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Registries for the One-Way Active Measurement Protocol - OWAMP
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Abstract

This memo describes the registries for OWAMP - the One-Way Active Measurement Protocol. The registries allow assignment of MODE bit positions and OWAMP Command numbers. The memo also requests that IANA establish the registries for new features, called the OWAMP-Modes registry and the OWAMP Control Command Number registry. This memo updates RFC 4656.

Requirements Language

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 RFC 2119 [RFC2119].

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1. Introduction

The One-way Active Measurement Protocol, OWAMP [RFC4656] was prepared to support measurements of metrics specified by the IP Performance Metrics (IPPM) working group in the IETF. The Two-Way Active Measurement Protocol, TWAMP [RFC5357] is an extension of OWAMP. The TWAMP specification gathered wide review as it approached completion, and the by-products were several recommendations for new features in TWAMP. As a result, a registry of new features was established for TWAMP. However, there were no new features proposed for OWAMP until recently [I-D.ietf-ippm-ipsec].

This memo establishes the needed registries for OWAMP, and updates [RFC4656].

2. Purpose and Scope

The purpose and scope of this memo is to describe and request the establishment of registries for future OWAMP [RFC4656] extensions. IANA already administrates the "Two-way Active Measurement Protocol (TWAMP) Parameters", and this request follows a similar form (with one exception identified below).

This memo also provides the initial contents for the OWAMP registries.

3. IANA Considerations for OWAMP Control Registries

OWAMP-Control protocol coordinates the measurement capability. All OWAMP-Control messages follow specifications defined in section 3 of [RFC4656].

3.1. Control Command Number Registry

IANA is requested to create a OWAMP-Control Command Number registry.

OWAMP-Control Commands follow specifications defined in section 3.4 of [RFC4656].

3.1.1. Registry Specification

OWAMP-Control Commands Numbers are specified in the first octet of OWAMP-Control-Client command messages consistent with section 3 of [RFC4656]. There are a maximum of 256 command numbers.

3.1.2. Registry Management

Because the "OWAMP-Control Command Numbers" registry can contain only 256 values, and because OWAMP is an IETF protocol, these registries MUST be updated only by "IETF Consensus" as specified in [RFC5226] (an RFC that documents registry use and is approved by the IESG).

3.1.3. Experimental Numbers

One experimental value is currently assigned in the Command Numbers Registry, as indicated in the initial contents below.

3.1.4. OWAMP-Control Command Numbers Initial Contents

OWAMP-Control Commands follows the procedure defined in section 3.5 of [RFC4656] (and in the remainder of section 3).

The complete set of OWAMP-Control Command Numbers are as follows (including two reserved values):

OWAMP-Control Command Numbers Registry

Value	Description	Semantics Definition	Reference
0	Reserved		
1	Request-Session	Section 3.5	RFC 4656
2	Start-Sessions	Section 3.7	RFC 4656
3	Stop-Sessions	Section 3.8	RFC 4656
4	Fetch-Sessions	Section 3.9	RFC 4656
5-253	Unassigned		
254	Experimentation	This Memo	
255	Reserved		

3.2. OWAMP-Modes

IANA is requested to create an OWAMP-Modes registry.

3.2.1. Registry Specification

OWAMP-Modes are specified in OWAMP Server Greeting messages and Set-up Response messages consistent with section 3.1 of [RFC4656]. Modes are currently indicated by setting single bits in the 32-bit Modes Field. However, more complex encoding may be used in the future.

3.2.2. Registry Management

Because the "OWAMP-Modes" are based on only 32 bit positions with each position conveying a unique feature, and because OWAMP is an IETF protocol, these registries MUST be updated only by "IETF Consensus" as specified in [RFC5226] (an RFC that documents registry use and is approved by the IESG). IANA SHOULD allocate monotonically increasing bit positions when requested.

3.2.3. Experimental Numbers

No experimental bit positions are currently assigned in the Modes Registry, as indicated in the initial contents below.

3.2.4. OWAMP-Modes Initial Contents

OWAMP-Control connection establishment follows the procedure defined in section 3.1 of [RFC4656].

In the OWAMP-Modes registry, assignments are straightforward on the basis of bit positions, and there are no references to values - this is a difference from the comparable TWAMP registry (and a topic for improvement in the TWAMP-Modes registry which is reconciled in [I-D.ietf-ippm-ipsec]).

An Extension of the OWAMP-Modes is proposed in [I-D.ietf-ippm-ipsec]. With this extension, the complete set of OWAMP Mode bit positions are as follows (including one reserved bit position):

OWAMP-Modes Registry

Bit Pos.	Description	Semantics Definition	Reference
0	Unauthenticated	Section 3.1	RFC4656
1	Authenticated	Section 3.1	RFC4656
2	Encrypted	Section 3.1	RFC4656
3	Reserved	this memo	
4	IKEv2-derived Shared Secret Key	this memo and Section 5	RFC_TBD
5-31	Unassigned		

(where RFC_TBD the published version of draft-ietf-ippm-ipsec)

In the original OWAMP Modes field, setting bit position 0, 1 or 2 indicated the security mode of the Control protocol, and the Test protocol inherited the same mode (see section 4 of [RFC4656]).

The value of the Modes Field sent by the Server in the Server-Greeting message is the bit-wise OR of the modes (bit positions) that it is willing to support during this session. Thus, the five least significant bits of the Modes 32-bit Field are used. When no other features are activated, the 27 most significant bits MUST be zero. A Control-Client conforming to [RFC4656] MAY ignore the values in the 29 most significant bits of the Modes Field, or it MAY support features that are communicated in other bit positions, such as the IKEv2-derived Shared Secret Key extension [I-D.ietf-ippm-ipsec].

OWAMP and TWAMP registries for Modes may grow to contain different features and functions due to the inherent differences in one-way and two-way measurement configurations and the metrics they measure. No attempt will be made to coordinate them unnecessarily, except the Reserved bit position 3 above. This is available for assignment if a mixed security mode similar to[RFC5618] is defined for OWAMP, and would allow alignment with the comparable TWAMP feature.

4. Security Considerations

As this memo simply requests the creation of OWAMP registries, it presents no new security or privacy issues for the Internet.

The security considerations that apply to any active measurement of live networks are relevant here as well. See [RFC4656] and [RFC5357].

Privacy considerations for measurement systems, particularly when Internet users participate in the tests in some way, are described in [I-D.ietf-lmap-framework].

5. Acknowledgements

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6. References

6.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <http://www.rfc-editor.org/info/rfc2119>.

[RFC4656] Shalunov, S., Teitelbaum, B., Karp, A., Boote, J., and M. Zekauskas, "A One-way Active Measurement Protocol (OWAMP)", RFC 4656, DOI 10.17487/RFC4656, September 2006, <http://www.rfc-editor.org/info/rfc4656>.

[RFC5226] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 5226, DOI 10.17487/RFC5226, May 2008, <http://www.rfc-editor.org/info/rfc5226>.

[RFC5357] Hedayat, K., Krzanowski, R., Morton, A., Yum, K., and J. Babiarz, "A Two-Way Active Measurement Protocol (TWAMP)", RFC 5357, DOI 10.17487/RFC5357, October 2008, <http://www.rfc-editor.org/info/rfc5357>.

6.2. Informative References

[I-D.ietf-ippm-ipsec]
Pentikousis, K., Zhang, E., and Y. Cui, "IKEv2-derived Shared Secret Key for O/TWAMP", draft-ietf-ippm-ipsec-11 (work in progress), August 2015.

[I-D.ietf-lmap-framework]
Eardley, P., Morton, A., Bagnulo, M., Burbridge, T., Aitken, P., and A. Akhter, "A framework for Large-Scale Measurement of Broadband Performance (LMAP)", draft-ietf-lmap-framework-14 (work in progress), April 2015.

[RFC5618] Morton, A. and K. Hedayat, "Mixed Security Mode for the Two-Way Active Measurement Protocol (TWAMP)", RFC 5618, DOI 10.17487/RFC5618, August 2009, <http://www.rfc-editor.org/info/rfc5618>.

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