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## **Registration Procedures for Private Enterprise Numbers (PENs)**

### **Abstract**

This document describes how Private Enterprise Numbers (PENs) are registered by IANA. It shows how to request a new PEN and how to request an update to a current PEN. It also gives a brief overview of PEN uses.

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### 1. Introduction

Private Enterprise Numbers (PENs) are identifiers that can be used anywhere that an ASN.1 object identifier (OID) [[ASN1](#)] can be used. Originally, PENs were developed so that organizations that needed to identify themselves in Simple Network Management Protocol (SNMP) [[RFC3411](#)] Management Information Base (MIB) configurations could do so easily. PENs are also useful in any application or configuration language that needs OIDs to identify organizations.

The IANA Functions Operator, referred to in this document as "IANA", manages and maintains the PEN registry in consultation with the IESG. PENs are issued from an OID prefix that was assigned to IANA. That OID prefix is 1.3.6.1.4.1. Using the (now archaic) notation of ownership names in the OID tree, that corresponds to:

```
1 3 6 1 4 1
iso.org.dod.internet.private.enterprise
```

A PEN is an OID that begins with the PEN prefix. Thus, the OID 1.3.6.1.4.1.32473 is a PEN.

#### 1.1. Uses of PENS

Once a PEN has been assigned to an organization, individual, or other entity, that assignee can use the PEN by itself (possibly to represent the assignee) or as the root of other OIDs associated with the assignee. For example, if an assignee is assigned the PEN 1.3.6.1.4.1.32473, it might use 1.3.6.1.4.1.32473.7 to identify a protocol extension and use 1.3.6.1.4.1.32473.12.3 to identify a set of algorithms that it supports in a protocol.

Neither IANA nor the IETF can control how an assignee uses its PEN. In fact, no one can exert such control: that is the meaning of "private" in "private enterprise number". Similarly, no one can prevent an assignee that is not the registered owner of a PEN from using that PEN, or any PEN, however they want.

A very common use of PENs is to give unique identifiers in IETF protocols. SNMP MIB configuration files use PENs for identifying the origin of values. Some protocols that use PENs as identifiers of

extension mechanisms include RADIUS [[RFC2865](#)], Diameter [[RFC6733](#)], Syslog [[RFC5424](#)], RSVP [[RFC5284](#)], and vCard [[RFC6350](#)].

## **2. PEN Assignment**

Private Enterprise Numbers (PENs) are assigned by IANA. The registry is located at <https://www.iana.org/assignments/enterprise-numbers>, and requests for new assignments or the modification of existing assignments can also be submitted at that URL.

IANA maintains the PEN registry in accordance with the "First Come First Served" registration policy described in [[RFC8126](#)]. Values are assigned sequentially.

### **2.1. Requesting a PEN Assignment**

Requests for assignment must provide the name of the assignee, the name of a public contact who can respond to questions about the assignment, and contact information that can be used to verify change requests. The contact's name and email address will be included in the public registry.

A proposed assignee may request multiple PENs, but obtaining one PEN and making internal sub-assignments is typically more appropriate. (Sub-assignments should not be reported to IANA.)

IANA may refuse to process abusive requests.

### **2.2. Modifying an Existing Record**

Any of the information associated with a registered value can be modified, including the name of the assignee.

Modification requests require authorization by a representative of the assignee. Authorization will be validated either with information kept on file with IANA or with other identifying documentation, if necessary.

### **2.3. Deleting a PEN Record**

Although such requests are rare, registrations can be deleted. When a registration is deleted, all identifying information is removed from the registry, and the value is marked as "returned." Returned values will not be made available for re-assignment until all other unassigned values have been exhausted; as can be seen in [Section 3](#), the unassigned values are unlikely to ever run out.

## **3. PEN Registry Specifics**

The range for values after the PEN prefix is 0 to  $2^{32}-1$ . The values 0 and 4294967295 ( $2^{32}-1$ ) are reserved. Note that while the original PEN definition had no upper bound for the value after the PEN prefix, there is now an upper bound due to some IETF protocols limiting the size of that value. For example, Diameter [[RFC6733](#)] limits the value to  $2^{32}-1$ .

There is a PEN number, 32473, reserved for use as an example in documentation. This reservation is described in [[RFC5612](#)].

Values in the registry that have unclear ownership are marked "Reserved". These values will not be reassigned to a new company or individual without consulting the IESG.

#### 4. IANA Considerations

This document requires two changes to the PEN registry.

Values 2187, 2188, 3513, 4164, 4565, 4600, 4913, 4999, 5099, 5144, 5201, 5683, 5777, 6260, 6619, 14827, 16739, 26975 and the range from 11670 to 11769, which had been missing from the registry, will be listed as "Reserved." As described in [RFC8126], reserved values can be released by the IESG.

In addition, this document will be listed in the registry's "Reference" field.

#### 5. Security Considerations

Registering PENs does not introduce any significant security considerations.

There is no cryptographic binding of a registrant in the PEN registry and the PEN(s) assigned to them. Thus, the entries in the PEN registry cannot be used to validate the ownership of a PEN in use. For example, if the PEN 1.3.6.1.4.1.32473 is seen in a protocol as indicating the owner of some data, there is no way to securely correlate that use with the name and assignee of the owner listed in the PEN registry.

#### 6. Acknowledgements

An earlier version of this document was authored by Pearl Liang and Alexey Melnikov. Additional significant contributions have come from Dan Romascanu, Bert Wijnen, David Conrad, Michelle Cotton, and Benoit Claise.

#### 7. References

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