StreamXpress Remote Control API

- Remote Control of StreamXpress
- SOAP based
- C++ Library and WSDL file

Features

- Remote control of ***StreamXpress*** functions on same PC or from other PC on the network
- Client and ***StreamXpress*** communicate using industry-standard SOAP messages
- WSDL file enables automatic generation of SOAP proxy
- Remote-Control (RC) license required on DekTec device that runs ***StreamXpress***

Table of Contents

SpRcApi – Revision History

Version	Date	Change Description
v1.10.1.18	2023.03.10	• Synchronized with StreamXpress v3.31.0.772 and newer for small change in SpRcTsoIpPars
v1.10.0.17	2021.12.17	• Added support for VC17 (Visual Studio 2022) libraries • Added support for 64-bit Visual Studio libraries • Added SetSubLoopPars function to set relative start and stop for file playout • *Visual Studio 2010, 2012 and 2013 libraries are no longer distributed*
v1.9.0.16	2021.03.16	• Added support for VC16 (Visual Studio 2019) libraries • Added support for ATSC3.0 STLTP (Studio–to-Transmitter Link Transport Protocol) • Added support for Digital Radio Mondial (DRM/DRM+) • Added support for DVB-T2 version configuration
v1.7.0.14	2019.08.05	• Added support for VC11, V12, VC14 and VC15 libraries • Added support for ISDB-S3
v1.6.0.13	2015.01.08	• Added GetTsgPars()/SetTsgPars() to control test-generator options
v1.5.0.12	2014.06.25	• Extend SpRcTsoipPars to support double buffering on DTA-2162 • Added GetIqGain()/SetIqGain() functions to allow changing IQ gain when playing out IQ signals • Added GetRemoteDtapiVersion() to check the DTAPI version used to build StreamXpress
v1.4.3.10	2014.04.24	• Added support for DVB-S2X and S2L3
v1.4.2.9	2014.02.13	• Bugfix release to fix linking problems
v1.4.1.8	2013.03.01	• Added support for DtaPlus device • Added SetRemux() function to control remultiplexing on modulator ports
v1.3.0.6	2012.05.15	• Added Normalise function • Added Open and SaveChannelModellingSettings function • Added Set and GetSignalSource functions • Added Set and GetUseNit functions • Added variables to RfPars struct: SpecInv, CW, RfEnabledOnStop • Added SaveSettings function
v1.2.0.5	2011.09.27	• Added Set and GetCmmbPars functions • Added Set and GetDvbT2Group functions • Added Set and GetHwNoisePars functions • WSDL namespaces, removed "http://localhost:80/SpRc.wsdl" • Add SpRcApiNET .NET WSDL proxy wrapper example code • Synchronized documentation with SpRc source code
v1.1.0.4	2010.12.08	• Add Set and GetChannelModellingPars functions • Release of WS-I Basic Profile 1.0a compliant WSDL description; used for automatic proxy generation (for example to be used by Tools like Visual Studio.NET and LabView) • Add ShowWindow function for hiding/showing StreamXpress Window
v1.0.0.1	2009.02.16	• First release to the field

1. Using SpRcApi

1.1. Introduction

The StreamXpress Remote-Control API (SpRcApi) enables a client application to remotely control the ***StreamXpress***, in order to automate the play out of streams. The client can be running on the same PC as the ***StreamXpress*** or on another PC in the network. Most functions available in the ***StreamXpress*** GUI are also available through the SpRcApi.

In this document, the remotely controlled ***StreamXpress*** will be interchangeably referred to as "server", "playout server" or "***StreamXpress***".

The client is the application that wishes to remotely control the ***StreamXpress***.

1.2. Running StreamXpress

To run the ***StreamXpress*** as playout server it is required that:

1. The DekTec device used for playout with ***StreamXpress*** contains a remote control (RC) license;
2. The ***StreamXpress*** is started with the –rc option, followed by the TCP port number that is used to connect, e.g. **`–rc 9000`**.

1.3. Client-Server Communication

Client and server communicate with each other using SOAP calls over an IP network, or using the local host. SOAP is a standardized protocol that uses messages formatted in XML to execute remote procedure calls.

Currently, SpRcApi supports version 1.1 of the SOAP protocol.

1.4. Using SpRcApi

Basically there are 4 ways to deploy SpRcApi:

- Use the WSDL file in applications that can import WSDL files, e.g. Labview.
- Use the WSDL file to automatically generate client code, commonly called a "proxy". The proxy allows you to call the API methods. Section 2 describes an example to create a proxy with Visual Studio
- Use the SpRcApiNET example code that includes a .NET "wrapper" for the WSDL generated proxy code.
- For clients written in C++, a library is available that makes the remote-control methods available as C++ methods. This is explained further in Section 3.

The main part of this document describes the classes and API calls in SpRcApi, in C++ syntax. The C++ descriptions are easy to map the equivalent SOAP calls because the WSDL API is structured in a similar way. There is one exception: the SpRcClient constants cannot be used directly, the equivalent integer numbers shall be used.

2. Creating a Proxy from WSDL

2.1. SpRc.wsdl

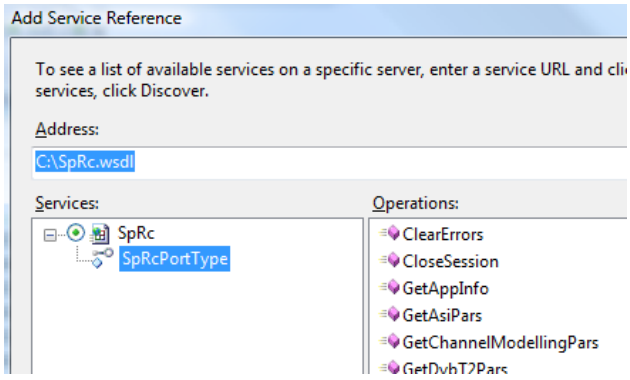
The WSDL is contained in the file SpRc.wsdl, which is available in SpRcApi.zip.

The SpRc.wsdl description is a WS-I Basic Profile 1.0a compliant web-service description. This file can be used in several tools to automatically generate client proxy code. For example, LabView and Visual Studio have the possibility to import the WSDL file.

2.2. Generating the Proxy

The steps below describe how to generate proxy code and how to use this code in a C# program in a Visual Studio environment:

1. After creating a C# project, right mouse click on the 'References' and choose option 'Add Service Reference…'.
2. In the 'Add Service Reference' dialog select the SpRc.wsdl location, change the Namespace and click on the 'OK' button. This will start the proxy code generation.



Some tools don't accept a file location, for these tools you can use the following address to locate SpRc.wsdl: http://www.dektec.com/Products/Apps/DTC-300/SpRc.wsdl

3. Adapt the generated 'app.config' file to the correct remote IP address and used port number.

```
<client>
 <endpoint
   address = "http://localhost:9000"
   binding = "basicHttpBinding"
   bindingConfiguration = "SpRc"
   contract = "SpRc.SpRcPortType"
   name = "SpRc" />
</client>
```

4. The following C# code shows how to instantiate the generated remote-control client proxy and how to do a few remote-control calls.
   The Interface calls and structs are similar to the described SpRcClient API but some differences exist:

   a. The result code can be returned via an out parameter and a parameter can be returned via the return value.

   b. SpRcClient constants cannot be used; the equivalent integer numbers shall be used.

```
// Instantiate .NET generated RC client
SpRc.SpRcPortTypeClient cl =
     newSpRc.SpRcPortTypeClient();

// Open a session
uint res = cl.OpenSession();

// Scan Ports
SpRc.PortDesc[] ports =
      cl.ScanPorts(out res);

// Select DVB-C Modulation
// ( 9 : SPRC_MOD_J83A )
res = cl.SelectPort(ports[0].Serial,
          ports[0].Port, 9, out status);
```

3. Using the Static Link Library

3.1. Including and Linking SpRcApi

Four SpRcApi configurations are available for static linking: **SpRcApi.lib**, **SpRcApid.lib**, **SpRcApiMD.lib** and **SpRcApiMDd.lib**.

The files with a lowercase 'd' at the end are the debug versions of the DTAPI library.

SpRcApi(d).lib has been compiled with the C/C++ Code-Generation Options in VC++ set to: "Use run-time library: Multithreaded." On the compiler command line this corresponds to the **/MT** option.

SpRcApiMD(d).lib has been compiled with the C/C++ Code-Generation Options in VC++ set to: "Use run-time library: Multithreaded DLL." On the compiler command line this corresponds to the **/MD** option.

The correct version of the SpRcApi library file will automatically be linked, because of a **pragma** directive in **SpRcApi.h**.

Automatic linking can be disabled by defining **_SPRCAPI_DISABLE_AUTO_LINK** (using #define or in the Pre-processor Definitions).

So, to use static link library of the SpRcApi follow these steps:

1. Copy **SpRcApi.h**, **DTAPI.h** and either **SpRcApi(d).lib** or **SpRcApiMD(d).lib** to your project or to a standard location visible to VC++.
2. Add **#include "SpRcApi.h"** to each file using SpRcApi functions.
3. Compile your application using the Multithreaded DLL (compiler switch **/MD**) or static (compiler switch **/MT**) version of the C run-time library.

Notes

- The static library files are available for VC14, VC15, VC16 and VC17.
- Using the release version of the static link library with a debug build of your main application may crash your application. This is caused by STL which uses different lengths of data structures for debug and release builds.

3.2. Checking return codes

While using SpRcApi, it's important to check the return value after each call of an SpRcApi function. The connection to the StreamXpress playout server may get interrupted at any time, so each method call may fail. The exception to the rule is **GetVersion** which cannot fail.

For code clarity, the examples below do not check the return values of method calls. In production-quality code, however, it's essential to add such checks.

3.3. Connecting to StreamXpress

The following code establishes a connection to the StreamXpress.

```
// Create remote-control client
SpRcClient* SpRc;
SpRc = SpRcClient::CreateSpRcClient();

// Open a session
unsigned char Ip[] = {127,0,0,1};
SpRc->OpenSession(Ip, 9000);
```

Figure 1. Connecting to the StreamXpress.

The first step is to create an **SpRcClient** object, which represents the connection to the playout server.

The next step is to open a session with the playout server, using **OpenSession**. In this case, using local loopback address 127.0.0.1, a connection is established with the *StreamXpress* running on the same PC as the client application. Other PCs on the network can be reached by specifying their IP address.

3.4. Playing a file

The other methods in SpRcApi can be used to set parameters and play out a file. To a large extend they speak for themselves.

The code below disables looping, opens a file, starts playout and waits until playout is completed.

```
SpRc->SetLoopFlags(0);
SpRc->OpenFile(L"C:\\Stream.ts");
SpRc->SetPlayoutState(SPRC_STATE_PLAY);
SpRc->WaitForCondition(
                    SPRC_COND_STOPPED,-1);
```

The file is opened in the context of the playout server, which means that C: is the C-disk on the playout server, not on the client.

The following code block plays a file for 10 seconds.

```
SpRc->SetPlayoutState(SPRC_STATE_PLAY);
Sleep(10000);
SpRc->SetPlayoutState(SPRC_STATE_STOP);
```

SpRcClient::CloseSession

Close the session with the playout server.

```
SPRC_RESULT  CloseSession();
```

Parameters

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The session with the playout server has been closed successfully

Remarks

SpRcClient::CreateSpRcClient

Create client object for issuing remote-control commands to a playout server.

```
static SpRcClient*  CreateSpRcClient();
```

Parameters

Result

SPRC_RESULT	Meaning
NULL	Remote-control object cannot be created
pointer	Pointer to StreamXpress remote-control client

Remarks

The SpRcApi is initialised with code similar to the following:

```
SpRcClient*  SpRcApi = SpRcClient::CreateSpRcClient();
SPRC_RESULT  Result = SpRcApi->OpenSession(IpAddr, PortNr);
```

After creating the client object and opening the session, all remote control commands are issued through the remote-control object **SpRcApi**.

SpRcClient::GetRemoteVersion

Get SpRcApi version number as used in the playout server.

```
virtual void  SpRcClient::GetRemoteVersion(
 [out] int&  Major           // Major version number
 [out] int&  Minor           // Minor version number
 [out] int&  BugFix          // Bug fix number
 [out] int&  Build           // Build number
);
```

Parameters

Major, Minor, BugFix, Build

Version number of the SpRcApi library which was used in the StreamXpress. For an explanation of SpRcApi version numbering, see **SpRcClient::GetVersion**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The remote version number has been read successfully

Remarks

SpRcClient::GetRemoteDtapiVersion

Get DTAPI version number used to build StreamXpress.

```
virtual void  SpRcClient::GetRemoteDtapiVersion(
 [out] int&  Major           // Major version number
 [out] int&  Minor           // Minor version number
 [out] int&  BugFix          // Bug fix number
 [out] int&  Build           // Build number
);
```

Parameters

Major, Minor, BugFix, Build

Version number of the DTAPI library which was used in the StreamXpress build.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The remote Dtapi version number has been read successfully

Remarks

SpRcClient::GetVersion

Get version number of the SpRcApi client library.

```
virtual void  SpRcClient::GetVersion(
 [out] int&  Major           // Major version number
 [out] int&  Minor           // Minor version number
 [out] int&  BugFix          // Bug fix number
 [out] int&  Build           // Build number
);
```

Parameters

Major

Major version number. This number is incremented when a non-backward compatible change is introduced in the StreamXpress remote-control API.

Minor

Minor version number. This number is incremented when a method is added to the StreamXpress remote-control API in a backward compatible way. For example, a client with version number 1.3.x.x will be able to interoperate with StreamXpress with API version 1.4.x.x.

BugFix

This number is incremented when a bug in the SpRcApi library has been fixed, without functional enhancements.

Build

The build number is a redundant version number that is incremented with every new version of the SpRcApi library.

Result

SPRC_RESULT	Meaning
	No return value

Remarks

SpRcClient::OpenSession

Establish a session with the playout server.

```
SPRC_RESULT  SpRcClient::OpenSession(
  [in] unsigned char  IpAddr[4],   // IP address
  [in] unsigned short  PortNr      // Port number
);
```

Parameters

IpAddr

IP address of the playout server. If the StreamXpress is running on the same machine, 127.0.0.1

PortNr

Port number to access the playout server. The port number should match the port specified in the *-rc port* option when starting the StreamXpress.

Result

SPRC_RESULT	Meaning
SPRC_E_NO_LICK	The port is not properly licensed for playout and remote control
SPRC_OK	The session with the playout server has been opened successfully
SPRC_VERSION_CONFLICT	A session with the playout server has been opened, but a version conflict has been detected between the version of the client SpRcApi and that of the server SpRcApi

Remarks

The **SpRcClient** object supports a single session. If multiple sessions are required, multiple **SpRcClient** objects must be created.

SpRcClient::GetAppInfo

Get information about the application.

```
virtual SPRC_RESULT  SpRcClient::GetAppInfo(
 [out] std::wstring&  AppName,     // Application name
 [out] Int&   MajorVersion,        // Major version number
 [out] Int&   MinorVersion,        // Minor version number
 [out] Int&   BugFixVersion,       // Bug-fix version number
 [out] Int&   BuildNumber);        // Build number
);
```

Parameters

AppName

Application name as Unicode string. For the moment, the only application supporting SpRcApi is StreamXpress.

MajorVersion

Major version number. This number is incremented when the application implements major new functions.

MinorVersion

Minor version number. This number is incremented when the application implements small updates in functionality, possibly together with bug fixes.

BugFixVersion

Bug-fix version number. This number is incremented when the only changes relative to the last version of the application are bug fixes.

BuildNumber

Build number. This number is incremented with new builds of the application. It's never reset to zero so that each version of the application has a different build number.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	Application information is returned successfully

Remarks

SpRcClient::ShowWindow

Show or hide the ***StreamXpress*** application window.

```
virtual SPRC_RESULT  SpRcClient::ShowWindow(
  [in] bool  Show                  // Show or Hide
);
```

Parameters

Show

Show or hide the ***StreamXpress*** application window.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The show or hide operation has been executed successfully

Remarks

Struct PortDesc

Structure describing a physical playout port.

```
struct PortDesc {
   __int64  m_Serial;          // Unique serial number of the device
   int  m_TypeNumber;          // Device type number
   int  m_Ip[4];               // IP address (for IP ports only)
   int  m_Mac [6];             // MAC address (for IP ports only)
   int  m_FirmwareVersion;     // Firmware version
   int  m_FirmwareVariant;     // Firmware variant
   int  m_Port;                // Physical port number
   int  m_OutputType;          // Output type (OR-able flags)
   int  m_Capabilities;        // Capability flags (OR-able flags)
   int   m_InUse;              // Output port already in use?
};

typedef std::vector<SpRcPortDesc>  SpRcPortDescs;
typedef SpRcPortDescs::iterator  SpRcPortDescIt;
```

Members

m_Serial
The serial number that uniquely identifies the DekTec device that hosts the playout port.

m_TypeNumber
This integer corresponds to the number in the device's type number, e.g. 245 for the DTU-245.

m_Ip
If the playout port is an IP-network port, this member identifies the IP address. Otherwise, the value of this member is undefined.

m_Mac
If the playout port is an IP-network port, this member identifies the MAC address. Otherwise, the value of this member is undefined.

m_FirmwareVersion
Version number of the firmware loaded on the device that hosts the playout port.

m_FirmwareVariant
Variant of the firmware loaded on the device that hosts the playout port. Some DekTec devices may support multiple variants of the firmware each with different functionality.

m_Port
This integer identifies the physical port number associated with this function. Please refer to DekTec's DTAPI documentation for an overview of physical port numbers per device.

m_OutputType

This field describes the type of stream that can be generated on this playout port. Output types are encoded in flags that may be OR-ed together to indicate that the port supports multiple types.

Value	Meaning
SPRC_OTYPE_ASI	DVB-ASI
SPRC_OTYPE_ATSC	ATSC (VSB) modulation
SPRC_OTYPE_CMMB	CMMB modulation
SPRC_OTYPE_DTMB	DTMB modulation
SPRC OTYPE_DVBS	DVB-S modulation
SPRC_OTYPE_DVBS2	DVB-S.2 modulation
SPRC_OTYPE_DVBT	DVB-T modulation, includes DVB-H
SPRC_OTYPE_DVBT2	DVB-T2 modulation
SPRC_OTYPE_DVBT2MI	DVB-T2MI
SPRC_OTYPE_IQ	IQ samples
SPRC_OTYPE_ISDBS	ISDB-S modulation
SPRC_OTYPE_ISDBT	ISDB-T modulation
SPRC_OTYPE_QAM_A	QAM modulation, ITU-T J.83 Annex A (DVB-C)
SPRC OTYPE_QAM_B	QAM modulation, ITU-T J.83 Annex B (US)
SPRC_OTYPE_QAM_C	QAM modulation, ITU-T J.83 Annex C (Japan)
SPRC_OTYPE_SDSDI	Standard-definition SDI
SPRC_OTYPE_SPI	DVB-SPI
SPRC_OTYPE_TSOIP	TS-over-IP
SPRC_OTYPE_ISDBS3	ISDB-S3 modulation
SPRC_OTYPE_DRM	DRM modulation
SPRC_OTYPE_ATSC3_STLTP	ATSC 3.0 STLTP modulation

m_Capabilities

This field describes further capabilities of the playout port. Capabilities are encoded in flags that may be OR-ed together to indicate that the port supports multiple capabilities.

Value	Meaning
SPRC_ADJLVL	Modulator port has an adjustable output level
SPRC_CM	Modulator port supports channel modelling
SPRC_DIGIQ	Modulator port has a digital IQ output
SPRC_IF	Modulator port has an IF output
SPRC_LBAND	Modulator port can upconvert to L-Band 950 .. 2150MHz
SPRC_UHF	Modulator port can upconvert to UHF Band 400 .. 862MHz
SPRC_VHF	Modulator port can upconvert to VHF Band 47 .. 470MHz

m_InUse

This status flag indicates whether the playout port is currently being used.
The "in-use" status is a snapshot of the current situation. Attaching to a playout port that is unused may fail because of race conditions with other applications.

Value	Meaning
SPRC_PORT_CURR	Port is the currently selected playout port in this remote-control session
SPRC_PORT_UNUSED	Port is not used
SPRC_PORT_USED	Port is used by another application

SpRcClient::ScanPorts

Get information about the ports available for play out.

```
virtual SPRC_RESULT  SpRcClient::ScanPorts(
 [out] SpRcPortDesc&  PortDescs    // List of playout ports
);
```

Parameters

PortDescs

List of playout ports. Refer to **Struct PortDesc** for a description of attributes per port.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	Application information is returned successfully

Remarks

SpRcClient::SelectPort

Select a physical port for play out.

```
virtual SPRC_RESULT  SpRcClient::SelectPort(
  [in] __int64  Serial,      // Serial number of device to be selected
  [in] int  Port;            // Physical port number to be selected
  [in] int  Modulation;      // Initial modulation standard
);
```

Parameters

Serial

The serial number that identifies the DekTec device to be selected.

Port

Physical port number of port to be selected.

Modulation

For modulators only: Initial modulation standard. Use one of the **SPRC_MOD_XXX** constants. Set to 0 otherwise.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_MOD_STANDARD	Initial modulation standard *Modulation* is not supported on the modulator port
SPRC_E_NO_LICK	The port is not properly licensed for playout and remote control
SPRC_E_NOT_FOUND	Cannot find the playout port identified by *Serial* and *Port*
SPRC_E_PORT_USED	The port could not be selected because it's in use by another instance of the StreamXpress or another application
SPRC_OK	The playout port has been selected successfully

Remarks

The playout server will start without file selected and with parameters set to the defaults for the port.

A list of physical ports available for playout can be obtained with **SpRcClient::ScanPorts**.

SpRcClient::SelectDtaPlus

Select a DtaPlus device to use as attenuator.

```
virtual SPRC_RESULT  SpRcClient::SelectDtaPlus(
  [in] bool  UseDtaPlus,      // Whether a dta-plus should be used or not
  [in] __int64  Serial,       // Serial number of DtaPlus to be selected
);
```

Parameters

UseDtaPlus

Set to true to actually start using a Dta-plus.

Serial

The serial number that identifies the DekTec device to be selected.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NOT_FOUND	Cannot find the Dta-plus port identified by *Serial*
SPRC_E_PORT_USED	The Dta-plus could not be selected because it's in use by another instance of the StreamXpress or another application
SPRC_OK	The Dta-plus port has been selected successfully

Remarks

Struct SpRcAsiPars

Playout parameters for a DVB-ASI output port.

```
struct SpRcAsiPars {
  bool  m_Remux;              // Remultiplex yes/no
  int   m_PlayoutRate;        // Only used if Remux is on
  bool  m_BurstMode;          // DVB-ASI burst mode
  int   m_TxMode;             // Transmit mode
  int   m_Polarity;           // Physical polarity of the ASI signal
};
```

Members

m_Remux
Turn remultiplexing on (true) or off (false). If remultiplexing is on, the StreamXpress adds null packets and adjusts timing information so that the stream is played out at m_PlayoutRate. If remultiplexing is off, the stream is played out at the Transport-Stream rate, and *m_Playout* is not used.

m_PlayoutRate
DVB-ASI playout rate.

m_BurstMode
Turn DVB-ASI burst mode on (true) or off (false).

m_TxMode
Transmit mode.

Value	Meaning
DTAPI_TXMODE_188	Transport Packets are assumed to be 188 bytes, and are played out as 188-bytes packets.
DTAPI_TXMODE_204	Transport Packets are assumed to be 204 bytes, and are played out as 204-bytes packets.
DTAPI_TXMODE_ADD16	Transport Packets are assumed to be 188 bytes, and are played out as 204-bytes packets.
DTAPI_TXMODE_MIN16	Transport Packets are assumed to be 204 bytes, and are played out as 188-bytes packets.
DTAPI_TXMODE_RAW	No assumptions are made on packet structure. Bytes in the stream are transmitted unmodified. Null-packet stuffing cannot be applied.

m_Polarity

Polarity of the DVB-ASI signal.

Value	Meaning
DTAPI_TXPOL_NORMAL	Generate a 'normal' ASI signal
DTAPI_TXPOL_INVERTED	Generate an inverted ASI signal

Struct SpRcCmmbPars

CMMB parameters.

```
struct SpRcCmmbPars {
  int  m_Bandwidth;          // CMMB Bandwidth
  int  m_AreaId;             // Area ID (0..127)
  int  m_TxId;               // Transmitter ID (128..255)
};
```

Members

m_Bandwidth

CMMB Bandwidth.

Value	Meaning
DTAPI_CMMB_BW_2MHZ	CMMB 2MHz Bandwidth
DTAPI_CMMB_BW_8MHz	CMMB 8MHz Bandwidth

m_AreaId

Area ID (0..127).

m_TxId

Transmitter ID (128..255).

Struct SpRcCmPars

Channel-modelling parameters.

```
struct SpRcCmPars {
  bool   m_CmEnable;          // Enable channel modelling
  bool   m_AwgnEnable;        // Enable noise injection
  bool   m_PathsEnable;       // Enable transmission path simulation
  double  m_Snr;              // Signal-to-noise ratio in dB
  std::vector<SpRcCmPath>  m_Paths;
                              // List of transmission paths
};
```

Members

m_CmEnable
: If true, perform channel modelling according to the other values in this struct.
If false, channel modelling is disabled and the other struct values are ignored.

m_AwgnEnable
: Enable white noise injection; *m_Snr* specifies the signal to noise ratio.

m_PathsEnable
: Enable multipath echo simulation.

m_Snr
: The noise power is defined relative to an imaginative 0dB output signal of the modulator. This means that *m_Snr* is the real signal-to-noise ratio only if the accumulated power of the paths in *m_Paths* is 0dB.

m_Paths
: List of transmission-path descriptions (maximum 32). See struct **SpRcCmPath**.

Struct SpRcCmPaths

Channel-modelling parameters for a single .

```
struct SpRcCmPath {
  int  m_Type;                // Type of path fading
  double  m_Attenuation;      // Attenuation in dB
  double  m_Delay;            // Delay in us
  double  m_Phase;            // Phase shift in degrees
  double  m_Doppler;          // Doppler Frequency in Hz
};
```

Members

m_Type

Type of transmission path values:

Value	Meaning
SPRC_CONSTANT_DELAY	Constant delay and phase
SPRC_CONSTANT_DOPPLER	Constant frequency shift
SPRC_RAYLEIGH_JAKES	Raleigh fading with Jakes power spectral density (mobile path model)
SPRC_RAYLEIGH_GAUSSIAN	Raleigh fading with Gaussian power spectral density (ionspheric path model)

m_Attenuation

Attenuation in dB. The total attenuation of all paths may not exceed 0dB to avoid overflow of the channel simulator.

m_Delay

Delay in us. The maximum delay for an 8MHz channel is 896us.

m_Phase

Phase shift in degrees (value ignored for type **RAYLEIGH_JAKES** and **RAYLEIGH_GAUSSIAN**).

m_Doppler

Doppler frequency in Hz (value ignored for type **CONSTANT_DELAY**). The corresponding Speed in m/s is: Speed = $f_{doppler} * 3.10^8/f_{RF}$.

Struct SpRcDvbT2Group

Parameters to specify standard DVB-T2 parameter set groups

```
struct SpRcDvbT2Group {
   std::wstring  m_GroupName;    // Name of the DVB-T2 group
   std::wstring  m_GroupRefName; // Specific set in group
};
```

Members

m_GroupName
Name of the DVB-T2 group, e.g. “VV1xx”.

m_GroupRefName
Specific set in group, e.g. “VV100”.

Struct SpRcDvbT2Pars

Structure describing DVB-T2 modulation parameters.

```
struct SpRcDvbT2Pars {
  int  m_T2Version;          // DVB-T2 version DTAPI_DVBT2_VERSION_x
  int  m_Bandwidth;          // Channel bandwidth DTAPI_DVBT2_8MHZ/...
  int  m_FftMode;            // FFT mode (or size) DTAPI_DVBT2_FFT_x
  int  m_Miso;               // MISO mode DTAPI_DVBT2_MISO_x
  int  m_GuardInterval;      // Guard interval DTAPI_DVBT2_GI_x
  int  m_Papr;               // PAPR reduction mode DTAPI_DVBT2_PAPR_x
  int  m_BwtExt;             // Bandwidth extention 0 or 1
  int  m_PilotPattern;       // Pilot pattern 1 to 8
  int  m_NumT2Frames;        // Number of T2 frames in a super frame
  int  m_NumDataSyms;        // Number of data OFDM symbols per T2 frame
  int  m_L1Modulation;       // L1 modulation type DTAPI_DVBT2_BPSK/...
  bool  m_FefEnable;         // Insert FEF (yes/no)
  int  m_FefType;            // FEF type 0 ... 15
  int  m_FefLength;          // FEF length
  int  m_FefS1;              // FEF S1 field value 2 <= FefS1 <= 7
  int  m_FefS2;              // FEF S2 field value 0 <= FefS2 <= 15
  int  m_FefInterval;        // FEF interval
  int  m_FefSignal;          // Type of signal during FEF period
  int  m_CellId;             // Cell ID
  int  m_NetworkId;          // Network ID
  int  m_T2SystemId;         // T2 system ID
  int  m_Frequency;          // L1-post frequency field value
  // PLP#0 parameters
  bool  m_Hem;               // High Efficiency Mode (yes/no)
  bool  m_Npd;               // Null Packet Deletetion (yes/no)
  bool  m_IssyEnabled;       // ISSY enabled (yes/no)
  int  m_Id;                 // PLP ID
  int  m_GroupId;            // PLP group ID
  int  m_Type;               // PLP type DTAPI_DVBT2_PLP_TYPE_x
  int  m_CodeRate;           // Code rate
  int  m_Modulation;         // Modulation type DTAPI_DVBT2_BPSK/...
  bool  m_Rotation;          // Constellation rotation (yes/no)
  int  m_FecType;            // FEC type 0=LDPC 16K, 1=LDPC 64K
  int  m_TimeIlLength;       // Time interleaving length 0..255
  int  m_TimeIlType;         // Timer interleaving type 0 or 1
  bool  m_InBandFlag;        // In band signalling information (yes/no)
  bool  m_NumBlocks;         // Number of FEC blocks per IL frame
  int  m_FollowMode;         // Mode to compute NumDataSyms/NumBlocks
};
```

Members

m_T2Version, *m_Bandwidth*, *m_FftMode*, *m_Miso*, *m_GuardInterval*, *m_Papr*, *m_BwtExt*, *m_PilotPattern*, *m_NumT2Frames*, *m_NumDataSyms*, *m_L1Modulation*, *m_FefEnable*, *m_FefType*, *m_FefLength*, *m_FefS1*, *m_FefS2*, *m_FefInterval*, *m_FefSignal*, *m_CellId*, *m_NetworkId*, *m_T2SystemId*, *m_Frequency*

Overall DVB-T2 modulation parameters that are not specific per PLP. For a description of these parameters, please refer to the section describing **DtDvbT2Pars** in the DTAPI specification.

m_Hem, *m_Npd*, *m_IssyEnabled*, *m_Id*, *m_GroupId*, *m_Type*, *m_CodeRate*, *m_Modulation*, *m_Rotation*, *m_FecType*, *m_TimeIlLength*, *m_TimeIlType*, *m_InBandFlag*, *m_NumBlocks*

Parameters for PLP 0 (the one and only PLP). For a description of these parameters, please refer to the section describing **struct DtDvbT2PlpPars** in the DTAPI specification.

m_FollowMode

This parameter specifies how StreamXpress computes or copies **NUM_DATA_SYMBOLS** (the number of data OFDM symbols per T2 frame) and **PLP_NUM_BLOCKS** (the number of FEC blocks per interleaving frame.)

Value	Meaning
SPRC_T2_FOLLOW_OFF	No automatic computations. **NUM_DATA_SYMBOLS** is copied from *m_NumDataSyms*, while **PLP_NUM_BLOCKS** is copied from *m_NumBlocks*
SPRC_T2_FOLLOW_OPT1	Compute **NUM_DATA_SYMBOLS** and **PLP_NUM_BLOCKS**. Given the DVB-T2 modulation parameters in **SpRcDvbT2Pars**, the StreamXpress optimises both **NUM_DATA_SYMBOLS** and **PLP_NUM_BLOCKS**. The values in *m_NumDataSyms* and *m_NumBlocks* are not used.
SPRC_T2_FOLLOW_OPT2	Compute **PLP_NUM_BLOCKS**. Given the DVB-T2 modulation parameters in **SpRcDvbT2Pars** including *m_NumDataSyms*, the StreamXpress optimises **PLP_NUM_BLOCKS**. The value in *m_NumBlocks* is not used. **NUM_DATA_SYMBOLS** is copied from *m_NumDataSyms*.

Struct SpRcHwNoisePars

Noise parameters for modulators DTA-107 and DTA-2107.

```
struct SpRcHwNoisePars {
  bool   m_SnrOn;              // Enable Noise generator
  double  m_Snr;               // Signal Noise ratio
};
```

Members

m_SnrOn
Enable Noise generator.

m_Snr
Signal-to-noise ratio in dB.

Struct SpRcIsdbtLayerPars

Structure describing ISDB-T modulation parameters for one hierarchical layer. This structure is used in **SpRcIsdbtPars**, in an array of three structs for layer A, B and C.

```
struct SpRcIsdbtLayerPars {
   int  m_NumSegments;         // Number of segments
   int  m_Modulation;          // Modulation type
   int  m_CodeRate;            // Code rate
   int  m_TimeInterleave;      // Time interleaving
};
```

Members

m_NumSegments

Number of segments used in this layer. The sum of *m_NumSegment* must be 13.

m_Modulation

Modulation type applied to the segments in this layer.

Value	Meaning
DTAPI_ISDBT_MOD_DQPSK	DQPSK
DTAPI_ISDBT_MOD_QPSK	QPSK
DTAPI_ISDBT_MOD_QAM16	16-QAM
DTAPI_ISDBT_MOD_QAM64	64-QAM

m_CodeRate

Convolutional coding rate applied to the segments in this layer.

Value	Meaning
DTAPI_ISDBT_RATE_1_2	1/2
DTAPI_ISDBT_RATE_2_3	2/3
DTAPI_ISDBT_RATE_3_4	3/4
DTAPI_ISDBT_RATE_5_6	5/6
DTAPI_ISDBT_RATE_7_8	7/8

m_TimeInterleave

Encoded length of time interleaving.

The table below defines the mapping of *m_TimeInterleave* to parameter I in the time-interleaving process.

Value	Mode 1	Mode 2	Mode 3
0	0	0	0
1	4	2	1
2	8	4	2
3	16	8	4

Struct SpRcIsdbtPars

Modulation parameters for ISDB-T.

```
struct SpRcIsdbtPars {
  bool  m_DoMux;              // Hierarchical multiplexing yes/no
  int   m_BType;              // Broadcast type
  int   m_Mode;               // Transmission mode
  int   m_Guard;              // Guard interval
  int   m_PartialRx;          // Partial reception
  int   m_Emergency;          // Switch-on control for emergency broadcast
  int   m_IipPid;             // PID used for multiplexing IIP packet
  SpRcIsdbtLayerPars  m_LayerPars[3];
                              // Layer-A/B/C parameters
  std::map<int, int>  m_Pid2Layer;
                              // PID-to-layer map
  int   m_LayerOther;         // Other PIDs are mapped to this layer
  int   m_ParXtra0;           // Extra parameters
  int   m_Virtual13Segm;      // Virtual 13-segment mode
};

struct SpRcIsdbtLayerPars {
  int   m_NumSegment;         // Number of segments
  int   m_Modulation;         // Modulation type
  int   m_CodeRate;           // Code rate
  int   m_TimeInterleave;     // Time interleaving
};
```

Members

m_DoMux

If true, perform hierarchical multiplexing in accordance with the ISDB-T parameters as defined explicitly in this structure.
If false, the ISDB-T modulation parameters are specified indirectly by the TMCC information in the 16 extra bytes of the 204-byte packets.

m_BType

Broadcast type.

Value	Meaning
DTAPI_ISDBT_BTYPE_TV	TV broadcast; Can be used with any number of segments
DTAPI_ISDBT_BTYPE_RAD1	1-segment radio broadcast; Total #segments must be 1
DTAPI_ISDBT_BTYPE_RAD3	3-segment radio broadcast; Total #segments must be 3

m_Mode

Transmission mode.

Value	Meaning
1	Mode 1: 2k
2	Mode 2: 4k
3	Mode 3: 8k

m_Guard

Guard-interval length.

Value	Meaning
DTAPI_ISDBT_GUARD_1_32	1/32
DTAPI_ISDBT_GUARD_1_16	1/16
DTAPI_ISDBT_GUARD_1_8	1/8
DTAPI_ISDBT_GUARD_1_4	1/4

m_PartialRx

Flag that indicates whether layer A is used for partial reception: 0 = no partial reception, 1 = partial reception on.

m_Emergency

Flag that indicates whether the switch-on control flag for emergency broadcast should be turned on: 0 = off, 1 = on.

m_IipPid

PID value used for multiplexing the IIP packet.

m_LayerPars

Modulation parameters for hierarchical layers A (element 0), B (1) and C (2).

m_Pid2Layer

Map that specifies the hierarchical layer, or layers, to which an elementary stream is to be mapped. The key in the map is the PID of the elementary stream. The value stored in the map is an OR of one or more flags listed in the table below. A value of 0 indicates that the elementary stream is to be dropped.

Value	Meaning
DTAPI_ISDBT_LAYER_A	Map elementary stream to layer A
DTAPI_ISDBT_LAYER_B	Map elementary stream to layer B
DTAPI_ISDBT_LAYER_C	Map elementary stream to layer C

m_LayerOther

Map streams with PIDs not in *m_Pid2Layer* to this layer.

m_ParXtra0

Extra parameter encoding bandwidth, sample rate and number of segments. This parameter is encoded like ParXtra0 in SetModControl with *ModType* **DTAPI_MOD_ISDBT**.

m_Virtual13Segm

Use virtual 13 segment mode. The number of segments in layer B is “faked” to be 12.

Struct SpRcModPars

Modulation parameters for all modulation standards except DVB-T2 and ISDB-T.

```
struct SpRcModPars {
   int  m_ModType;              // Modulation type
   int  m_ParXtra0;             // Extra modulation parameter 0
   int  m_ParXtra1;             // Extra modulation parameter 1
   int  m_ParXtra2;             // Extra modulation parameter 2
   int  m_SymRate;              // Symbol rate in bd
};
```

Members

m_ModType
Modulation type, see **DTAPI_MOD_XXX** constants.

m_ParXtra0, m_ParXtra1, m_ParXtra2
Modulation parameters, see DTAPI documentation (**SetModControl**).

m_SymRate
Symbol rate in baud. Required for modulation standards that require a symbol rate, like DVB-S. This member should be set to -1 if no symbol rate is required.

Struct SpRcPlayoutInfo

Structure describing static playout information.

```
struct SpRcPlayoutInfo {
   bool   m_BurstMode;          // DVB-ASI burst mode
   bool   m_ExtClock;           // Use external clock
   bool   m_FileCanBeRead;      // A file has been selected that can be read
   std::wstring  m_Filename;    // Currently selected filename
   long   m_FileOffsetEnd;      // Number of unused bytes at end of file
   long   m_FileOffsetStart;    // Number of unused bytes at start of file
   long   m_FilePlayedBytes;    // File length minus bytes at start and end
   int   m_FileRateEst;         // TS: Estimated file rate
   long   m_FileSize;           // Size of the file
   int   m_FileType;            // Type of data in file: RAW/TS/SDI
   double   m_LoopBeginRel;     // Subloop, begin position (relative 0..1)
   double   m_LoopEndRel;       // Subloop, end position (relative 0..1)
   int   m_LoopFlags;           // Adapt CC/PCR/TDT and wrap-around flags
   int   m_PlayoutState;        // HOLD/PLAYING
   int   m_PlayoutRate;         // Playout rate @188
   boolean   m_Remux;           // Remultiplex mode
   int   m_SymRate;             // Modulators: Symbol rate
   double   m_TimeLoopBegin;    // Time corresponding to beginning of loop
   double   m_TimeLoopEnd;      // Time corresponding to end of loop
   int   m_TimeOffset;          // Offset added to playout time
   int   m_TsRate;              // TS: TS rate @188
   int   m_TpSize;              // TS: packet size
   int   m_TxPolarity;          // Transmit polarity for ASI channels
};
```

Members

m_BurstMode
For ASI channels: DVB-ASI is sent in burst mode yes/no.

m_ExtClock
The transport-stream is taken from the external-clock input.

m_FileCanBeRead
The file that is currently selected is valid.

m_Filename
The name of the file that is currently selected in ***StreamXpress***.

m_FileOffsetEnd
Number of unused bytes at the end of the file.

m_FileOffsetStart
Number of unused bytes at start of the file.

m_FilePlayedBytes
The number of bytes from the file that are actually played out (file length minus number of unused bytes at start and end).

m_FileRateEst
TS: Estimated file rate.

m_FileSize
Size of the file.

m_FileType
Type of data in the file: raw data, transport stream or SDI.

m_LoopBeginRel
Start position of the subloop as a relative number between 0 and 1. If a subloop is not used, the value is 0.

m_LoopEndRel
End position of the subloop as a relative number between 0 and 1. If a subloop is not used, the value is 0.

m_LoopFlags
Loop adaptation flags: Adaptation of CC, PCR, TDT and wrap-around flags.

m_PlayoutState
Indicates whether the StreamXpress is paused (hold mode) or playing.

m_PlayoutRate
Rate at which the stream is played. For transport streams, the rate at 188 bytes per packet is used, even if the stream contains 204-byte transport packets.

m_Remux
For transport streams only: Indicates whether the transport-stream is re-multiplexed to another rate.

m_SymRate
For modulators only: Symbol rate.

m_TimeLoopBegin
Playout time corresponding to the beginning of the loop.

m_TimeLoopEnd
Playout time corresponding to the end of loop.

m_TimeOffset
Offset that is added to the playout time.

m_TsRate
Rate of the transport stream in the. For transport streams, the rate at 188 bytes per packet is used, even if the file contains 204-byte transport packets.

m_TpSize
For transport streams only: size of the transport packets.

m_TxPolarity
Transmit polarity for ASI channels.

Struct SpRcPlayoutStatus

Structure describing the dynamic playout status.

```
struct SpRcPlayoutInfo {
   int   m_FifoLoad;            // Current FIFO load
   int   m_NumErrors;           // Number of errors (underflows)
   int   m_NumWraps;            // #wraps
   double  m_PosRel;            // Relative position in subloop (0..1)
   int   m_TotalMemLoad;        // #bytes in DiskBuffer+MemBuffer (snapshot)
};
```

Members

m_FifoLoad
Current load of the output FIFO.

m_NumErrors
Number of underflow errors since the last start of playout.

m_NumWraps
Number of times that the file has wrapped since the last start of playout.

m_PosRel
Relative position in the subloop. The client can use *m_PosRel* to synchronise a slider to the slider in the ***StreamXpress***.

m_TotalMemLoad
Snapshot of the number of data bytes stored in the disk and memory buffer.

Struct SpRcRfPars

Structure describing RF parameters for modulators.

```
struct SpRcRfPars {
   __int64  m_Frequency;       // RF frequency (Hz)
   double   m_Level;           // RF output level (dBm)
   bool     m_SpecInv;         // RF Spectral inversion
   bool     m_CW;              // RF CW mode
   bool     m_RfEnabledOnStop; // RF output enabled on stop
};
```

Members

m_Frequency
Center frequency in Hz of the upconverted signal.

m_Level
Level of the main output signal in dBm.

m_SpecInv
Spectral inversion.

m_CW
CW.

m_RfEnabledOnStop
Whether or not the RF output is muted when playback is stopped.

Struct SpRcSpiPars

Playout parameters for a DVB-SPI output port.

```
struct SpRcSpiPars {
   bool  m_Remux;              // Remultiplex yes/no
   int   m_PlayoutRate;        // Only used if Remux is on
   int   m_TxMode;             // Transmit mode
   bool  m_Power;              // Turn power on/off for external adapter
};
```

Members

m_Remux

Turn remultiplexing on (true) or off (false). If remultiplexing is on, the StreamXpress adds null packets and adjusts timing information so that the stream is played out at m_PlayoutRate. If remultiplexing is off, the stream is played out at the Transport-Stream rate, and *m_Playout* is not used.

m_PlayoutRate

DVB-SPI playout rate.

m_TxMode

Transmit mode.

Value	Meaning
DTAPI_TXMODE_188	Transport Packets are assumed to be 188 bytes, and are played out as 188-bytes packets.
DTAPI_TXMODE_192	192-byte mode (DTA-102 only) Transport Packets are assumed to be 192 bytes, and are played out as 192-bytes packets.
DTAPI_TXMODE_204	Transport Packets are assumed to be 204 bytes, and are played out as 204-bytes packets.
DTAPI_TXMODE_ADD16	Transport Packets are assumed to be 188 bytes, and are played out as 204-bytes packets.
DTAPI_TXMODE_MIN16	Transport Packets are assumed to be 204 bytes, and are played out as 188-bytes packets.
DTAPI_TXMODE_RAW	No assumptions are made on packet structure. Bytes in the stream are transmitted unmodified. Null-packet stuffing cannot be applied.

m_PlayoutRate

Power for external adapter is switched on or off.

Struct SpRcSubLoopPars

Playout parameters for configuring a file sub loop.

```
struct SpRcSubLoopPars {
  bool   m_UseSubLoop;          // SubLoop yes/no
  double  m_LoopBeginRel;       // Relative begin in file
  double  m_LoopEndRel;         // Relative end in file
};
```

Members

m_UseSubLoop
Turn SubLoop on (true) or off (false).

m_LoopBeginRel
Relative begin in file, value between 0 and 1.

m_LoopEndRel
Relative end in file, value between 0 and 1.

Struct SpRcTsgPars

Parameters for the test-signal generator.

```
struct SpRcTsgPars {
   int  m_Type;                 // Type of signal generator to use
   int  m_Pid;                  // PID to carry the signal for TS modes
   int  m_VidStd;               // Video standard for SDI modes
   int  m_Flags;                // Reserved, set to 0
};
```

Members

m_Type

Type of signal generator to use:

Value	Meaning
SPRC_TSG_TYPE_PRBS7	PRBS-7 TS generator
SPRC_TSG_TYPE_PRBS15	PRBS-15 TS generator
SPRC_TSG_TYPE_PRBS23	PRBS-23 TS generator
SPRC_TSG_TYPE_PRBS31	PRBS-31 TS generator
SPRC_TSG_TYPE_SDI	SDI generator

m_Pid

PID to carry the PRBS packets. Ignored while in SDI mode.

m_VidStd

Video standard used for SDI signal generator. Ignored while in transport-stream mode.

Value	Meaning
SPRC_VIDSTD_525I59_94	
SPRC_VIDSTD_625I50	
SPRC_VIDSTD_720P23_98	
SPRC_VIDSTD_720P24	
SPRC_VIDSTD_720P25	
SPRC_VIDSTD_720P29_97	
SPRC_VIDSTD_720P30	
SPRC_VIDSTD_720P50	
SPRC_VIDSTD_720P59_94	
SPRC_VIDSTD_720P60	
SPRC_VIDSTD_1080I50	
SPRC_VIDSTD_1080I59_94	
SPRC_VIDSTD_1080I60	
SPRC_VIDSTD_1080P23_98	
SPRC_VIDSTD_1080P24	
SPRC_VIDSTD_1080P25	
SPRC_VIDSTD_1080P29_97	
SPRC_VIDSTD_1080P30	
SPRC_VIDSTD_1080P50	
SPRC_VIDSTD_1080P59_94	
SPRC_VIDSTD_1080P60	

m_Flags

Reserved, set to 0.

Struct SpRcTsoipPars

Parameters for a Transport-Stream-over-IP port.

```
struct SpRcTsoipPars {
  int  m_TxMode;              // Transmission mode (188, 204, Add16, ...)
  unsigned char  m_Ip[4];     // IP address
  int  m_Port;                // Port number
  bool  m_EnaFailover;        // Enable IP double-buffering
  unsigned char  m_Ip2[4];    // 2nd IP address, used for double-buffering
  int  m_Port2;               // 2nd port number, used for double-buffering
  int  m_TimeToLive;          // TTL
  int  m_NumTpPerIp;          // #TPs per IP packet
  int  m_Protocol;            // Protocol: UDP/RTP
  int  m_DiffServ;            // Differentiated services
  int  m_FecMode;             // Error correction mode
  int  m_FecNumRows;          // 'D' = #rows in FEC matrix
  int  m_FecNumCols;          // 'L' = #columns in FEC matrix
};
```

Members

m_TxMode

Transmit mode.

Value	Meaning
DTAPI_TXMODE_188	Transport Packets are assumed to be 188 bytes, and are played out as 188-bytes packets.
DTAPI_TXMODE_204	Transport Packets are assumed to be 204 bytes, and are played out as 204-bytes packets.
DTAPI_TXMODE_ADD16	Transport Packets are assumed to be 188 bytes, and are played out as 204-bytes packets.
DTAPI_TXMODE_MIN16	Transport Packets are assumed to be 204 bytes, and are played out as 188-bytes packets.

m_Ip[4]

Destination IP address. If the IP address is in the multicast range, the playout server automatically joins and drops membership of the multicast group.

m_Port

Destination port number.

m_EnaFallover

Enable redundant IP port. Currently only supported on the DTA-2162. The second IP port will playout a duplicate of the signal which can be used by a receiver to conceil errors in either of the two transmission paths.

m_Ip2[4]

m_Port2

See m_Ip and m_Port. Used if m_EnaFailover is true to configure the second IP port.

m_TimeToLive
Time-To-Live (TTL) value to be used for multicast transmission. When *m_Ttl* is 0, a default value is used.

m_NumTpPerIp
Number of Transport Packets (TPs) stored in one IP packet. The range is 1..7.

m_Protocol
Protocol expected for encapsulation of Transport Packets.

Value	Meaning
DTAPI_PROTO_UDP	UDP
DTAPI_PROTO_RTP	RTP

m_DiffServ
Value to be put in the *Differentiated Services* field (formerly *Service Type*) in the IP header.

m_FecMode
Error-correction mode.

Value	Meaning
DTAPI_FEC_DISABLE	No FEC
DTAPI_FEC_2D	RFC2733 parity FEC with 2D extensions as described in Code of Practice #3

m_FecNumRows, m_FecNumCols
Number of rows and columns in the FEC matrix. In the *COP #3* these parameters are called *D* and *L* respectively. The following restrictions apply to *L* and *D*:
$4 \leq D \leq 20, \quad 1 \leq L \leq 20 \quad \text{and} \quad L*D \leq 100$

SpRcClient::ClearErrors

Clear number-of-errors counter.

```
virtual SPRC_RESULT  SpRcClient::ClearErrors(
);
```

Parameters

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The DVB-ASI transmission parameters have been read successfully

Remarks

SpRcClient::GetAsiPars

Get DVB-ASI transmission parameters.

```
virtual SPRC_RESULT  SpRcClient::GetAsiPars(
 [out] SpRcAsiPars&  AsiPars       // ASI parameters
);
```

Parameters

AsiPars

DVB-ASI transmission parameters, see **Struct SpRcAsiPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_ASI	Invalid operation because the port is not an ASI port or is operating in SDI mode
SPRC_OK	The DVB-ASI transmission parameters have been read successfully

Remarks

SpRcClient::GetChannelModellingPars

Get Channel Modelling parameters.

```
virtual SPRC_RESULT  SpRcClient::GetChannelModellingPars(
 [out] SpRcCmPars&  CmPars         // Channel Modelling parameters
);
```

Parameters

CmPars

Channel Modelling parameters, see **Struct SpRcCmPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The Channel Modelling parameters have been read successfully

Remarks

SpRcClient::GetCmmbPars

Get CMMB parameters.

```
virtual SPRC_RESULT  SpRcClient::GetCmmbPars(
 [out] SpRcCmmbPars&  CmmbPars         // CMMB parameters
);
```

Parameters

CmmbPars

CMMB parameters, see **Struct SpRcCmmbPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_CMMB	Invalid operation because the CMMB modulation is not configured
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The parameters have been read successfully

Remarks

SpRcClient::GetDvbT2Group

Get current DVB-T2 group selection.

```
virtual SPRC_RESULT  SpRcClient::GetDvbT2Group(
 [out] SpRcDvbT2Group&  DvbT2Group     // DVB-T2 group
);
```

Parameters

DvbT2Group

DVB-T2 group, see **Struct SpRcDvbT2Group**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_DVBT2	Invalid operation because the DVB-T2 modulation is not configured
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The parameters have been read successfully

Remarks

SpRcClient::GetDvbT2Pars

Get DVB-T2 parameters.

```
virtual SPRC_RESULT  SpRcClient::GetDvbT2Group(
 [out] SpRcDvbT2Pars&  DvbT2Pars      // DVB-T2 parameters
);
```

Parameters

DvbT2Pars

DVB-T2 parameters, see **Struct SpRcDvbT2Pars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_DVBT2	Invalid operation because the DVB-T2 modulation is not configured
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The parameters have been read successfully

Remarks

SpRcClient::GetHwNoisePars

Get Noise parameters for modulators DTA-107 and DTA-2107.

```
virtual SPRC_RESULT  SpRcClient::GetHwNoisePars(
 [out] SpRcHwNoisePars&  HwNoisePars       // Hw Noise parameters
);
```

Parameters

HwNoisePars

Noise parameters, see **Struct SpRcHwNoisePars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The parameters have been read successfully

Remarks

SpRcClient::GetIsdbtPars

Get ISDB-T modulation parameters.

```
virtual SPRC_RESULT  SpRcClient::GetIsdbtPars(
 [out] SpRcIsdbtPars&  IsdbtPars  // ISDB-T parameters
);
```

Parameters

IsdbtPars

ISDB-T modulation parameters, see **Struct SpRcIsdbtPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_ISDBT	Invalid operation because the port is operating in ISDB-T modulation mode
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The modulation parameters have been read successfully

Remarks

SpRcClient::GetIqGain

Get IQ gain parameter.

```
virtual SPRC_RESULT  SpRcClient::GetIqGain(
 [out] int&  IqGain          // IQ gain
);
```

Parameters

IqGain

The gain of the IQ singal.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The modulation parameters have been read successfully

Remarks

SpRcClient::GetModPars

Get modulation parameters.

```
virtual SPRC_RESULT  SpRcClient::GetModPars(
 [out] SpRcModPars&  ModPars       // Modulation parameters
);
```

Parameters

ModPars

Modulation parameters, see **Struct SpRcModPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The modulation parameters have been read successfully

Remarks

SpRcClient::GetPlayoutInfo

Get static playout information.

```
virtual SPRC_RESULT  SpRcClient::GetPlayoutInfo(
 [out] SpRcPlayoutInfo&  PoInfo    // Static playout info
);
```

Parameters

PoInfo

Playout information, see **Struct SpRcPlayoutInfo**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The playout information has been read successfully

Remarks

SpRcClient::GetPlayoutStatus

Get dynamic playout status.

```
virtual SPRC_RESULT  SpRcClient::GetPlayoutStatus(
 [out] SpRcPlayoutStatus&  PoStatus   // Dynamic playout status
);
```

Parameters

PoInfo

Playout information, see **Struct SpRcPlayoutInfo**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The playout status has been read successfully

Remarks

SpRcClient::GetRfPars

Get RF parameters.

```
virtual SPRC_RESULT  SpRcClient::GetRfPars(
 [out] SpRcRfPars&  RfPars         // RF parameters
);
```

Parameters

RfPars

RF parameters, see **Struct SpRcRfPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The RF parameters have been read successfully

Remarks

SpRcClient::GetSignalSource

Get current signal source (from file / test-generator).

```
virtual SPRC_RESULT  SpRcClient::GetSignalSource(
 [out] int&  SignalSource          // Signal source
);
```

Parameters

SignalSource

Current signal source.

Value	Meaning
SPRC_FROM_FILE	Data is read from file
SPRC_TEST_GENERATOR	The test-signal generator is used to generate an output signal

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The signal source has been read successfully

Remarks

SpRcClient::GetSpiPars

Get DVB-SPI transmission parameters.

```
virtual SPRC_RESULT  SpRcClient::GetSpiPars(
 [out] SpRcAsiPars&  SpiPars       // DVB-SPI parameters
);
```

Parameters

SpiPars

DVB-SPI transmission parameters, see **Struct SpRcSpiPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_SPI	Invalid operation because the port is not a DVB-SPI port
SPRC_OK	The DVB-SPI transmission parameters have been read successfully

Remarks

SpRcClient::GetTsgPars

Get test-signal generator parameters.

```
virtual SPRC_RESULT  SpRcClient::GetTsgPars(
 [out] SpRcTsgPars&  TsgPars // Test-signal generator parameters
);
```

Parameters

TsgPars

Test-signal generator parameters, see **Struct SpRcTsgPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_OP_NOT_SUPPORTED	Invalid operation because StreamXpress is not currently running in test-signal generator mode
SPRC_OK	The parameters have been read successfully

Remarks

SpRcClient::GetTsoipPars

Get TSoIP transmission parameters.

```
virtual SPRC_RESULT  SpRcClient::GetTsoipPars(
 [out] SpRcTsoipPars&  TsoipPars  // TSoIP parameters
);
```

Parameters

TsoipPars

TSoIP transmission parameters, see **Struct SpRcTsoipPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_TSOIP	Invalid operation because the port is not a TSoIP port
SPRC_OK	The TSoIP transmission parameters have been read successfully

Remarks

SpRcClient::GetUseNit

Checking whether NIT is used for deriving parameters.

```
virtual SPRC_RESULT  SpRcClient::GetUseNit(
 [out] bool&  UseNit
);
```

Parameters

UseNit

True if and only if StreamXpress will try to use NIT to set the modulation parameters.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The UseNit parameter has been read successfully

Remarks

SpRcClient::Normalise

Normalise the multipath channel modelling.

```
virtual SPRC_RESULT  SpRcClient::Normalise();
```

Parameters

Result

SPRC_RESULT	Meaning
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The channel modelling settings have been normalised

Remarks

SpRcClient::OpenChannelModellingFile

Open file with settings for channel modelling.

```
virtual SPRC_RESULT  SpRcClient::OpenChannelModellingFile(
  [in] std::wstring&  Filename     // Filename
);
```

Parameters

Filename
Filename to be opened.

Result

SPRC_RESULT	Meaning
SPRC_E_FILE_CANT_FIND	Can't find a file with the specified filename
SPRC_E_FILE_SYNTAX_ERROR	The specified file contains a syntax error
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The channel modelling settings file has been loaded successfully

Remarks

SpRcClient::OpenFile

Open file for playout.

```
virtual SPRC_RESULT  SpRcClient::OpenFile(
  [in] std::wstring&  Filename     // Filename
);
```

Parameters

Filename
Filename to be opened.

Result

SPRC_RESULT	Meaning
SPRC_E_FILE_CANT_FIND	Can't find a file with the specified filename
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The playout file has been opened successfully

Remarks

SpRcClient::SaveChannelModellingSettings

Save the channel modelling settings to a file.

```
virtual SPRC_RESULT  SpRcClient::SaveChannelModellingSettings(
  [in] std::wstring&  Filename     // Filename
);
```

Parameters

Filename
Filename to be opened.

Result

SPRC_RESULT	Meaning
SPRC_E_FILE_CANT_CREATE	Error opening the file for writing
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The channel modelling settings have been saved successfully

Remarks

SpRcClient::SaveSettings

Save the settings to a file.

```
virtual SPRC_RESULT  SpRcClient::SaveSettings(
  [in] std::wstring&  Filename     // Filename
);
```

Parameters

Filename
Filename to be opened.

Result

SPRC_RESULT	Meaning
SPRC_E_FILE_CANT_CREATE	Error opening the file for writing
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_OK	The settings have been saved successfully

Remarks

SpRcClient::SetAsiPars

Set DVB-ASI transmission parameters.

```
virtual SPRC_RESULT  SpRcClient::SetAsiPars(
  [in] SpRcAsiPars  AsiPars        // ASI parameters
);
```

Parameters

AsiPars

DVB-ASI transmission parameters, see **Struct SpRcAsiPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_ASI	Invalid operation because the port is not an ASI port or is operating in SDI mode
SPRC_E_POLARITY	The polarity specified in *AsiPars* is not supported by the device
SPRC_E_TXMODE	The transmit mode specified in *AsiPars* is not compatible with the Transport-Stream file
SPRC_OK	The DVB-ASI transmission parameters have been set successfully

Remarks

SpRcClient::SetChannelModellingPars

Set Channel Modelling parameters.

```
virtual SPRC_RESULT  SpRcClient::SetChannelModellingPars(
  [in] SpRcCmPars  CmPars          // Channel Modelling parameters
);
```

Parameters

CmPars

Channel Modelling parameters, see **Struct SpRcCmPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The Channel Modelling parameters have been set successfully

Remarks

SpRcClient::SetCmmbPars

Set CMMB parameters.

```
virtual SPRC_RESULT  SpRcClient::SetCmmbPars(
  [in] SpRcCmmbPars  CmmbPars          // CMMB parameters
);
```

Parameters

CmmbPars

CMMB parameters, see **Struct SpRcCmmbPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_E_NOT_CMMB	Invalid operation because CMMB modulation is not configured
SPRC_OK	The parameters have been set successfully

Remarks

SpRcClient::SetDvbT2Group

Set DVB-T2 standard parameter set; e.g. 'VV125' parameters.

```
virtual SPRC_RESULT  SpRcClient::SetDvbT2Group(
  [in] SpRcDvbT2Group  DvbT2Group     // DVB-T2 parameter set
);
```

Parameters

DvbT2Group

DVB-T2 standard parameter set, see **Struct SpRcDvbT2Group**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_E_NOT_DVB-T2	Invalid operation because DVB-T2 modulation is not configured
SPRC_OK	The parameters have been set successfully

Remarks

SpRcClient::SetDvbT2Pars

Set DVB-T2 parameters.

```
virtual SPRC_RESULT  SpRcClient::SetDvbT2Pars(
  [in] SpRcDvbT2Pars  DvbT2Pars        // DVB-T2 parameters
);
```

Parameters

DvbT2Pars

DVB-T2 parameters, see **Struct SpRcDvbT2Pars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_E_NOT_DVB-T2	Invalid operation because DVB-T2 modulation is not configured
SPRC_OK	The parameters have been set successfully

Remarks

SpRcClient::SetHwNoisePars

Set Noise parameters for modulators DTA-107 and DTA-2107.

```
virtual SPRC_RESULT  SpRcClient::SetHwNoisePars(
  [in] SpRcHwNoisePars  HwNoisePars        // Noise parameters
);
```

Parameters

HwNoisePars

Noise parameters, see **Struct SpRcHwNoisePars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The parameters have been set successfully

Remarks

SpRcClient::SetIsdbtPars

Set ISDB-T modulation parameters.

```
virtual SPRC_RESULT  SpRcClient::SetIsdbtPars(
  [in] SpRcIsdbtPars  IsdbtPars    // ISDB-T parameters
);
```

Parameters

IsdbtPars

ISDB-T modulation parameters, see **Struct SpRcIsdbtPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_ISDBT	Invalid operation because the port is operating in ISDB-T modulation mode
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The modulation parameters have been set successfully

Remarks

SpRcClient::SetIqGain

Set IQ gain parameter.

```
virtual SPRC_RESULT  SpRcClient::SetIqGain(
  [in] int  IqGain            // IQ gain
);
```

Parameters

IqGain

The gain of the IQ singal.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The modulation parameters have been set successfully

Remarks

SpRcClient::SetLoopFlags

Set loop-adaptation flags.

```
virtual SPRC_RESULT  SpRcClient::SetLoopFlags(
  [in] int  LoopFlags        // Loop-adaptation flags
);
```

Parameters

LoopFlags

Loop-adaptation flags encoded in flags that may be OR-ed together.

Value	Meaning
SPRC_LOOP_CC	Adapt continuity counters
SPRC_LOOP_PCR	Adapt PCR
SPRC_LOOP_TDT	Adapt TDT
SPRC_LOOP_WRAP	Auto wrap-around

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The loop-adaptation flags have been set successfully

Remarks

SpRcClient::SetModPars

Set modulation parameters for all modulation standards except ISDB-T and DVB-T2.

```
virtual SPRC_RESULT  SpRcClient::SetModPars(
  [in] SpRcModPars  ModPars        // Modulation parameters
);
```

Parameters

ModPars

Modulation parameters, see **Struct SpRcModPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The modulation parameters have been set successfully

Remarks

SpRcClient::SetPlayoutState

Set playout state (play/pause/stop).

```
virtual SPRC_RESULT  SpRcClient::SetPlayoutState(
  [in] int  PlayoutState          // Playout state
);
```

Parameters

PlayoutState

New playout state.

Value	Meaning
SPRC_STATE_PAUSE	Pause
SPRC_STATE_PLAY	Play
SPRC_STATE_STOP	Stop

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_INV_STATE	Invalid playout state
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The playout state has been set successfully

Remarks

SpRcClient::SetRfPars

Set RF parameters.

```
virtual SPRC_RESULT  SpRcClient::SetRfPars(
  [in] SpRcRfPars  RfPars          // RF parameters
);
```

Parameters

RfPars

RF parameters, see **Struct SpRcPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_INV_FREQ	The centre frequency in *RfPars* is not supported by the upconverter on this modulator
SPRC_E_INV_LEVEL	The level in *RfPars* is not supported by this modulator
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_MOD	Invalid operation because the port is not a modulation port
SPRC_OK	The RF parameters have been set successfully

Remarks

SpRcClient::SetSignalSource

Change signal source (from file / test-generator).

```
virtual SPRC_RESULT  SpRcClient::SetSignalSource(
  [in] int  SignalSource          // Signal source
);
```

Parameters

SignalSource

New signal source.

Value	Meaning
SPRC_FROM_FILE	Data is read from file
SPRC_TEST_GENERATOR	The test-signal generator is used to generate an output signal

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_OP_NOT_SUPPORTED	Current modulation type is not supported
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The signal source has been changed successfully

Remarks

SpRcClient::SetSpiPars

Set DVB-SPI transmission parameters.

```
virtual SPRC_RESULT  SpRcClient::SetSpiPars(
  [in] SpRcSpiPars  SpiPars        // DVB-SPI parameters
);
```

Parameters

SpiPars

DVB-SPI transmission parameters, see **Struct SpRcSpiPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_SPI	Invalid operation because the port is not a DVB-SPI port
SPRC_E_TXMODE	The transmit mode specified in *SpiPars* is not compatible with the Transport-Stream file
SPRC_OK	The DVB-SPI transmission parameters have been set successfully

Remarks

SpRcClient::SetSubLoopPars

Configuring a file sub loop.

```
virtual SPRC_RESULT  SpRcClient::SetSubLoopPars(
  [in] SpRcSubLoopPars  SubLoopPars   // SubLoop parameters
);
```

Parameters

SubLoopPars

SubLoop parameters, see **Struct SpRcSubLoopPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_INV_PARS	SubLoop parameters invalid; make sure that the values are between 0 and 1
SPRC_OK	The SubLoop parameters have been set successfully

Remarks

SpRcClient::SetTsgPars

Set test-signal generation parameters.

```
virtual SPRC_RESULT  SpRcClient::SetTsoipPars(
  [in] SpRcTsgPars  TsgPars  // test-signal generation parameters
);
```

Parameters

TsgPars

Test-signal generation parameters, see **Struct SpRcTsgPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_OP_NOT_SUPPORTED	Invalid operation because StreamXpress is not currently running in test-signal generator mode
SPRC_OK	The parameters have been set successfully

Remarks

SpRcClient::SetTsoipPars

Set TSoIP transmission parameters.

```
virtual SPRC_RESULT  SpRcClient::SetTsoipPars(
  [in] SpRcTsoipPars  TsoipPars    // TSoIP parameters
);
```

Parameters

TsoipPars

TSoIP transmission parameters, see **Struct SpRcTsoipPars**.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_E_NOT_TSOIP	Invalid operation because the port is not a TSoIP port
SPRC_OK	The TSoIP transmission parameters have been set successfully

Remarks

SpRcClient::SetTsRate

Set Transport-Stream rate

```
virtual SPRC_RESULT  SpRcClient::SetTsRate(
  [in] Int  TsRate           // Transport-Stream rate
);
```

Parameters

TsRate

Transport-Stream rate in bits per second; 188 bytes per Transport Packets

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The rate has been set successfully

Remarks

SpRcClient::SetUseNit

Enable or disable the use of NIT for deriving modulation parameters

```
virtual SPRC_RESULT  SpRcClient::SetUseNit(
  [in] Bool  UseNit
);
```

Parameters

UseNit

Whether or not NIT should be used.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_NO_PORT	Invalid operation because no port is selected
SPRC_OK	The parameter has been set successfully

Remarks

SpRcClient::WaitForCondition

Wait for a certain condition.

```
virtual SPRC_RESULT  SpRcClient::WaitForCondition(
  [in] int  Condition,       // Playout state to wait for
  [in] int  TimeOut          // Maximum time to wait in ms
);
```

Parameters

Condition

Condition to wait for.

Value	Meaning
SPRC_COND_STOPPED	Playout server is in a stopped state; In this context, pause is not considered a stopped state

TimeOut

Time-out period in ms. If this parameter is -1 no time out is applied.

Result

SPRC_RESULT	Meaning
SPRC_E_COMMUNICATION	An error has occurred in the communication with the playout server
SPRC_E_INV_CONDITION	An invalid condition has been specified
SPRC_OK	The condition has occurred
SPRC_TIME_OUT	The time out has triggered

Remarks