# How to include new field in data packet

## Module description

In this module, we will learn how to include new field in the data packet.

## Procedure

1. Create a new field in the data packet. This where we store the value of new field.

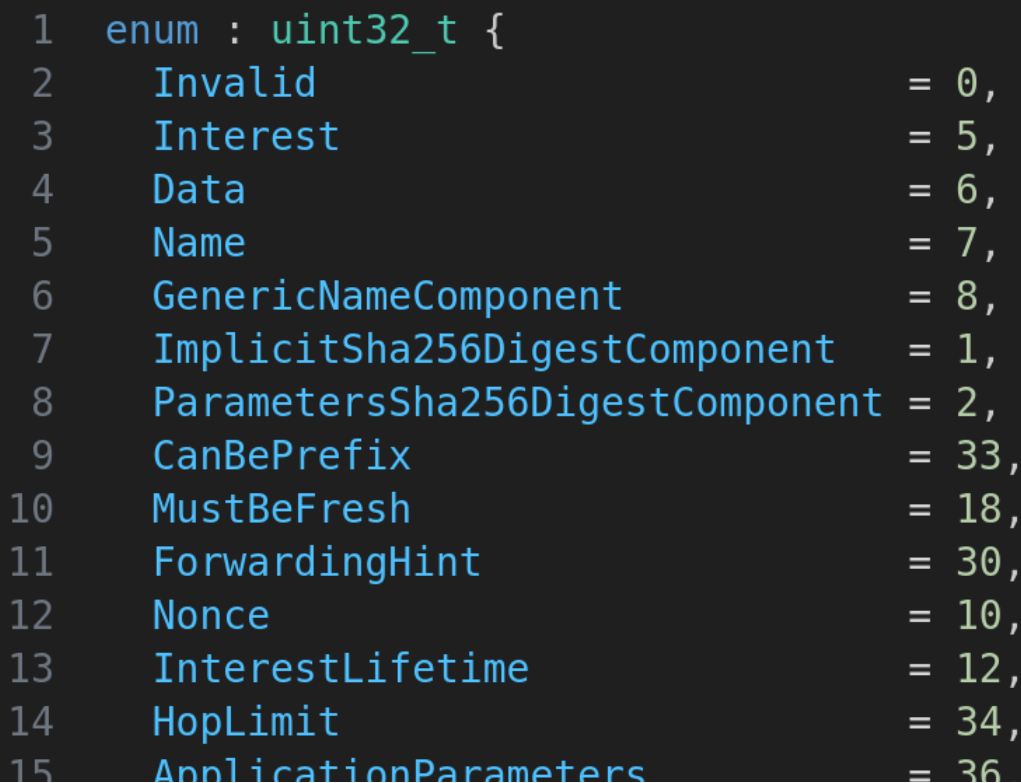2. Then add the new field in the tlv.hpp file in the ndn-cxx library.

We suppose add it here because each tlv number is associated with a field in the data packet. Even if it is optional, we need to add it here to avoid any conflict.

To be more specific, add the new field in the TLV-NUMBER

TLV is 3 parts:

The encoding of TLV has 4 types based on how many bytes are used to encode the type and length.

- Type: variable length
- Length: variable length
- Value: variable length

```
1   enum : uint32_t {
2     Invalid                          = 0,
3     Interest                         = 5,
4     Data                             = 6,
5     Name                             = 7,
6     GenericNameComponent             = 8,
7     ImplicitSha256DigestComponent    = 1,
8     ParametersSha256DigestComponent  = 2,
9     CanBePrefix                      = 33,
10    MustBeFresh                      = 18,
11    ForwardingHint                   = 30,
12    Nonce                            = 10,
13    InterestLifetime                 = 12,
14    HopLimit                         = 34,
15    ApplicationParameters            = 36
```

```
15      ApplicationParameters              = 36,
16      InterestSignatureInfo              = 44,
17      InterestSignatureValue             = 46,
18      MetaInfo                           = 20,
19      Content                            = 21,
20      SignatureInfo                      = 22,
21      SignatureValue                     = 23,
22      ContentType                        = 24,
23      FreshnessPeriod                    = 25,
24      FinalBlockId                       = 26,
25      SignatureType                      = 27,
26      KeyLocator                         = 28,
27      KeyDigest                          = 29,
28      SignatureNonce                     = 38,
29      SignatureTime                      = 40,
30      SignatureSeqNum                    = 42,
31      LinkDelegation                     = 31,
32      LinkPreference                     = 30,
33
34      NameComponentMin = 1,
35      NameComponentMax = 65535,
36
37      AppPrivateBlock1 = 128,
38      AppPrivateBlock2 = 32768,
39    };
40
```

3. Make sure to add appropriate `getter` and `setter` methods to access the variable because it is a private variable.

4. Now add that variable to [meta-info.hpp] in `MetaInfo::wireEncode` method and also in `MetaInfo::wireDecode` method to encode and decode the variable to `Blocks` and `Wire` format.

Refer this website for more information about TLV.

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