message destination. Returns The message destination

4.7.4.4 const unsigned short GetMessageId () const [inline]

Gets the MessageType::mID of the Message contained in the [MessagePacket](#) This can be used to recreate the message with the Messagefactory. Returns The id of the MessageType

4.7.4.5 const std::string GetMessageParameters () const [inline]

Gets the message parameters as string. Returns The message paramters

4.7.4.6 int getSize () const [virtual]

Gets the size of the [MessagePacket](#), used by GNE::PacketParser. Returns The size

4.7.4.7 const dtCore::Uniqueld GetSourceId () const [inline]

Gets the Uniqueld of the Message source. Returns The message source

4.7.4.8 void OverrideDestination (const dtGame::MachineInfo & destination)

Overrides the destination of the contained Message. Parameters

The new destination

4.7.4.9 void readPacket (GNE::Buffer & raw) [virtual]

Reads a [MessagePacket](#) from a packet stream, used by GNE::PacketParser. Parameters

raw The buffer to read the [MessagePacket](#) from

4.7.4.10 void writePacket (GNE::Buffer & raw) const [virtual]

Writes a [MessagePacket](#) into a packet stream, used by GNE::PacketParser. Parameters

raw The buffer to write the [MessagePacket](#) to

4.7.5 Member Data Documentation**4.7.5.1 const int ID = GNE::PacketParser::MIN_USER_ID [static]**

ID used by GNE to identify the [MessagePacket](#). The [MessagePacket](#) has an ID of GNE::PacketParser::MIN_USER_ID

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

- [messagepacket.h](#)
- [messagepacket.cpp](#)

4.8 NetworkBridge Class Reference

contains GNE components for communication across a network This class represents a single host on the other side of the network

```
#include <inc/dtNetGM/networkbridge.h>
```

Public Member Functions

- [NetworkBridge](#) ([NetworkComponent](#) *networkComp)
- virtual [~NetworkBridge](#) (void)
- void [Disconnect](#) (int waitTime=-1)
Disconnects the current connection.
- std::string [GetHostDescription](#) ()
Returns a string describing the host.
- const dtGame::MachineInfo & [GetMachineInfo](#) () const
Gets the MachineInfo from the host.
- const bool [IsConnectedClient](#) () const
Returns if the networkbridge is connected as an accepted client to a server.
- const bool [IsNetworkConnected](#) ()
Returns if the networkbridge is connected.
- void [OnConnect](#) (GNE::SyncConnection &conn)
Callback function for GNE::ConnectionListener.
- void [OnConnectFailure](#) (GNE::Connection &conn, const GNE::Error &error)
Callback function for GNE::ConnectionListener.
- void [OnDisconnect](#) (GNE::Connection &conn)
Callback function for GNE::ConnectionListener.
- void [OnError](#) (GNE::Connection &conn, const GNE::Error &error)
Callback function for GNE::ConnectionListener.
- void [OnExit](#) (GNE::Connection &conn)
Callback function for GNE::ConnectionListener.
- void [OnFailure](#) (GNE::Connection &conn, const GNE::Error &error)
Callback function for GNE::ConnectionListener.
- void [OnNewConnection](#) (GNE::SyncConnection &conn)
Callback function for GNE::ConnectionListener.
- void [OnReceive](#) (GNE::Connection &conn)
Callback function for GNE::ConnectionListener.
- void [OnTimeout](#) (GNE::Connection &conn)
Callback function for GNE::ConnectionListener.
- void [SendDataStream](#) (dtUtil::DataStream &dataStream)
Sends a DataStream across the network.
- void [SetClientConnected](#) (bool client=true)

Sets if the networkbridge is an accepted client.

- void **SetMachineInfo** (const dtGame::MachineInfo &machineInfo)
Sets the MachineInfo.

4.8.1 Detailed Description

contains GNE components for communication across a network This class represents a single host on the other side of the network

4.8.2 Constructor & Destructor Documentation

4.8.2.1 NetworkBridge (NetworkComponent * *networkComp*)

4.8.2.2 ~NetworkBridge (void) [virtual]

4.8.3 Member Function Documentation

4.8.3.1 void Disconnect (int *waitTime* = -1)

Disconnects the current connection.

4.8.3.2 std::string GetHostDescription ()

Returns a string describing the host. Returns string describing the host

4.8.3.3 const dtGame::MachineInfo & GetMachineInfo () const

Gets the MachineInfo from the host. Returns The name

4.8.3.4 const bool IsConnectedClient () const

Returns if the networkbridge is connected as an accepted client to a server. Returns is connected client

4.8.3.5 const bool IsNetworkConnected ()

Returns if the networkbridge is connected. Returns network connected

4.8.3.6 void OnConnect (GNE::SyncConnection & *conn*)

Callback function for GNE::ConnectionListener. Parameters

The GNE::SyncConnection

4.8.3.7 void OnConnectFailure (GNE::Connection & *conn*, const GNE::Error & *error*)

Callback function for GNE::ConnectionListener. Parameters

conn The GNE::Connection

error The GNE::Error description

4.8.3.8 void OnDisconnect (GNE::Connection & *conn*)

Callback function for GNE::ConnectionListener. Parameters

The GNE::Connection

4.8.3.9 void OnError (GNE::Connection & *conn*, const GNE::Error & *error*)

Callback function for GNE::ConnectionListener. Parameters

conn The GNE::Connection

error The GNE::Error description

4.8.3.10 void OnExit (GNE::Connection & *conn*)

Callback function for GNE::ConnectionListener. Parameters

The GNE::Connection

4.8.3.11 void OnFailure (GNE::Connection & *conn*, const GNE::Error & *error*)

Callback function for GNE::ConnectionListener. Parameters

conn The GNE::Connection

error The GNE::Error description

4.8.3.12 void OnNewConnection (GNE::SyncConnection & *conn*)

Callback function for GNE::ConnectionListener. Parameters

The GNE::SyncConnection

4.8.3.13 void OnReceive (GNE::Connection & *conn*)

Callback function for GNE::ConnectionListener. Parameters

The GNE::Connection

4.8.3.14 void OnTimeout (GNE::Connection & *conn*)

Callback function for GNE::ConnectionListener. Parameters

The GNE::Connection

4.8.3.15 void SendDataStream (dtUtil::DataStream & *dataStream*)

Sends a DataStream across the network. Parameters

The messagepacket

4.8.3.16 void SetClientConnected (bool *client* = true) [inline]

Sets if the networkbridge is an accepted client. Parameters

The client state

4.8.3.17 void SetMachineInfo (const dtGame::MachineInfo & *machineInfo*)

Sets the MachineInfo. Parameters

The machineinfo

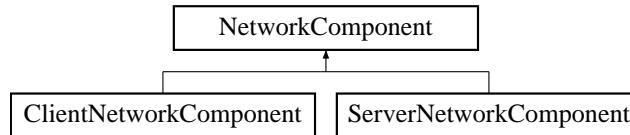
The documentation for this class was generated from the following files:

- [networkbridge.h](#)
- [networkbridge.cpp](#)

4.9 NetworkComponent Class Reference

baseclass GMComponent to communicate as client - server

#include <inc/dtNetGM/networkcomponent.h> Inheritance diagram for NetworkComponent::



Classes

- class [DestinationType](#)
enumeration class to address different stored connections

Public Member Functions

- [NetworkComponent](#) (const std::string &gameName, const int gameVersion, const std::string &logFile="")
Construct a [NetworkComponent](#) with a game name and version to be used by GNE Calls InitializeNetwork to initialize GNE.
- dtUtil::DataStream [CreateDataStream](#) (const dtGame::Message &message)
- dtCore::RefPtr< dtGame::Message > [CreateMessage](#) (dtUtil::DataStream &dataStream, const [NetworkBridge](#) &networkBridge)
- virtual void [Disconnect](#) ()
Disconnect from all active network connections.
- virtual void [DispatchNetworkMessage](#) (const dtGame::Message &message)
Function called by a GameManager to send Messages across a Network.
- void [GetConnectedClients](#) (std::vector< [NetworkBridge](#) * > &connectedClients)
Retrieves a vector containing all [NetworkBridge](#) which have an accepted client connection.
- std::string [GetHostName](#) ()
Return hostname of the machine this [NetworkComponent](#) is running on.
- const bool & [IsGneInitialized](#) () const
Is GNE already initialized.
- const bool & [IsReliable](#) () const
Is our GNE connection reliable.
- virtual const bool [IsServer](#) () const
Is this [NetworkComponent](#) a server?
- bool [IsShuttingDown](#) ()
Are we shutting down?
- virtual void [OnAddedToGM](#) ()
Called immediately after a component is added to the GM.
- virtual [MessageActionCode](#) & [OnBeforeSendMessage](#) (const dtGame::Message &message, std::string &rejectReason)
This is called when the component is ready to send a message to the game manager so the user.

- virtual void [OnConnect](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a new connection is made.
- virtual void [OnConnectFailure](#) ([NetworkBridge](#) &networkBridge, const GNE::Error &error)
Function called by a [NetworkBridge](#) if a connection failure occurs.
- virtual void [OnDisconnect](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a connection disconnects.
- virtual void [OnError](#) ([NetworkBridge](#) &networkBridge, const GNE::Error &error)
Function called by a [NetworkBridge](#) if an error occurs.
- virtual void [OnExit](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a connection exits.
- virtual void [OnFailure](#) ([NetworkBridge](#) &networkBridge, const GNE::Error &error)
Function called by a [NetworkBridge](#) if a failure occurs.
- virtual void [OnNewConnection](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a new connection is received.
- virtual void [OnReceivedDataStream](#) ([NetworkBridge](#) &networkBridge, dtUtil::DataStream &dataStream)
Function called by a [NetworkBridge](#) to Signal a received DataStream The network component creates the message and checks for destination and / or connection info contained in the message.
- virtual void [OnReceivedNetworkMessage](#) (const dtGame::Message &message, [NetworkBridge](#) &networkBridge)
- virtual void [OnRemovedFromGM](#) ()
Overridden to handle shutdown.
- virtual void [OnTimeOut](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a timeout occurs.
- virtual void [ProcessInfoClientConnected](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::INFO_CLIENT_CONNECTED](#) Message.
- virtual void [ProcessMessage](#) (const dtGame::Message &message)
Function called by a [GameManager](#) to process Messages.
- virtual void [ProcessNetClientNotifyDisconnect](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::NETCLIENT_NOTIFY_DISCONNECT](#) Message.
- virtual void [ProcessNetClientRequestConnection](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::NETCLIENT_REQUEST_CONNECTION](#) Message.
- virtual void [ProcessNetServerAcceptConnection](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::NETSERVER_ACCEPT_CONNECTION](#) Message.
- virtual void [ProcessNetServerRejectConnection](#) (const dtGame::NetServerRejectMessage &msg)
Processes a [MessageType::NETSERVER_REJECT_CONNECTION](#) Message.
- virtual void [ProcessNetServerRejectMessage](#) (const dtGame::ServerMessageRejected &msg)
Processes a [MessageType::SERVER_REQUEST_REJECTED](#) Message.
- virtual void [ProcessTickLocal](#) (const dtGame::TickMessage &msg)

Processes a MessageType::TICK_LOCAL Message.

- void [SendNetworkMessage](#) (const dtGame::Message &message, const [DestinationType](#) &destination-
Type=[DestinationType::DESTINATION](#))
- void [SetConnectionParameters](#) (bool reliable=true, int bandWidthIn=0, int bandWidthOut=0)
Sets the connection Parameters to be used by GNE.
- virtual void [ShutdownNetwork](#) ()
Shutdown network communications and clear connections plus shutdown the internal networking subsystem.

Protected Member Functions

- virtual [~NetworkComponent](#) (void)
- void [AddConnection](#) ([NetworkBridge](#) *networkBridge)
Adds a [NetworkBridge](#) to the map.
- [NetworkBridge](#) * [GetConnection](#) (const dtGame::MachineInfo &machineInfo)
Retrieves a [NetworkBridge](#) from the map If no networkbridge is found, NULL is returned.
- virtual const dtGame::MachineInfo * [GetMachineInfo](#) (const dtCore::Uniqueld &uniqueld)
Retrieves a dtGame::MachineInfo from the stored connections If no matching connection is found, NULL is returned.*
- void [RemoveConnection](#) (const dtGame::MachineInfo &machineInfo)
Removes a [NetworkBridge](#) from the map.

Protected Attributes

- OpenThreads::Mutex [mBufferMutex](#)
- std::vector< [NetworkBridge](#) * > [mConnections](#)
- OpenThreads::Mutex [mMutex](#)
- int [mRateIn](#)
- int [mRateOut](#)
- bool [mReliable](#)

4.9.1 Detailed Description

baseclass GMComponent to communicate as client - server

4.9.2 Constructor & Destructor Documentation

4.9.2.1 [NetworkComponent](#) (const std::string & *gameName*, const int *gameVersion*, const std::string & *logFile* = "")

Construct a [NetworkComponent](#) with a game name and version to be used by GNE Calls InitializeNetwork to initialize GNE. Parameters

gameName The game name

gameVersion The game version

logFile The logfile name

4.9.2.2 [~NetworkComponent](#) (void) [protected, virtual]

4.9.3 Member Function Documentation

4.9.3.1 void [AddConnection](#) ([NetworkBridge](#) * *networkBridge*) [protected]

Adds a [NetworkBridge](#) to the map. Parameters

The networkbridge

4.9.3.2 dtUtil::DataStream CreateDataStream (const dtGame::Message & message)

4.9.3.3 dtCore::RefPtr< dtGame::Message > CreateMessage (dtUtil::DataStream & dataStream, const NetworkBridge & networkBridge)

4.9.3.4 void Disconnect () [virtual]

Disconnect from all active network connections.

4.9.3.5 void DispatchNetworkMessage (const dtGame::Message & message) [virtual]

Function called by a GameManager to send Messages across a Network. Parameters

The Message to be sent

4.9.3.6 void GetConnectedClients (std::vector< NetworkBridge * > & connectedClients)

Retrieves a vector containing all [NetworkBridge](#) which have an accepted client connection. Parameters

The vector to be filled

4.9.3.7 NetworkBridge * GetConnection (const dtGame::MachineInfo & machineInfo) [protected]

Retrieves a [NetworkBridge](#) from the map If no networkbridge is found, NULL is returned. Parameters

The machineinfo

Returns Pointer to the networkbridge

4.9.3.8 std::string GetHostName ()

Return hostname of the machine this [NetworkComponent](#) is running on.

4.9.3.9 const dtGame::MachineInfo * GetMachineInfo (const dtCore::Uniqueld & uniqueld) [protected, virtual]

Retrieves a dtGame::MachineInfo* from the stored connections If no matching connection is found, NULL is returned. Parameters

dtCore::Uniqueld of the MachineInfo

Returns Pointer to the dtGame::MachineInfo* or NULL

Reimplemented in [ClientNetworkComponent](#).

4.9.3.10 const bool& IsGneInitialized () const [inline]

Is GNE already initialized. Returns GNE initialization

4.9.3.11 const bool& IsReliable () const [inline]

Is our GNE connection reliable. Returns The reliability of the connection

4.9.3.12 virtual const bool IsServer () const [inline, virtual]

Is this [NetworkComponent](#) a server? Returns server true/false

4.9.3.13 bool IsShuttingDown () [inline]

Are we shutting down? Returns ShuttingDown

4.9.3.14 void OnAddedToGM () [virtual]

Called immediately after a component is added to the GM. Used to register 'additional' Network Messages on the GameManager

4.9.3.15 **MessageActionCode & OnBeforeSendMessage (const dtGame::Message & *message*, std::string & *rejectReason*) [virtual]**

This is called when the component is ready to send a message to the game manager so the user. can decide what to do with it. By default, the message is sent unless the gm is waiting for a map change to complete, then it returns wait.

4.9.3.16 **void OnConnect (NetworkBridge & *networkBridge*) [virtual]**

Function called by a [NetworkBridge](#) if a new connection is made. Parameters

The [NetworkBridge](#)

4.9.3.17 **void OnConnectFailure (NetworkBridge & *networkBridge*, const GNE::Error & *error*) [virtual]**

Function called by a [NetworkBridge](#) if a connection failure occurs. Parameters

networkBridge The [NetworkBridge](#)

error The GNE::Error description

4.9.3.18 **void OnDisconnect (NetworkBridge & *networkBridge*) [virtual]**

Function called by a [NetworkBridge](#) if a connection disconnects. Parameters

The [NetworkBridge](#)

Reimplemented in [ClientNetworkComponent](#), and [ServerNetworkComponent](#).

4.9.3.19 **void OnError (NetworkBridge & *networkBridge*, const GNE::Error & *error*) [virtual]**

Function called by a [NetworkBridge](#) if an error occurs. Parameters

networkBridge The [NetworkBridge](#)

error The GNE::Error description

4.9.3.20 **void OnExit (NetworkBridge & *networkBridge*) [virtual]**

Function called by a [NetworkBridge](#) if a connection exits. Parameters

The [NetworkBridge](#)

4.9.3.21 **void OnFailure (NetworkBridge & *networkBridge*, const GNE::Error & *error*) [virtual]**

Function called by a [NetworkBridge](#) if a failure occurs. Parameters

networkBridge The [NetworkBridge](#)

error The GNE::Error description

4.9.3.22 **void OnNewConnection (NetworkBridge & *networkBridge*) [virtual]**

Function called by a [NetworkBridge](#) if a new connection is received. Parameters

The [NetworkBridge](#)

4.9.3.23 void OnReceivedDataStream (NetworkBridge & *networkBridge*, dtUtil::DataStream & *dataStream*) [virtual]

Function called by a Networkbridge to Signal a received DataStream The network component creates the message and checks for destination and / or connection info contained in the message. If appropriate, the message is delivered to the GameManager Parameters

networkBridge The [NetworkBridge](#) which received the MessagePakcet

dataStream The DataStream received

4.9.3.24 void OnReceivedNetworkMessage (const dtGame::Message & *message*, NetworkBridge & *networkBridge*) [virtual]**4.9.3.25 void OnRemovedFromGM () [virtual]**

Overridden to handle shutdown.

4.9.3.26 void OnTimeOut (NetworkBridge & *networkBridge*) [virtual]

Function called by a [NetworkBridge](#) if a timeout occurs. Parameters

networkBridge The [NetworkBridge](#)

4.9.3.27 virtual void ProcessInfoClientConnected (const MachineInfoMessage & *msg*) [inline, virtual]

Processes a MessageType::INFO_CLIENT_CONNECTED Message. Parameters

msg The message

Reimplemented in [ClientNetworkComponent](#).

4.9.3.28 void ProcessMessage (const dtGame::Message & *message*) [virtual]

Function called by a GameManager to process Messages. This function forwards the connection related messages to the functions processing these messages. Parameters

The Message to be process

4.9.3.29 virtual void ProcessNetClientNotifyDisconnect (const MachineInfoMessage & *msg*) [inline, virtual]

Processes a MessageType::NETCLIENT_NOTIFY_DISCONNECT Message. Parameters

msg The message

Reimplemented in [ClientNetworkComponent](#).

4.9.3.30 virtual void ProcessNetClientRequestConnection (const MachineInfoMessage & *msg*) [inline, virtual]

Processes a MessageType::NETCLIENT_REQUEST_CONNECTION Message. Parameters

msg The message

Reimplemented in [ServerNetworkComponent](#).

4.9.3.31 virtual void ProcessNetServerAcceptConnection (const MachineInfoMessage & *msg*) [inline, virtual]

Processes a MessageType::NETSERVER_ACCEPT_CONNECTION Message. Parameters

msg The message

Reimplemented in [ClientNetworkComponent](#).

4.9.3.32 virtual void ProcessNetServerRejectConnection (const dtGame::NetServerRejectMessage & *msg*) [inline, virtual]

Processes a MessageType::NETSERVER_REJECT_CONNECTION Message. Parameters

msg The message

Reimplemented in [ClientNetworkComponent](#).

4.9.3.33 virtual void ProcessNetServerRejectMessage (const dtGame::ServerMessageRejected & *msg*) [inline, virtual]

Processes a MessageType::SERVER_REQUEST_REJECTED Message. Parameters

msg The message

Reimplemented in [ClientNetworkComponent](#).

4.9.3.34 void ProcessTickLocal (const dtGame::TickMessage & *msg*) [virtual]

Processes a MessageType::TICK_LOCAL Message. Parameters

msg The message

4.9.3.35 void RemoveConnection (const dtGame::MachineInfo & *machineInfo*) [protected]

Removes a [NetworkBridge](#) from the map. Parameters

The MachineInfo of the connection to be removed

4.9.3.36 void SendNetworkMessage (const dtGame::Message & *message*, const DestinationType & *destinationType* = DestinationType::DESTINATION)

4.9.3.37 void SetConnectionParameters (bool *reliable* = true, int *bandWidthIn* = 0, int *bandWidthOut* = 0)

Sets the connection Parameters to be used by GNE. Parameters

reliable The reliability of the connection

bandWidthIn The incoming bandwidth throttle

bandWidthOut The outgoing bandwidth throttle

4.9.3.38 void ShutdownNetwork () [virtual]

Shutdown network communications and clear connections plus shutdown the internal networking subsystem.

4.9.4 Member Data Documentation

4.9.4.1 OpenThreads::Mutex mBufferMutex [protected]

4.9.4.2 std::vector<NetworkBridge*> mConnections [protected]

4.9.4.3 OpenThreads::Mutex mMutex [protected]

4.9.4.4 int mRateIn [protected]

4.9.4.5 int mRateOut [protected]

4.9.4.6 bool mReliable [protected]

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

- [networkcomponent.h](#)
- [networkcomponent.cpp](#)

4.10 ServerConnectionListener Class Reference

This class is used as an interface to the GNE::Server connection.

```
#include <inc/dtNetGM/serverconnectionlistener.h>
```

Public Types

- typedef GNE::SmartPtr< [ServerConnectionListener](#) > [sptr](#)
- typedef GNE::WeakPtr< [ServerConnectionListener](#) > [wptr](#)

Public Member Functions

- [ServerConnectionListener](#) ([ServerNetworkComponent](#) *serverNetworkComp, int inRate, int outRate, bool reliable)
Construct a [ServerConnectionListener](#).
- virtual [~ServerConnectionListener](#) (void)
- virtual void [getNewConnectionParams](#) (GNE::ConnectionParams ¶ms)
- virtual void [onListenFailure](#) (const GNE::Error &error, const GNE::Address &from, const GNE::ConnectionListener::sptr &listener)
- virtual void [onListenSuccess](#) (const GNE::ConnectionListener::sptr &listener)

Static Public Member Functions

- static [sptr Create](#) ([ServerNetworkComponent](#) *serverNetworkComp, int inRate, int outRate, bool reliable)
Method used to create a new instance of [ServerConnectionListener](#).

Protected Attributes

- int [mInRate](#)
- GNE::Mutex [mMutex](#)
- int [mOutRate](#)
The incoming bandwidth rate.
- bool [mReliable](#)
The outgoing bandwidth rate.
- dtCore::RefPtr< [ServerNetworkComponent](#) > [mServerNetworkcomponent](#)
The reliability of the connection.

4.10.1 Detailed Description

This class is used as an interface to the GNE::Server connection. It is used internally by the [ServerNetworkComponent](#) and is typically not used directly by the end user. This class takes in a reference to a [ServerNetworkComponent](#) and calls its virtual methods to mimic the GNE::ServerConnectionListener's callbacks.

4.10.2 Member Typedef Documentation

4.10.2.1 typedef GNE::SmartPtr<[ServerConnectionListener](#)> [sptr](#)

4.10.2.2 typedef GNE::WeakPtr<[ServerConnectionListener](#)> [wptr](#)

4.10.3 Constructor & Destructor Documentation

4.10.3.1 [ServerConnectionListener](#) ([ServerNetworkComponent](#) * *serverNetworkComp*, int *inRate*, int *outRate*, bool *reliable*)

Construct a [ServerConnectionListener](#). Parameters

serverNetworkComp : instance of a [ServerNetworkComponent](#)

inRate : the incoming bandwidth throttle

outRate : the outgoing bandwidth throttle

reliable : reliability of the Network connection

4.10.3.2 `~ServerConnectionListener (void) [virtual]`

4.10.4 Member Function Documentation

4.10.4.1 `static sptr Create (ServerNetworkComponent * serverNetworkComp, int inRate, int outRate, bool reliable) [inline, static]`

Method used to create a new instance of [ServerConnectionListener](#).

4.10.4.2 `void getNewConnectionParams (GNE::ConnectionParams & params) [virtual]`

4.10.4.3 `void onListenFailure (const GNE::Error & error, const GNE::Address & from, const GNE::ConnectionListener::sptr & listener) [virtual]`

4.10.4.4 `void onListenSuccess (const GNE::ConnectionListener::sptr & listener) [virtual]`

4.10.5 Member Data Documentation

4.10.5.1 `int mInRate [protected]`

4.10.5.2 `GNE::Mutex mMutex [protected]`

4.10.5.3 `int mOutRate [protected]`

The incoming bandwidth rate.

4.10.5.4 `bool mReliable [protected]`

The outgoing bandwidth rate.

4.10.5.5 `dtCore::RefPtr<ServerNetworkComponent> mServerNetworkcomponent [protected]`

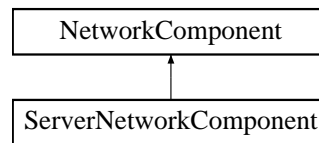
The reliability of the connection.

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

- [serverconnectionlistener.h](#)
- [serverconnectionlistener.cpp](#)

4.11 ServerNetworkComponent Class Reference

#include <inc/dtNetGM/servernetworkcomponent.h> Inheritance diagram for ServerNetworkComponent::



Public Member Functions

- [ServerNetworkComponent](#) (const std::string &gameName, const int gameVersion, const std::string &logFile="")
Construct a [ServerNetworkComponent](#) with a game name and version to be used by GNE Calls base class constructor to initialize GNE.
- virtual void [OnDisconnect](#) ([NetworkBridge](#) &networkBridge)
Function called by a [NetworkBridge](#) if a connection disconnects.
- virtual void [OnListenFailure](#) (const GNE::Error &error, const GNE::Address &from, const GNE::ConnectionListener::sptr &listener)
callback to signal the connection to the socket failed
- virtual void [OnListenSuccess](#) ()
callback to signal a connection is successful
- virtual void [ProcessNetClientNotifyDisconnect](#) (const dtGame::Message &msg)
Processes a [MessageType::NETCLIENT_NOTIFY_DISCONNECT](#) Message.
- virtual void [ProcessNetClientRequestConnection](#) (const [MachineInfoMessage](#) &msg)
Processes a [MessageType::NETCLIENT_REQUEST_CONNECTION](#) Message.
- bool [SetupServer](#) (int portNum)
Start a Server.

Static Public Attributes

- static const dtUtil::RefString [DEFAULT_NAME](#)

Protected Member Functions

- [~ServerNetworkComponent](#) (void)
- virtual bool [AcceptClient](#) (const dtGame::MachineInfo &machineInfo, std::string &rejectionReason)
Function to accept or deny a client connection request.
- virtual void [SendConnectedClientMessage](#) (const dtGame::MachineInfo &machineInfo)
Sends a [INFO_CLIENT_CONNECTED](#) messages to the new client, informing the new client of existing connections.
- virtual void [SendInfoClientConnectedMessage](#) (const dtGame::MachineInfo &machineInfo)
Sends a [INFO_CLIENT_CONNECTED](#) messages to the already connected clients.

Protected Attributes

- bool [mAcceptClients](#)

4.11.1 Constructor & Destructor Documentation

4.11.1.1 `ServerNetworkComponent (const std::string & gameName, const int gameVersion, const std::string & logFile = "")`

Construct a [ServerNetworkComponent](#) with a game name and version to be used by GNE Calls base class constructor to initialize GNE. Parameters

gameName The game name

gameVersion The game version

logFile The logfile name

4.11.1.2 `~ServerNetworkComponent (void) [protected]`

4.11.2 Member Function Documentation

4.11.2.1 `bool AcceptClient (const dtGame::MachineInfo & machineInfo, std::string & rejectionReason) [protected, virtual]`

Function to accept or deny a client connection request. Parameters

machineInfo The MachineInfo of the new client

rejectionReason Rejection reason which is send to the client if denied

Returns boolean indicating if a client should be accepted

4.11.2.2 `void OnDisconnect (NetworkBridge & networkBridge) [virtual]`

Function called by a [NetworkBridge](#) if a connection disconnects. Parameters

The [NetworkBridge](#)

Reimplemented from [NetworkComponent](#).

4.11.2.3 `void OnListenFailure (const GNE::Error & error, const GNE::Address & from, const GNE::ConnectionListener::sptr & listener) [virtual]`

callback to signal the connection to the socket failed

4.11.2.4 `void OnListenSuccess () [virtual]`

callback to signal a connection is successful

4.11.2.5 `void ProcessNetClientNotifyDisconnect (const dtGame::Message & msg) [virtual]`

Processes a `MessageType::NETCLIENT_NOTIFY_DISCONNECT` Message. Parameters

msg The message

4.11.2.6 `void ProcessNetClientRequestConnection (const MachineInfoMessage & msg) [virtual]`

Processes a `MessageType::NETCLIENT_REQUEST_CONNECTION` Message. Parameters

msg The message

Reimplemented from [NetworkComponent](#).

4.11.2.7 `void SendConnectedClientMessage (const dtGame::MachineInfo & machineInfo) [protected, virtual]`

Sends a `INFO_CLIENT_CONNECTED` messages to the new client, informing the new client of existing connections. Parameters

machineInfo The MachineInfo of the new client

4.11.2.8 void SendInfoClientConnectedMessage (const dtGame::MachineInfo & *machineInfo*)
[protected, virtual]

Sends a INFO_CLIENT_CONNECTED messages to the already connected clients. Parameters

machineInfo The MachineInfo of the new client

4.11.2.9 bool SetupServer (int *portNum*)

Start a Server. Parameters

The port number used by the server

4.11.3 Member Data Documentation**4.11.3.1 const dtUtil::RefString DEFAULT_NAME [static]****4.11.3.2 bool mAcceptClients [protected]**

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

- [servernetworkcomponent.h](#)
- [servernetworkcomponent.cpp](#)

File Documentation

5.1 clientconnectionlistener.cpp File Reference

```
#include <dtNetGM/clientconnectionlistener.h>
#include <dtNetGM/networkbridge.h>
#include <dtNetGM/networkcomponent.h>
#include <dtUtil/log.h>
#include <gnelib/Error.h>
#include <gnelib/Connection.h>
#include <gnelib/SyncConnection.h>
#include <gnelib/PingPacket.h>
```

Namespaces

- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.2 clientconnectionlistener.h File Reference

```
#include <gnelib/ConnectionListener.h>
```

```
#include <dtCore/refptr.h>
```

Classes

- class [ClientConnectionListener](#)
Provides the interface to a `GNE::Connection`.

Namespaces

- namespace [dtNetGM](#)
The `dtNetGM` namespace contains networking classes.

5.3 clientnetworkcomponent.cpp File Reference

```
#include <dtNetGM/clientnetworkcomponent.h>
#include <dtNetGM/clientconnectionlistener.h>
#include <dtNetGM/networkbridge.h>
#include <dtNetGM/machineinfomessage.h>
#include <dtNetGM/networkcomponent.h>
#include <dtGame/basemessages.h>
```

Namespaces

- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.4 clientnetworkcomponent.h File Reference

```
#include <dtNetGM/export.h>
```

```
#include <dtNetGM/networkcomponent.h>
```

Classes

- class [ClientNetworkComponent](#)

Namespaces

- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.5 datastreampacket.cpp File Reference

```
#include <dtNetGM/datastreampacket.h>
#include <iostream>
#include <gnelib.h>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.6 datastreampacket.h File Reference

```
#include <dtNetGM/export.h>
#include <gnelib.h>
#include <dtCore/refptr.h>
#include <dtCore/uniqueid.h>
```

Classes

- class [DataStreamPacket](#)

A [DataStreamPacket](#) contains a `dtGame::Message` blocks to be sent over a Network of other connected `dtGame::GameManager`'s.

Namespaces

- namespace [dtGame](#)
- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.7 dtnetgm.h File Reference

```
#include <dtNetGM/machineinfomessage.h>
#include <dtNetGM/networkbridge.h>
#include <dtNetGM/networkcomponent.h>
#include <dtNetGM/clientnetworkcomponent.h>
#include <dtNetGM/servernetworkcomponent.h>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.8 export.h File Reference

Defines

- #define [DT_NETGM_EXPORT](#)

5.8.1 Define Documentation

5.8.1.1 #define DT_NETGM_EXPORT

5.9 machineinfomessage.cpp File Reference

```
#include <dtNetGM/machineinfomessage.h>
#include <dtGame/message.h>
#include <dtGame/machineinfo.h>
#include <dtGame/messageparameter.h>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.10 machineinfomessage.h File Reference

```
#include <string>
#include <dtNetGM/export.h>
#include <dtCore/refptr.h>
#include <dtGame/message.h>
#include <dtGame/messageparameter.h>
```

Classes

- class [MachineInfoMessage](#)

A [MachineInfoMessage](#) contains a `dtGame::MachineInfo` to be used with different messages to send information about a `GameManager` across the network.

Namespaces

- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.11 mainpage.h File Reference

5.11.1 Detailed Description

This file contains Doxygen special commands and text for the [Main Page](#) and some other minor aspects of this documentation. It is not part of Delta3D.

5.12 messagepacket.cpp File Reference

```
#include <dtNetGM/messagepacket.h>
#include <iostream>
#include <gnelib.h>
#include <dtGame/messagetype.h>
#include <dtGame/message.h>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.13 messagepacket.h File Reference

```
#include <dtNetGM/export.h>
#include <gnelib.h>
#include <dtCore/refptr.h>
#include <dtCore/uniqueid.h>
```

Classes

- class [MessagePacket](#)

A [MessagePacket](#) contains a `dtGame::Message` to be sent over a Network of other connected `dtGame::GameManager`'s.

Namespaces

- namespace [dtGame](#)
- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.14 networkbridge.cpp File Reference

```
#include <queue>
#include <dtNetGM/networkbridge.h>
#include <dtNetGM/networkcomponent.h>
#include <dtNetGM/datastreampacket.h>
#include <dtGame/machineinfo.h>
#include <dtNetGM/machineinfomessage.h>
#include <gnelib.h>
#include <dtUtil/log.h>
```

Namespaces

- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.15 networkbridge.h File Reference

```
#include <dtNetGM/export.h>
#include <gnelib/ConnectionListener.h>
#include <gnelib/Error.h>
#include <dtCore/refptr.h>
#include <dtCore/uniqueid.h>
#include <dtCore/base.h>
#include <dtUtil/datastream.h>
```

Classes

- class [NetworkBridge](#)
contains GNE components for communication across a network This class represents a single host on the other side of the network

Namespaces

- namespace [dtGame](#)
- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.16 networkcomponent.cpp File Reference

```
#include <dtNetGM/networkcomponent.h>
#include <dtNetGM/datastreampacket.h>
#include <dtNetGM/machineinfomessage.h>
#include <dtNetGM/networkbridge.h>
#include <dtGame/message.h>
#include <dtGame/messagetype.h>
#include <dtGame/messagefactory.h>
#include <dtGame/basemessages.h>
#include <dtUtil/log.h>
#include <dtCore/system.h>
#include <OpenThreads/ScopedLock>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

Functions

- [IMPLEMENT_ENUM](#) (NetworkComponent::DestinationType)
- [IMPLEMENT_ENUM](#) (MessageActionCode)
- [IMPLEMENT_MANAGEMENT_LAYER](#) (NetworkComponent)

5.17 networkcomponent.h File Reference

```
#include <dtNetGM/export.h>
#include <string>
#include <gnelib.h>
#include <dtGame/gmcomponent.h>
#include <dtUtil/enumeration.h>
#include <OpenThreads/ReentrantMutex>
#include <deque>
```

Classes

- class [DestinationType](#)
enumeration class to address different stored connections
- class [MessageActionCode](#)
- class [NetworkComponent](#)
baseclass GMComponent to communicate as client - server

Namespaces

- namespace [dtCore](#)
- namespace [dtGame](#)
- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.18 serverconnectionlistener.cpp File Reference

```
#include <dtNetGM/serverconnectionlistener.h>
#include <dtNetGM/clientconnectionlistener.h>
#include <dtNetGM/networkbridge.h>
#include <dtNetGM/networkcomponent.h>
#include <dtNetGM/servernetworkcomponent.h>
#include <gnelib/ConnectionParams.h>
#include <dtUtil/log.h>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.19 serverconnectionlistener.h File Reference

```
#include <dtNetGM/export.h>
```

```
#include <gnelib.h>
```

```
#include <dtCore/refptr.h>
```

Classes

- class [ServerConnectionListener](#)

This class is used as an interface to the GNE::Server connection.

Namespaces

- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

5.20 servernetworkcomponent.cpp File Reference

```
#include <dtNetGM/servernetworkcomponent.h>
#include <dtNetGM/networkcomponent.h>
#include <dtNetGM/networkbridge.h>
#include <dtNetGM/serverconnectionlistener.h>
#include <dtNetGM/machineinfomessage.h>
#include <dtGame/basemessages.h>
```

Namespaces

- namespace [dtNetGM](#)
The [dtNetGM](#) namespace contains networking classes.

5.21 servernetworkcomponent.h File Reference

```
#include <dtGame/message.h>
#include <dtGame/machineinfo.h>
#include <dtNetGM/export.h>
#include <dtNetGM/networkcomponent.h>
```

Classes

- class [ServerNetworkComponent](#)

Namespaces

- namespace [dtGame](#)
- namespace [dtNetGM](#)

The [dtNetGM](#) namespace contains networking classes.

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