SMPTE RDD 38:2016

SMPTE REGISTERED DISCLOSURE DOCUMENT

Networked Device Control Protocol — Message Data Structure and Method of Communication

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Errors in this document should be reported to the proponent identified below, with a copy to eng@smpte.org. All other inquiries in respect of this document, including inquiries as to intellectual property requirements that may be attached to use of the disclosed technology, should be addressed to the proponent identified below.

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Introduction

The phrase “IP control” covers a wide range of control functions via IP networks, from business level control (control at workflow level) to device level control (control at function level).

As for the latter, it has now become common practice to control a product using a variety of controller types including portable computers, smartphones and/or tablets via wireless IP networks.

In such situations, even in an IP network environment there is a requirement to realize high speed control/response equivalent to using a conventional RS422/9-pin control device. This RDD provides a lightweight and efficient control protocol specification for this purpose.

Specifically, it conforms to MessagePack and MessagePack RPC specifications, with some added definitions required for device control. These include an efficient method of message communication, and use of available transport protocols that take security into account.

See Annex A for a URL to an open source reference implementation.

1 Scope

This RDD provides the following specification for a protocol layer to control networked devices efficiently in an IP network environment.

- Serialized object format
- Message format
- Message sequence
- Transport protocol
- Security

2 Related Documents and URLs

IETF RFC 2617, HTTP Authentication: Basic and Digest Access Authentication

IETF RFC 3629, UTF-8, a transformation format of ISO 10646

IETF RFC 5246, The Transport Layer Security (TLS) Protocol Version 1.2

IETF RFC 6455, The WebSocket Protocol

The Unicode Consortium, The Unicode Standard

IEEE 754, Standard for Floating Point Arithmetic

MessagePack, http://msgpack.org/

MessagePack RPC, https://github.com/msgpack-rpc/