

#### CCN Documentation

Specifications

Papers

Software documentation

Programming documentation



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# http://www.ccnx.org/specifications/

#### CCNx Specifications

#### Submitted to IETF:

- CCNx Semantics (draft-mosko-icnrg-ccnxsemantics-01), March 2015 [PDF, txt]
- CCNx Messages in TLV Format (draft-mosko-icnrg-ccnxmessages-01), March 2015 [PDF, txt]
- CCNx Labeled Content Information (draft-mosko-icnrg-ccnxlabeledcontent-00), January 2015 [PDF, txt]
- CCNx Content Object Chunking (draft-mosko-icnrg-ccnxchunking-00), January 2015 [PDF, txt]
- CCNx End-to-End Fragmentation (draft-mosko-icnrg-ccnxfragmentation-oo), January 2015 [PDF, txt]
- CCNx Publisher Serial Versioning (draft-mosko-icnrg-ccnxserialversion-00), January 2015 [PDF, txt]

### Progress

Split specs

Unified specs

Discussed specs

Updated specs



#### Semantics

Describe the messages

Describe the fields

Describe the behavior



#### TLV Format

Describe the message encoding

Describe the field encoding

Describe interoperability



#### 2+2 TLV Format



### Format Overview

```
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
                             Headers
                             Message
                            Validation
```



#### General Packet Format

```
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1

+------+

| Version | PacketType | PacketLength |
+-----+

| PacketType specific fields | HeaderLength |
+-----+

/ Optional Hop-by-hop header TLVs /
+-----+

/ PacketPayload TLVs /
+-----+
```



### Static Header



#### Interest Header



# Content Object Header



#### Interest Return Header



### Optional Headers

```
1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1

+-----+

| Version | PacketType | PacketLength |
+-----+

| PacketType specific fields | HeaderLength |
+----+

/ Optional Hop-by-hop header TLVs /
+-----+

/ PacketPayload TLVs /
+-----+
```



### Optional Headers

```
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
                                             Length
         T_INTLIFE
                      Lifetime (length octets)
         T_CACHETIME
                    Recommended Cache Time
```



## Optional Cows



### Optional Headers



# Packet Payload

```
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9
```



# Packet Payload



# CCIX Message



# CCIX Message



# Interest Message



# Content Object Message



#### Validation Information



#### Validation Information



# CCNx Packet Specifications

Evolved based on feedback and testing

Stabilized based on collaboration

Begun basic interop testing

#### More information

http://www.ccnx.org/specifications/

