



# Fusion Embedded™ RTSP

Fusion Embedded RTSP is an implementation of the Real Time Streaming Protocol as specified in RFC 2326. Fusion Embedded RTSP is an application-level protocol for control over the delivery of data with real-time properties.

Fusion Embedded RTSP controls multiple data delivery sessions. It also provides a means for choosing delivery channels such as UDP, and multicast UDP and TCP, while providing a means for choosing delivery mechanisms based upon RTP.

RTSP serves as both a control protocol and a jumping off point for negotiating transports (RTP, multicast and unicast) and negotiating codecs from servers independent of file format. Fusion Embedded RTSP provides a high-level API that hides the internal details of the RTSP engine from the application, simplifying RTSP application development. It also provides a callback mechanism for informing the application of the progress of all RTSP requests and responses. Fusion Embedded RTSP uses Unicoi's common C runtime library porting macros providing operating system and network stack independence.

Fusion Embedded RTSP includes a set of intuitive APIs for developing multimedia streaming applications for mobile devices such as PDAs and IP telephony applications, as well as broadband IP-based solutions such as IPTV. Fusion Embedded RTSP runs on the Fusion Embedded TCP/IPv4/IPv6 dual mode embedded networking stack, Winsock™ and other network stacks with a BSD sockets API.

Unicoi offers both RTSP Client and RTSP Server, depending on the product application.

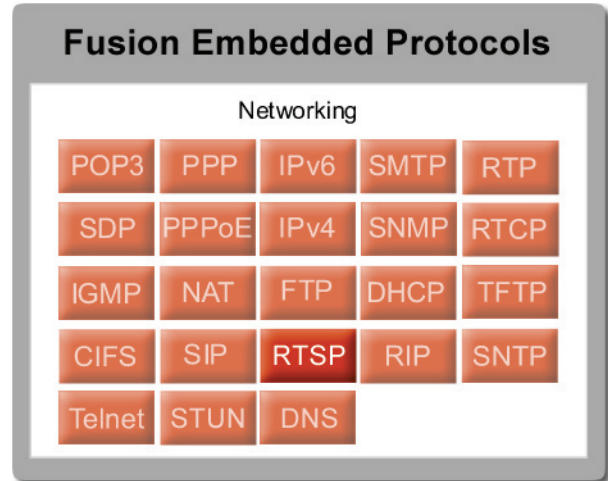
## Overview of RTSP Operation

### RTSP Session

One of the key concepts in RFC 2326 is that of a RTSP session. A session is identified by a session identifier.

### RTSP Messages

RTSP achieves its objects via the exchange of messages between a client and a server. Each message is either a request or a response. RTSP requests have as the start-line a Request-Line. A Request-Line contains a method name, a Request-



URI, and the protocol version separated by a single space (SP) character.

There are eleven RTSP methods: DESCRIBE, ANNOUNCE, GET\_PARAMETER, OPTIONS, PAUSE, PLAY, RECORD, REDIRECT, SETUP, SET\_PARAMETER, TEARDOWN.

The methods used for establishing and terminating a typical session are the SETUP, PLAY, and TEARDOWN methods.

RTSP responses have Status-Line as their start-line. A Status-Line consists of the protocol version followed by a numeric Status-Code and its associated textual phrase.

### RTSP Integration with RTP and SDP

One of the strengths of RTSP is that it is not a monolithic protocol. RTSP is responsible for establishing a multimedia session but it does not transport the actual multimedia content nor does it directly specify the type of media for the session. Instead, RTSP relies on other protocols for this purpose.

In order for the communicating parties to establish the type of media to be communicated and the protocols and transport addresses to be used to transport the media, certain RTSP messages carry, as part of the message body, a description of the session. For many applications this description usually takes the form of a Session Description Protocol



(SDP) announcement, as specified in RFC 2327 "SDP: Session Description Protocol". SDP is another text-based protocol.

**RTSP Features cont.**

- Fusion Embedded RTSP was developed specifically for embedded systems
- Add streaming audio and streaming video capability to your consumer electronic projects quickly and confidently
- Fusion Embedded RTSP runs on Fusion IPv4/v6 Dual-Mode
- Stack, Winsock™ and other network stacks with a
- BSD sockets API
- IPv4 and IPv6 supported
- Thread-safe APIs
- Supports SETUP, PLAY, PAUSE, TEARDOWN, OPTIONS, DESCRIBE, ANNOUNCE, SET\_PARAMETER requests
- Digest and authentication are supported
- Fusion Embedded RTSP provides a high-level API that hides the internal details of the RTSP engine from the application and makes developing RTSP applications simpler
- Provides a callback mechanism for informing the application of the progress of all RTSP requests and responses
- Fusion Embedded RTSP uses Unicoi's common C runtime library porting macros providing a high-degree of

- OS and network stack independence
- DESCRIBE method supported
- Automatic PING messages
- Ability to close all sessions on a connection
- Automatic sessions destruction
- Concurrent DESCRIBE transmission
- Time Type supported
- RTSP over TCP supported
- Configuration of memory allocation, logging levels, and network parameters
- Logging module
- Minimal memory requirements during run-time
- Object-oriented API
- UDP Multicast supported
- DNS address resolution
- Dynamic Source IP
- Compliant with SIP Toolkit Coding Conventions
- Simple SIP integration
- Written in ANSI C to maximize portability
- Small footprint
- RTSP Protocol State Machines
- Interaction with RTP
- SDP used for RTSP Session Descriptions
- Client Requirements: Requests, header type support, parsing capabilities, error code understanding, asynchronous operation mode support Basic Playback
- Authentication Enabled

**Fusion Embedded Products**

Networking					Web		Security	Voice	File	Reference Designs
POP3	PPP	IPv6	SMTP	RTP	Browser	DOM	SSL/TLS	Algorithms	NOR	IP Media
SDP	PPPoE	IPv4	SNMP	RTCP	HTML UI	SAX	IPsec	Codecs	NAND	VoIP Phone
IGMP	NAT	FTP	DHCP	TFTP	HTTP	SOAP	IKE	Voice Engine	SD	Terminal Adapter
CIFS	SIP	RTSP	RIP	SNTP			SRTP		SDHC	VoIP Gateway
Telnet	STUN	DNS					SIPS		CIFS	