

# Diameter Multiplexer (MUX) Dictionary

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The Dictionary is part of the MUX package. Its purpose is to provide unified access to information regarding AVP structure, content and definition. It is configured with an XML file: *dictionary.xml*.

Dictionary logic is contained in the `org.mobicens.diameter.dictionary.AvpDictionary` class. It exposes the following methods:

```
public AvpRepresentation getAvp(int code)
```

Return an `AvpRepresentation` object representing the AVP with the given code (assuming vendor ID as 0 (zero)). If there is no AVP defined, it returns `null`.

```
public AvpRepresentation getAvp(int code, long vendorId)
```

Returns an `AvpRepresentation` object representing the AVP with the given code and vendor ID. If there is no AVP defined, it returns `null`.

```
public AvpRepresentation getAvp(String avpName)
```

Returns an `AvpRepresentation` object representing the AVP with the given name. If there is no AVP defined, it returns `null`.

Dictionary uses a POJO class to provide access to stored information: `org.mobicens.diameter.dictionary.AvpRepresentation`. It exposes the following methods:

```
public int getCode()
```

Returns the code assigned to the represented AVP.

```
public long getVendorId()
```

Returns the vendor ID assigned to the represented AVP.

```
public String getName()
```

Returns name assigned to the represented AVP. If no name is defined, it returns `null`.

```
public boolean isGrouped()
```

Returns `true` if the AVP is of grouped type.

```
public String getType()
```

Returns a `String` with the name of the represented AVP type. Return value is equal to one of defined types. For example, `OctetString` or `Unsigned32`.

```
public boolean isMayEncrypt()
```

Returns `true` if the AVP can be encrypted.

```
public boolean isProtected()
```

Returns `true` if the AVP *must* be encrypted. This occurs if `public String getRuleProtected()` returns `must`.

```
public boolean isMandatory()
```

Returns `true` if the AVP must be supported by an agent to properly consume the message. It only returns `true` if `public String getRuleMandatory()` returns `must`.

```
public String getRuleMandatory()
```

Returns the mandatory rule value. It can return one of the following values: `may`, `must` or `mustnot`.

`public String getRuleProtected()`

Returns the protected rule value. It can have one of the following values: `may`, `must` or `mustnot`.

`public String getRuleVendorBit()`

Returns the vendor rule value. It can have one of the following values: `must` or `mustnot`.

The Diameter MUX Dictionary can be used as follows:

```
public static void addAvp(Message msg, int avpCode, long vendorId, AvpSet set, Object avp) {
    AvpRepresentation avpRep = AvpDictionary.INSTANCE.getAvp(avpCode, vendorId);

    if(avpRep != null) {
        DiameterAvpType avpType = DiameterAvpType.fromString(avpRep.getType());

        boolean isMandatoryAvp = avpRep.isMandatory();
        boolean isProtectedAvp = avpRep.isProtected();

        if(avp instanceof byte[]) {
            setAvpAsRaw(msg, avpCode, vendorId, set, isMandatoryAvp, isProtectedAvp,
            (byte[]) avp);
        }
        else
        {
            switch (avpType.getType()) {
                case DiameterAvpType._ADDRESS:
                case DiameterAvpType._DIAMETER_IDENTITY:
                case DiameterAvpType._DIAMETER_URI:
                case DiameterAvpType._IP_FILTER_RULE:
                case DiameterAvpType._OCTET_STRING:
                case DiameterAvpType._QOS_FILTER_RULE:
                    setAvpAsOctetString(msg, avpCode, vendorId, set, isMandatoryAvp,
                    isProtectedAvp,
                        avp.toString());
                    break;

                case DiameterAvpType._ENUMERATED:
                case DiameterAvpType._INTEGER_32:
                    setAvpAsInteger32(msg, avpCode, vendorId, set, isMandatoryAvp,
                    isProtectedAvp,
                        (Integer) avp);
                    break;

                case DiameterAvpType._FLOAT_32:
                    setAvpAsFloat32(msg, avpCode, vendorId, set, isMandatoryAvp,
                    isProtectedAvp,
                        (Float) avp);
                    break;

                case DiameterAvpType._FLOAT_64:
                    setAvpAsFloat64(msg, avpCode, vendorId, set, isMandatoryAvp,
```

```

isProtectedAvp,
    (Float) avp);
    break;

    case DiameterAvpType._GROUPED:
        setAvpAsGrouped(msg, avpCode, vendorId, set, isMandatoryAvp,
isProtectedAvp,
            (DiameterAvp[]) avp);
        break;

    case DiameterAvpType._INTEGER_64:
        setAvpAsInteger64(msg, avpCode, vendorId, set, isMandatoryAvp,
isProtectedAvp,
            (Long) avp);
        break;

    case DiameterAvpType._TIME:
        setAvpAsTime(msg, avpCode, vendorId, set, isMandatoryAvp,
isProtectedAvp,
            (Date) avp);
        break;

    case DiameterAvpType._UNSIGNED_32:
        setAvpAsUnsigned32(msg, avpCode, vendorId, set, isMandatoryAvp,
isProtectedAvp,
            (Long) avp);
        break;

    case DiameterAvpType._UNSIGNED_64:
        setAvpAsUnsigned64(msg, avpCode, vendorId, set, isMandatoryAvp,
isProtectedAvp,
            (Long) avp);
        break;

    case DiameterAvpType._UTF8_STRING:
        setAvpAsUTF8String(msg, avpCode, vendorId, set, isMandatoryAvp,
isProtectedAvp,
            (String) avp);
        break;
    }
}
}
}
}

```