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H.248/MEGACO Registration Procedures

Abstract

This document updates the H.248/MEGACO IANA Package registration procedures in order to better describe the Package registration process and to provide a more formal review and feedback process.

Status of This Memo

This document specifies an Internet Best Current Practices for the Internet Community, and requests discussion and suggestions for improvements. Distribution of this memo is unlimited.

Table of Contents

1. Introduction

Since the initial development of H.248/MEGACO, a number of organizations have made use of the H.248/MEGACO protocol Package mechanism in order to allow a certain function to be controlled by H.248/MEGACO. The H.248/MEGACO Package mechanism was introduced, in part, to allow organizations who had an in-depth knowledge in a particular functional area to independently produce a Package on this functionality. This acknowledged the fact that neither the IETF MEGACO Working Group nor the ITU-T Study Group 16 possessed in-depth knowledge in all areas. Whilst this approach has been successful in the number and range of Packages produced, in some cases these Packages were/are not fully aligned with H.248/MEGACO principles. Once a Package has been published and registered, it is problematic to rectify any issues.

The introduction of problems/inconsistencies was caused, in part, by the fact that the Packages were not fully reviewed by H.248/MEGACO experts. In fact, the IANA H.248/MEGACO registration process did not actually specify that an in-depth review should take place.

The current H.248/MEGACO Package registration process was defined when the ITU-T Study Group 16 and the IETF MEGACO Working Groups were both active in H.248/MEGACO standardization and produced nearly all the registered Packages. Packages were reviewed in the IETF MEGACO Working Group and the Working Group chair was the IESG-appointed

expert in charge of the review of the requests for H.248 Package registration. This meant that H.248 Packages underwent an informal review before being registered. However, this has changed.

The current situation is that now the IETF MEGACO Working Group is disbanded and new H.248/MEGACO development typically occurs through Question 3 of ITU-T Study Group 16 (notwithstanding email discussion on the IETF MEGACO mailing list). This move to ITU-T-defined Recommendations is discussed in [RFC5125].

Given this situation, it is appropriate that the H.248/Package definition and IANA registration rules are updated to introduce a formal review step before the Package registration process is completed and, ideally, before the Package is published. This process will only be applicable to public Packages.

As part of the Package development process, Package developers are encouraged to send their Package for review to the ITU-T Study Group Question Rapporteur responsible for the H.248 sub-series of Recommendations (ITU-T Question 3 of Study Group 16 at the time of writing). When registering the Package with IANA, Package developers are required to send a copy of the Package for review by the IESG-appointed expert. It is recommended to register the Package before final approval by the group in question, in order to solicit feedback on the quality of their Package. Wherever possible, this review will be done in conjunction with other H.248/MEGACO experts (e.g., in ITU-T Q.3/16 and/or the MEGACO mailing list).

The existing IANA Package registration process is a two-step process. When Packages are first registered, they receive the status of "In Progress (IP)". This allows Package developers to request a PackageID before the document is fully approved. When the document is approved, then a change of status to "Final" may be requested. The new procedure introduces the step that the IESG-appointed expert is consulted before a change of status is made. If the Package has been reviewed and is acceptable, then the status may be changed to "Final". However, if the Package has not been provided for review or has outstanding comments, then the status SHALL remain at "IP".

The goal of the updated text is to define a process that provides a timely technical review of Packages to ensure that H.248/MEGACO Packages are of good quality and to minimize duplication.

The "Error Code", "ServiceChange Reason", and "Profile Name" registration procedures have been included for completeness and to make explicit the role of the IESG reviewer. These procedures align

with the considerations documented in [H248amm1] and with [RFC3525] (with the exception of Profile Names, which did not appear in the [RFC3525] version).

2. Conventions Used in This Document

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. Formal Syntax

The following syntax specification uses the Augmented Backus-Naur Form (BNF) as described in [RFC5234].

Text-encoded PackageIDs shall conform to the "PackageName" encoding in H.248.1 [H248amm1] Annex B, which is repeated below for convenience:

THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
PackageName   = NAME

NAME       = ALPHA *63(ALPHA / DIGIT / "_")
```

Note: A digit is not allowed as the first character of a Package name.

4. Security Considerations

Updating the IANA H.248/MEGACO Package registration procedures has no additional security implications. Security for the H.248/MEGACO protocol over IP transports is discussed in H.248.1 Section 10 [H248amm1].

As of this date, there have been no recorded security issues arising out of the registration or use of Packages. Whilst Packages may define extra procedures and code points, these are done within the framework of the core H.248.1 specification. It is not possible to update the H.248.1 core protocol through a Package specification. The use of the H.248.1 core protocol is agreed upon between a Media Gateway Controller (MGC) and a Media Gateway (MG). H.248 ServiceChange procedures establish a H.248 control association between the MGC and MG. To establish an association, there must be a level of trust between the MGC and MG. In the context of this control (and trust) association, the elements (properties/signals/events/statistics) from the Packages are conveyed between the MGC and MG. An MGC or MG will only act upon elements that it knows. If it does not understand a PackageID or Package element, then an error response is returned only in the context of the control association.

If a malicious Package specification is implemented in an MGC or MG, it would be unlikely to cause problems. As H.248 is a master slave protocol, if the malicious Package was implemented in the MGC and not the MG, there would be no action because the MG would not understand the PackageID (and elements). If the malicious Package was implemented on the MG, there would be no effect because the MGC would never command the MG to use it. If the malicious Package was implemented in both the MGC and MG, then there’s a wider, non-H.248 issue in that someone has managed to install software on both the MGC and the MG. It is highly unlikely for such a person to ask IANA for a PackageID when they could use any one they want.

Therefore, it is in this respect that updates to the IANA H.248/MEGACO Package registration procedures are deemed to have no additional security impacts.

Requesters and the Expert Reviewer should ensure that the Package does not introduce any additional security issues. Requesters for public Packages for a particular standards development organization must be authorized by that organization to request a Package registration.

5. IESG Expert Reviewer Considerations

For public registered Packages, Error Codes, ServiceChangeReasons, and Profile Names, review by an Expert Reviewer is required before IANA performs a registration. Private Packages do not require the same level of review. The sections below outline the considerations for Expert Review.

5.1. Appointment of the IESG H.248/MEGACO Expert

The IESG shall remain responsible for allocating the H.248/MEGACO expert. It is recommended that this person be involved in ongoing H.248/MEGACO development. As such, it is recommended that identification of the IESG expert be done in consultation with the ITU-T Question/Study Group responsible for the H.248 sub-series of Recommendations (ITU-T Q.3/16 at the time of writing).

5.2. Package Registration Procedure

Package requesters are encouraged to review their work against H.248.1 Section 12 [H248amm1], "Package Definition", and are encouraged to use the "Package Definition Template" provided in H.248.1 Appendix II.

The process for registering a public Package is deemed to be "specification required" as per [RFC5226]. As such, once the initial checks occur, Package requesters for public Packages under development shall send the Package text to IANA. They are also encouraged to send the package to the ITU-T Question/Study Group responsible for the H.248 sub-series of Recommendations (ITU-T Q.3/16 at the time of writing) for review. Updated contact information can be found in the latest version of the H.248 Sub-series Implementors' Guide. This should occur as soon as practicable after the rough draft of the definition is completed and at least before the Package is approved, in order to ensure the Package is consistent with H.248 methodologies and Package-design principles.

In order to register private Packages, a specification is not required but is encouraged.

Package requesters are encouraged to request registration as early as practicable in the design process, to reserve a binary ID. Binary IDs shall be published in the document defining the Package.

Once the initial or final request for a Package registration is received by IANA, it will be forwarded to the IESG-appointed expert for review. During the review, the input Package and details will be compared to the Package template for completeness, as well as being compared against protocol syntax and procedures. It will be compared against existing work to see that it does not duplicate existing functionality. It will be reviewed to see that any potential security issues are addressed. The Expert Reviewer will then work towards a resolution of any issues with the Package requester. The IESG-appointed expert may complete the review in consultation with other H.248 experts (i.e., currently Question 3 of ITU-T Study Group 16 and via email to IETF MEGACO email list). If the Package is deemed suitable, the IESG-appointed expert shall issue a statement indicating approval, copied to IANA.

The IESG Expert Reviewer will ensure the following considerations are met to register a Package with the IANA:

1) A unique string name, unique serial number and version number are registered for each Package. The string name is used as the PackageID for text encoding. The serial number is used as the PackageID for binary encoding. Public Packages MUST be given serial numbers in the range 0x0001 to 0x7fff. Private Packages MUST be given serial numbers in the range 0x8000 to 0xffff. Serial number 0 is reserved. The unique string name and unique serial number MAY either be requested by the Package requester or, if not requested, assigned by the IANA.

2) The Package requester shall provide a contact name and an email and postal address for that contact. The contact information shall be updated by the defining organization as necessary.

3) The public Package requester shall provide a reference to a document that describes the Package, which should be public:

   a) The document shall specify the version of the Package that it describes.

b) If the document is public, it should be located on a public web server and should have a stable URL. The site should provide a mechanism to provide comments and appropriate responses should be returned.

c) If the document is not public, it must be made available for review by the IESG-appointed expert (without requiring a non-disclosure agreement (NDA)) at the time of the application.

Note: The document does not have to be publicly available at the time of the registration request; however, the document shall be provided and available for review by the IESG-appointed expert. Once approved by a standards body, the Package SHOULD be made publicly available, however the Package MAY remain not public.

For private Packages, a contact email address for the Package registration shall be provided.

4) Packages registered by other than recognized standards bodies shall have a minimum Package name length of 8 characters.

5) Package names are allocated on a first-come, first-served basis if all other conditions are met.

Status - "In Progress" indicates that the Package has not been fully reviewed and approved and, therefore, may contain errors or may not be consistent with H.248 principles. "Final" indicates that the Package has been reviewed and approved and is stable. New Packages shall be registered with a status of "IP". Once the Package has been finalized (i.e., approved according to the procedures of the Package requester's organization), they should contact IANA in order to update the status to "Final".

Once the IESG-appointed expert has determined that the registration is appropriate, they will advise the IANA to register the Package.

The IANA will assign a serial number to each Package meeting the conditions of registration (except for an update of an existing Package, which retains the serial number of the Package it is updating), in consecutive order of registration.

5.3. Error Code Registration Procedure

Error Code requesters shall send a request to the IANA to register the Error Code. Documentation addressing the considerations below shall be provided (i.e., specification required as per [RFC5226]). The IANA shall then forward the request to the IESG-appointed expert for review.

The following considerations shall be met to register an Error Code with IANA:

1) An error number and a one-line (80-character maximum) string are registered for each error.

2) A complete description of the conditions under which the error is detected shall be included in a publicly available document. The description shall be sufficiently clear to differentiate the error from all other existing Error Codes.

3) The document should be available on a public web server and should have a stable URL.

4) Error numbers registered by recognized standards bodies shall have 3- or 4-character error numbers.

5) Error numbers registered by all other organizations or individuals shall have 4-character error numbers.

6) Only the organization or individual that originally defined it (or their successors or assigns) can modify an error-number definition. If the modification leads to a change in the Error Code number, Error Code name or error string, the Error Code modifier shall send a request to IANA to register the update. This request shall be treated as a new Error Code request, which will involve an Expert Review.

Once the IESG-appointed expert has determined that the registration is appropriate, they will advise the IANA to register the Error Code.

5.4. ServiceChange Reason Registration Procedure

ServiceChange Reason requesters shall send a request to the IANA to register the ServiceChange Reason. Documentation addressing the considerations below shall be provided (i.e., specification required as per [RFC5226]). The IANA shall then forward the request to the IESG-appointed expert for review.

The following considerations shall be met to a register ServiceChange Reason with IANA:

1) A reason number and a one-phrase (80-character maximum) unique string are registered for each reason.

2) A complete description of the conditions under which the reason is used shall be included in a publicly available document. The description shall be sufficiently clear to differentiate the reason from all other existing ServiceChange Reasons.

3) The document should be available on a public web server and should have a stable URL.

Once the IESG-appointed expert has determined that the registration is appropriate, they will advise IANA to register the ServiceChange Reason.

5.5. Profile Name Registration Procedure

Profile Name requesters shall send a request to the IANA to register the Profile Name. Documentation addressing the considerations below shall be provided. The IANA shall then forward the request to the IESG-appointed expert for review.

The following considerations shall be met to register a profile with IANA:

1) A unique string name and version number (version may be omitted when the Profile Name contains a wildcard) is registered for each profile.

2) A contact name and email and postal address for that contact shall be specified. The contact information shall be updated by the defining organization as necessary.

3) Profiles registered by other than recognized standards bodies shall have a minimum Profile Name length of 6 characters.

4) Profile Names containing a wildcard "*" on the end of their names shall be accepted if the first 6 characters are fully specified. It is assumed that the organization that was issued with the Profile Name will manage the namespace associated with the wildcard. IANA shall not issue other profiles names within "name*" range.

All Profile Names are first-come, first-served if all other conditions are met.

Once the IESG-appointed expert has determined that the registration is appropriate, they will advise IANA to register the Profile Name.

6. IANA Considerations

This document describes an updated Package registration procedure. [RFC5226] has been considered in making the updates. This document does not alter the tabular Package, Error Code, and ServiceChange Reason information in the H.248/MEGACO Packages registry.

The "Error Code", "ServiceChange Reason", and "Profile Name" IANA considerations have been included for completeness. These considerations align with the considerations documented in H.248.1 [H248amm1] and with [RFC3525] (with the exception of Profile Names, which did not appear in the [RFC3525] version).

6.1. New IANA Package Registration

On the request for an initial or final Package registration, the IANA shall forward the received information (i.e., the Package text (specification required as per [RFC5226])) to the IESG-appointed expert for review (see Section 5.2).

After the review, when instructed by the IESG-appointed expert, the IANA shall register the following information in the "H.248/MEGACO Packages" registry as described below:

1. Serial Number (identity used for Binary Encoding, also known as Binary ID)

2. Text Name (identity used for Text Encoding, see Section 3 for the syntax)

3. Package version

4. Extension information - Binary ID and Package version

5. Status* - IP ("In Progress") or Final

6. Package name, Reference, and Contact information

IANA will maintain the currency and public availability of the tabulation of public and private Packages. Packages will be listed in increasing order of serial number. The latest Package version will be entered, replacing the previous version in the registry.

6.2. IANA Error Code Registration

On the request for an Error Code registration, the IANA shall forward the received information (i.e., the Error Code text and required specification) to the IESG-appointed expert for review (see Section 5.3).

When instructed by the IESG-appointed expert, the IANA shall register the following information in the "H.248/MEGACO Packages" registry as described below:

1. Error Code Number

2. Error Code Text String

3. Reference

6.3. IANA ServiceChange Reason Registration

On the request for a ServiceChange Reason registration, the IANA shall forward the received information (i.e., the ServiceChange Reason text and required specification) to the IESG-appointed expert for review (see Section 5.4).

When instructed by the IESG-appointed expert, the IANA shall register the following information in the "H.248/MEGACO Packages" registry as described below:

1. ServiceChange Reason Number

2. ServiceChange Reason Text String

3. Reference

6.4. IANA Profile Name Registration

On the request for a Profile Name registration, the IANA shall forward received information to the IESG-appointed expert for review (see Section 5.5).

When instructed by the IESG-appointed expert, the IANA shall register the following information in the "H.248/MEGACO Packages" registry as described below:

1. Profile Name

2. Version

3. Reference/Contact

7. References

7.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC5234] Crocker, D., Ed., and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, January 2008.

[H248amm1] International Telecommunication Union, "Gateway control protocol: Version 3", Amendment 1 to ITU-T Recommendation H.248.1, April 2008.

7.2. Informative References

[RFC3525] Groves, C., Ed., Pantaleo, M., Ed., Anderson, T., Ed., and T. Taylor, Ed., "Gateway Control Protocol Version 1", RFC 3525, June 2003.

[RFC5125] Taylor, T., "Reclassification of RFC 3525 to Historic", RFC 5125, February 2008.

[RFC5226] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 5226, May 2008.

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