SDK API User's Guide (ETC)

Version 0.6.0

Display Audio

Solution Team

Release information

The following changes have been make to this document.

Change History

Date	Change
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Contact us

[11595] BundangYemiji Bldg. 12F, 31 Hwangsaeul-ro 258 beon gil, Bundang-gu, Sungnam-city, Gyeonggi-do, Korea.

TEL: 82-31-698-7400

FAX:82-31-698-7455

http://www.nexell.co.kr

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Chap 1. Overview

1.1 Overview

This document describes SDKs for Display Audio development.

1.2 Feature

The SDK provides as below.

-. libnxconfig	: private configuration (Android SharedPrefrence Modeling)
-. libnxsqlutils	: SQLite database access. (support reading operation)
-. libnxdaudioipc	: IPC Server / Client Engine, IPC engine wrapper

Chap 2. Private Configuration

2.1 Overview

The libnxconfig provides to manage application private configuration. This library is not thread-safe. So it is not suitable to share configuration with application.

2.2 APIs

2.2.1 Open()

```
virtual int32_t Open(
         const char *pFile
) = 0;
```

Description

Open XML configuration file.

Parameter

-. pFile	: XML Configuration file.

Parameter

0 is successful. -1 is failed.

2.2.2 Close()

```
virtual void Open(
         void
) = 0;
```

Description

Close XML configuration file.

Parameter

None.

Parameter

None.

2.2.3 Write()

```
virtual int32_t Write(
         const char *pKey,
         char *pValue
```

`) = 0;`
Description Write Configuration.
Parameter -. pKey : configuration key. -. pValue : configuration value.
Parameter 0 is successful. -1 is failed.

2.2.4 Read()

```
virtual int32_t Read(
        const char *pKey,
        char **ppValue
) = 0;
```

Description Read Configuration.
Parameter -. pKey : configuration key. -. ppValue : configuration value.
Parameter 0 is successful. -1 is failed.

2.2.5 Remove()

```
virtual int32_t Read(
        const char *pKey
) = 0;
```

Description Remove Configuration.
Parameter -. pKey : configuration key.
Parameter 0 is successful. -1 is failed.

2.2.6 Dump()

```
virtual void Dump(
        void
) = 0;
```

Description Dump configuration for debugging.
Parameter

None.
Parameter None.

Chap 3. SQL

3.1 Overview

The SQLite wrapper library provides to read database. This library designs to query table in database. The SQLite is database based file. So this library ensures data integrity.

3.2 APIs

3.2.1 NX_SQLiteGetData()

```
int32_t NX_SQLiteGetData(
        const char *pDatabase,
        const char *pTable,
        int32_t (*cbFunc)(void*, int32_t, char**, char**),
        void *pObj = NULL,
) = 0;
```

Description

Access database using SQLite.

Parameter

-. pDatabase : database name.

-. pTable : table name.

-. cbFunc : result data callback

int32_t cbFunc(void *pObj, int32_t iColumnNum, char **ppColumnValue, char **ppColumnName)

-. pObj : private handle

-. iColumnNum : column number of table.

-. ppColumnValue: column value of table.

-. ppColumnName: column name of table.

-. pObj : private handle.

Return Value

0 is successful, -1 is failed.

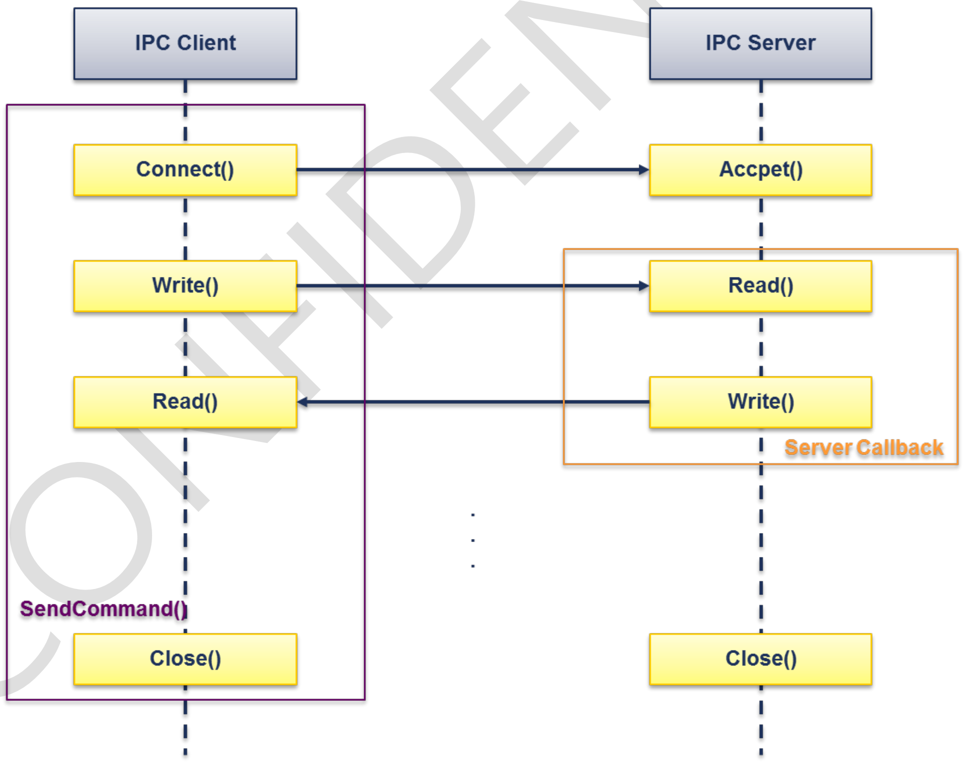
Chap 4. IPC

4.1 Overview

The IPC engine provides to communicate between Display Audio Manager and Application. This library is used to switch application, to transmit command. The IPC engine is based Unix Domain Socket. And it supports single connection about same socket name.

4.2 Block Diagram

The IPC engine provides server and client APIs. The IPC engine structure see as below.



4.3 APIs

4.3.1 IPC Manager

This is base library for IPC communication.

4.3.1.1 GetIpcManagerHandle()

```
extern NX_IIpcManager* GetIpcManagerHandle(
         void
);
```

Description

Get IPC Manager handle.

Parameter

None.

Return Value

NX_IIPcManager NULL is failed

4.3.1.2 Write()

```
virtual int32_t Write(
         int32_t iSock,
         int32_t *pBuf,
         int32_t iSize
) = 0;
```

Description

Write data.

Parameter

-. iSock	: socket file descriptor.
-. pBuf	: buffer for writing.
-. iSize	: writing size.

Return Value

If it is successful, return value is written size.

4.3.1.3 Read()

```
virtual int32_t Read(
         int32_t iSock,
         int32_t *pBuf,
         int32_t iSize
) = 0;
```

Description

Read data.

Parameter

-. iSocket	: socket file descriptor.
-. pBuf	: buffer for reading.
-. iSize	: buffer size.

Return Value

If it is successful, return value is read size.

4.3.1.4 StartServer()

```
virtual int32_t StartServer(
        const char *pSock
) = 0;
```

Description

Start IPC server.

Parameter

-. pSock	: socket name.

Return Value

If it is successful, return value is zero.

4.3.1.5 StopServer()

```
virtual int32_t StopServer(
        void
) = 0;
```

Description

Stop IPC server.

Parameter

None.

Return Value

If it is successful, return value is zero.

4.3.1.6 RegServerCallbackFunc()

```
virtual void RegServerCallbackFunc(
        int32_t (*cbFunc)( int32_t, uint8_t *, uint8_t *, int32_t, void * ),
        void *pObj;
) = 0;
```

Description

Register callback for Processing server data.

Parameter

-. cbFunc : processing server data function.

int32_t (*cbFunc)(int32_t iSock, uint8_t *pSendBuf, uint8_t *pRecvBuf, int32_t iMaxBufSize, void *pObj)

-. iSock	: connected client socket.
-. pSendBuf	: buffer for sending.
-. pRecvBuf	: buffer for receving.
-. iMaxBufSize	: Max buffer size for receving / sending
-. pObj	: private handle.

-. pObj : private handle.

Return Value

None.

4.3.1.7 SendCommand()

```
virtual void SendCommand(
         const char *pSock,
         uint8_t *pSendBuf,
         int32_t iSendSize,
         uint8_t *pRecvBuf,
         int32_t iRecvMaxSize
) = 0;
```

Description

Send IPC Command for single transaction. (single write and single read)

Parameter

-. pSock	: socket name of server.
-. pSendBuf	: buffer for sending.
-. iSendSize	: buffer size of sending.
-. pRecvBuf	: buffer for receving.
-. iRecvMaxBufSize	: max buffer size of receiving.

Return Value

If it is successful, return value is actual reading size.

```
virtual void SendCommand(
         const char *pSock,
         int32_t (*cbFunc)( int32_t, uint8_t*, uint8_t*, int32_t, void *),
         void *pObj
) = 0;
```

Description

Send IPC Command for multiple transaction. (multiple write and single read)

Parameter

-. pSock	: socket name of server.
-. cbFunc	: callback for multiple writing and reading.

int32_t (*cbFunc)(int32_t iSock, uint8_t *pSendBuf, uint8_t *pRecvBuf, int32_t iMaxBufSize, void *pObj)

-. iSock	: connected client scoekt.
-. pSendBuf	: buffer for sending.
-. pRecvBuf	: buffer for receving.
-. iMaxBufSize	: Max buffer size for receving / sending
-. pObjf	: private handle.
-. pObj	: private handle

Return Value

If it is successful, return value is return value of callback.

4.3.2 IPC Packet

This library read and write packet for IPC communication. The packet see as below.

-. Key(4 Bytes)	: key value to identify packet.
-. Payload Size(2Bytes)	: payload size. (2 Bytes, Max 65535)
-. Payload Buffer	: Payload Buffer. (Big Endian)

KEY (4Bytes)	Payload Size (2Bytes)	Payload Buffer (n Bytes) : buffer[0] .. buffer[n]

4.3.2.1 NX_IpcMakePacket()

```
int32_t NX_IpcMakePacket(
         uint32_t iKey,
         void *pPayload,
         int32_t iPayloadSize,
         void *pOutBuf,
         int32_t iOutMaxSize
);
```

Description

Make packet for IPC.

Parameter

-. iKey	: key value.
-. pPayload	: buffer for payload.
-. iPayloadSize	: payload size.
-. pOutBuf	: output buffer for making packet.
-. iOutMaxSize	: max output buffer size.

Return Value

On Success, the number of byte is returned. Otherwise, -1 is returned.

4.3.2.2 NX_IpcParsePacket()

```
int32_t NX_IpcParsePacket (
         void *pInBuf,
         int32_t iInBufSize,
         uint32_t *iKey,
         void *ppPayload,
         uint32_t *iPayloadSize
);
```

Description

Parse packet for IPC.

Parameter

-. pInBuf	: buffer
-. iInBufSize	: buffer size.
-. iKey	: key value of received buffer.

-. ppPayload	: payload value for received buffer.
-. iPayloadSize	: payload size for received buffer.

Return Value

On Success, zero is returned. Otherwise, -1 is returned.

4.3.2.3 NX_IpcDumpPacket()

```
void NX_IpcDumpPacket (
         void *pInBuf,
         int32_t iInBufSize,
         const char *pFunc = NULL,
         int32_t iLien = 0
);
```

Description

Dump Packet for debugging.

Parameter

-. pInBuf	: buffer
-. iInBufSize	: buffer size.
-. pFunc	: function name by calling this function. (__FUNCTION__)
-. iLine	: line by calling this function. (__LINE__)

Return Value

None.

4.3.3 IPC Utils

This library is IPC wrapper to use easily for Display Audio.

4.3.3.1 NX_GetProcessInfo()

```
int32_t NX_GetProcessInfo(
         NX_PROCESS_INFO *pInfo
);
```

Description

Make process information for IPC.

Parameter

-. pInfo	: Process Information for IPC.

Return Value

On Success, zero is returned. Otherwise, -1 is returned.

4.3.3.2 NX_RequestCommand()

```
int32_t NX_RequestCommand(
         NX_IIpcManager* pIpcManager,
         NX_PROCESS_INFO* pInfo,
        int32_t iCommand
);
```

Description

Send command to Display Audio Manager.

Parameter

-. pIpcManager	: IPC manager handle by making GetIpcManagerHandle().
-. pInfo	: Process Information by making NX_GetProcessInfo()..
-. iCommand	: Reserved command for communication.

Return Value

On Success, received key value is returned. Otherwise, -1 is returned.

```
int32_t NX_RequestCommand(
        NX_IIpcManager* pIpcManager,
        void *pPayload,
        int32_t iPayloadSize,
        int32_t iCommand
);
```

Description

Send payload to Display Audio Manager.

Parameter

-. pIpcManager	: IPC manager handle by making GetIpcManagerHandle().
-. pPayload	: payload for sending to Display Audio Manager.
-. iPayloadSize	: payload size for sending.
-. iCommand	: Reserved command for communication.

Return Value

On Success, received key value is returned. Otherwise, -1 is returned.

4.3.3.3 NX_DumpHex()

```
int32_t NX_DumpHex(
        const void *pData,
        int32_t iSize
);
```

Description

Dump data for debugging.

Parameter

-. pData	: buffer for dump.
-. iSize	: buffer size for dump.

Return Value

None.

Chap 5. History

5.1 Known Issue.

-. Not Yet.

5.2 To Do List

-. Not Yet.