

XCON Working Group
Internet-Draft
Intended status: Standards Track
Expires: January 17, 2013

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July 16, 2012

An XCON Client Conference Control Package for the Media Control Channel
Framework

[draft-boulton-xcon-conference-control-package-07](#)

Abstract

The Centralized Conferencing framework defines a model whereby client initiated interactions are required for creation, deletion, manipulation and querying the state of a of conference. This document defines a Media Control Channel Package for XCON client initiated Conference Control. The Package is based on the Media Control Channel Framework, which is also used for media server control, thus optimizing the implementation for some entities participating in an XCON system.

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1. Introduction

The Conference Control Manipulation Protocol (CCMP) [[RFC6503](#)] provides a standards based mechanism to enable third party conference clients participating to interoperate with conference servers and manipulate conference parameters using HTTP as a transport. A Data Model [[RFC6501](#)] provides the data associated with a conference instance that is the target for the CCMP protocol operations.

A Control Channel Framework[RFC6230] has been created based on the Session Initiation protocol (SIP). It uses SIP to setup, maintain and terminate a reliable control channel for the purpose of exchanging control based interactions. While the control of media was the original problem domain for which this framework was developed, the Control Framework provides an extension template for creating extensions that specify the semantic detail associated with the control channel operations. The extension documents are known as Control Packages and an example is the 'Basic Mixer Control Package' [[RFC6505](#)].

This document will specify a Control Package for Conference Control using the SIP Control Framework. The target for these operations is the same data, associated with conference instances per the data model, as CCMP. It should be noted that this mechanism is a complementary approach to CCMP. In fact this specification simply provides a different transport mechanism. While the use of HTTP as a transport for CCMP is ideal for certain network deployments (for example Service Orientated Architectures), it is important to offer an alternative access method for clients with non SOA based technologies.

The Media Control Channel Framework provides the ideal mechanism for reliably exchanging control messages between a conference client and server. It provides inherent properties such as:

- o Reliable delivery of control messages.
- o Lightweight Protocol Data Units (PDU).
- o Linked asynchronous transactional mechanism.
- o Asynchronous event mechanism.

The SIP Control Framework uses SIP as its overlying rendezvous mechanism. This provides all the inherent benefits like:

- o SIP Service Location - Use SIP Proxies or Back-to-Back User Agents for discovering Control Servers.
- o SIP Security Mechanisms - Leverage established security mechanisms such as Transport Layer Security (TLS) and Client Authentication.

- o Connection Maintenance - The ability to re-negotiate a connection, ensure it is active, audit parameters, and so forth.
- o Agnostic - Allows for ease of extension.

Not only is the Media Control Channel Framework an ideal mechanism for controlling conference instances by participating clients, it also provides the property of re-use by conferencing systems of functionality implemented for controlling Media Servers etc. This includes re-using the SIP stack for control channel setup as well as the Control Channel Framework stack for receiving/sending the PDUs for multiple control packages in a conference system.

2. Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

3. Terminology

This document reuses the terminology defined and used in the framework and data model for centralized conferencing [[RFC5239](#)], [[RFC6501](#)] and [[RFC6503](#)] .

4. Overview

The use of the Media Control Channel Framework offers an ideal mechanism for creating, deleting and manipulating XCON conference instances by participating clients. As the Control Channel Framework is a generic mechanism, this section provides non-normative detail showing how the Control Channel Framework can be applied to this particular use-case. In [[RFC5239](#)], two distinct roles are defined - A 'Control Client' and a 'Control Server'. Such roles are interchangeable between entities within a session depending on package requirements. A simple diagram is illustrated in Figure 1

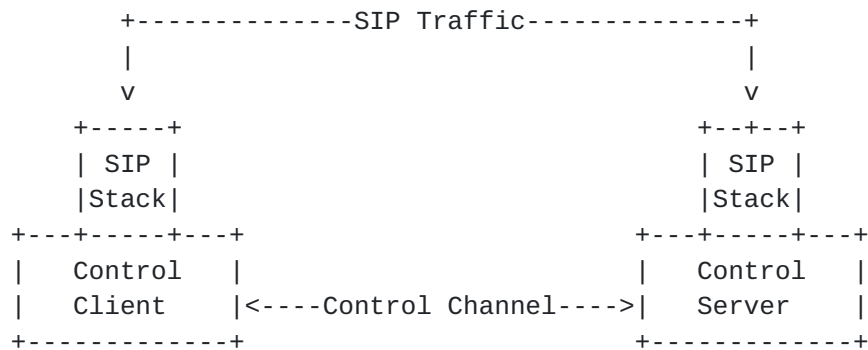


Figure 1: Basic Architecture

The XCON Conference Control package will cast a participating compliant User Agent that wishes to control a conference instance as a 'Control Client' as defined in the SIP Control Framework. It will have permission to generate and issue commands in CONTROL messages as defined in [Section 5.2](#) of this document. It will also have the ability to receive responses to Conference Package CONTROL requests that are contained in either appropriate responses or subsequent REPORT messages, also specified in [Section 5.2](#). The specific format of the conference control messages and responses are defined in [Section 5.4](#) and [Section 5.5](#). They re-use the format specified in CCMP[RFC6503]. This provides a common binding set with alternative access mechanism depending on client requirements. The previous diagram can be updated as illustrated in Figure 2.

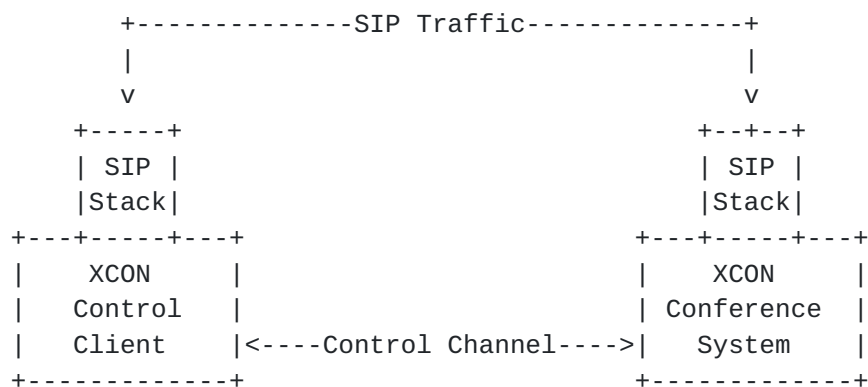


Figure 2: Conference Control Architecture

Editor's Note: The Overview section will be expanded in later versions of the document.

5. Control Package Detail

The Media Control Channel Framework defines rules that Control Package extensions must provide mandatory information as described in [section 10 of \[RFC6230\]](#). This section fulfils the obligation.

5.1. Control Package Name

The SIP Control Framework requires a Control Package definition to specify and register a unique package name. The name and version of this Control Package is "xcon-conf-control/1.0".

5.2. Framework Message Usage

The Conference Control package uses the XML schema defined in CCMP [\[RFC6503\]](#). To maintain the consistency with the design of the XML schema, the SIP Control Framework messages will be applied in a similar manner. The CONTROL message will be used to contain requests that enable conference manipulation - as specified in [Section 5.4](#) and can only travel from the client to a Conferencing System. Responses, as specified in [Section 5.5](#), can only travel from the Conferencing System to an expectant client. Depending on the time it takes to process the request (as specified in [\[RFC6230\]](#)), responses can either be contained in a Control Framework 200 response or subsequent REPORT method.

5.3. Common XML Support

The Control Framework requires a Control Package definition to specify if the attributes for media dialog or conference references are required.

This package requires that the XML Schema in [Section 16.1 of \[RFC6230\]](#) MUST NOT be supported for media dialogs and conferences. But rather this package SHOULD use the XML schema as defined in [\[RFC6501\]](#), which is the same schema upon which CCMP is based.

5.4. Control Message Bodies

A valid CONTROL body message MUST conform to the XML schema defined in [\[RFC6503\]](#) for the conference control. To be precise, the CONTROL message body MUST comply only to the 'ccmp-request-type' complexType.

5.5. REPORT Message Bodies

A valid CONTROL body message MUST conform to the XML schema defined in [\[RFC6503\]](#). To be precise, the REPORT message body MUST comply only to the 'ccmp-response-type' complexType.

5.6. Examples

TODO

6. IANA Considerations

6.1. Control Package Registration

This section registers a new Media Control Channel Framework package, per the instructions in [Section 12.1 of \[RFC6230\]](#).

To: ietf-sip-control@iana.org Subject: Registration of new Media Control Channel Framework package Package Name: xcon-conf-control/1.0 [NOTE TO IANA/RFC-EDITOR: Please replace XXXX with the RFC number for this specification.] Published Specification(s): RFCXXXX Person & email address to contact for further information: IETF, XCON working group, (xcon@ietf.org), Mary Barnes (mary.ietf.barnes@gmail.com).

7. Security Considerations

Access to conference control functionality needs to be tightly controlled to avoid attackers disrupting conferences, adding themselves to conferences or engaging in theft of services.

The Framework for Centralized Conferencing [[RFC5239](#)] specifies that the protocols used for manipulation and retrieval of confidential information MUST support a confidentiality and integrity mechanism. To support the confidentiality and integrity requirements, all conference control information included in the package defined in this document SHOULD be carried over TLS.

Additional information should be added to this section based on the final material in the Control Framework for SIP [[RFC6230](#)].

There are also security issues associated with the authorization to perform actions on the conferencing system to invoke specific capabilities. Implementers MUST deploy appropriate authentication and authorization mechanisms to ensure that only authorized entities are able to manipulate the data.

8. Acknowledgments

9. References

9.1. Normative References

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