                   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.

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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:

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```
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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