Open Channel

Sender UTxO

Value:
    + **M** AGIX

Open Channel

Mint:
+ **1 channel_token**

Signatures:
• sender

Channel UTxO

Address: **channel script + _**

Value:
    + **1** channel_token
    + **K** AGIX

Datum:
    + ChannelDatum:
      + Nonce: 0
      + ChannelId: "Sender UTxO"
      + Signer
      + Receiver
      + GroupId
      + Expiration

Sender UTxO

Value:
    + **M - K** AGIX
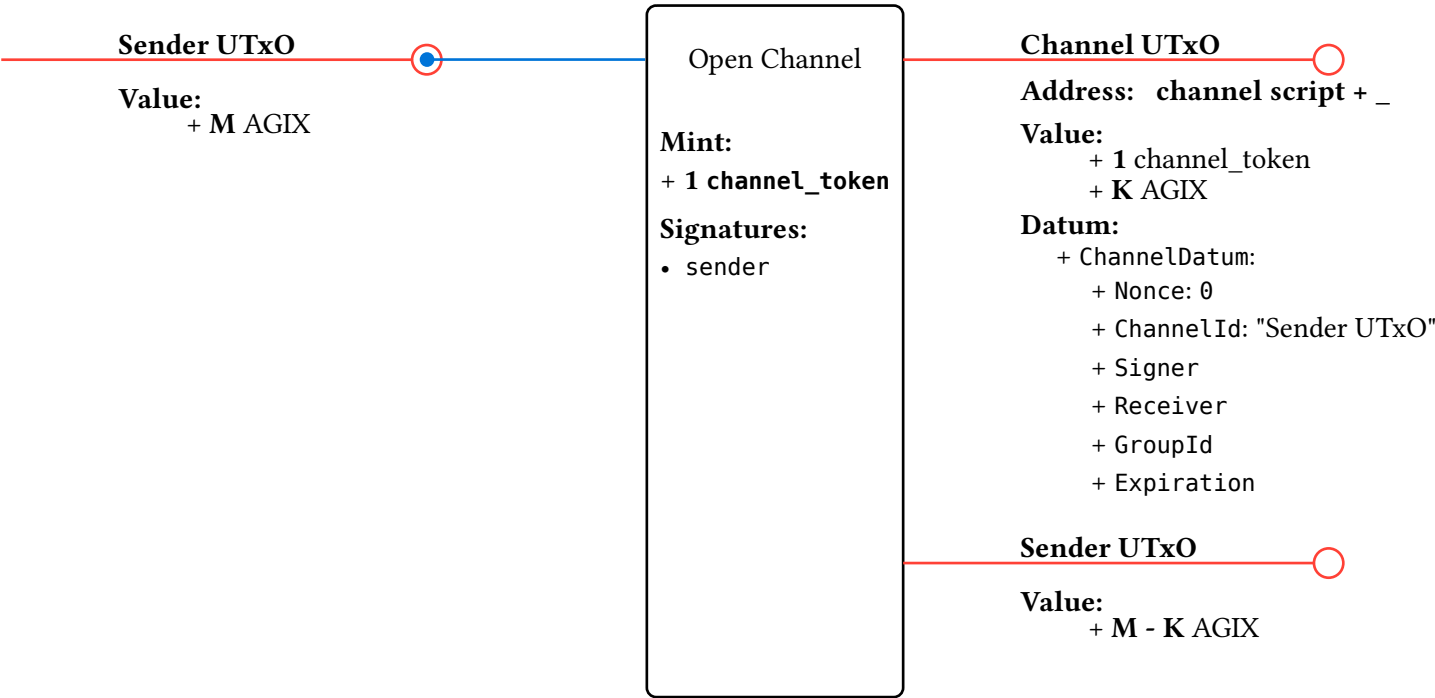
Note:

channel_token = "channel script" + "channel id"

Sender opens a channel with K AGIX

Extend and/or AddFunds Channel

Channel UTxO Update

Address: **channel script + _**

Value:
+ **1** channel_token
+ **M** AGIX

Datum:
+ ChannelDatum:
  + Nonce
  + ChannelId
  + Signer
  + Receiver
  + GroupId
  + Expiration

Update Channel

Signatures:
• user

Channel UTxO

Address: **channel script + _**

Value:
+ **1** channel_token
+ **M + K** AGIX

Datum:
+ ChannelDatum:
  + Nonce
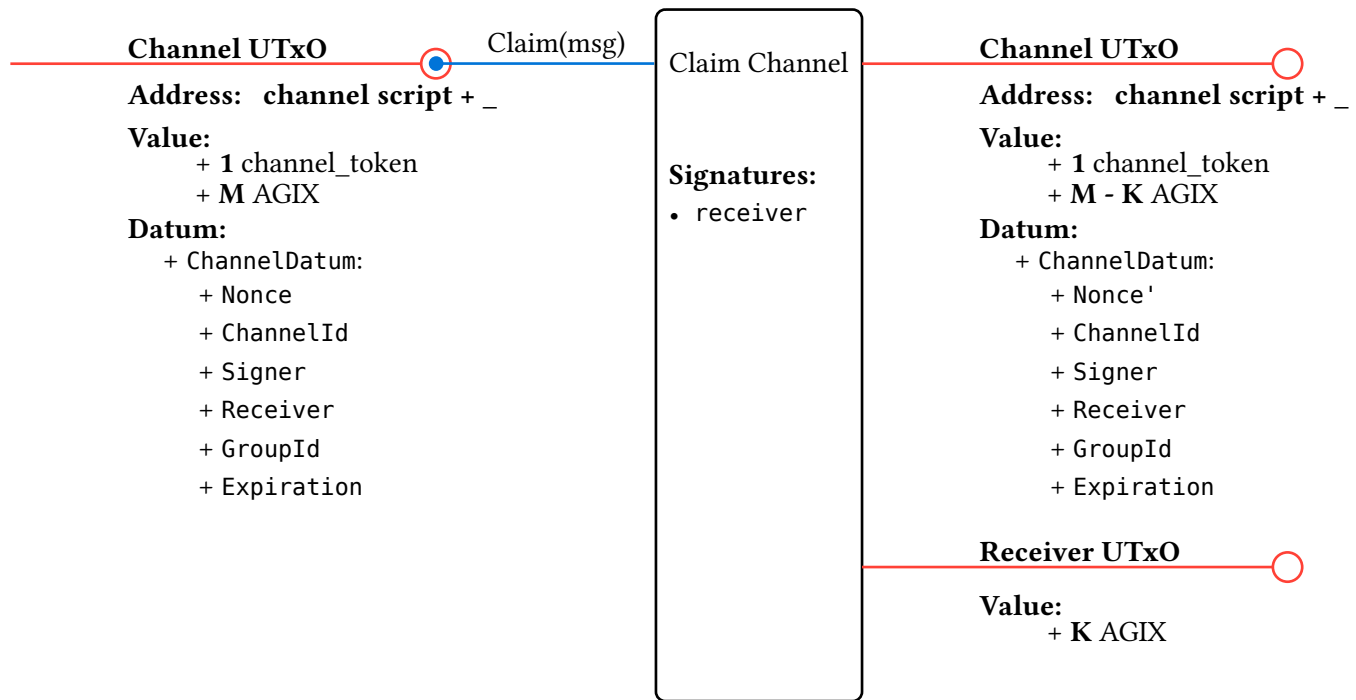 + ChannelId
  + Signer
  + Receiver
  + GroupId
  + Expiration'

Note:

Expiration $\leq$ Expiration'

$0 \leq K$

user must be sender when extending the channel

Claim Channel

Channel UTxO

Address: channel script + _

Value:
    + **1** channel_token
    + **M** AGIX

Datum:
  + ChannelDatum:
    + Nonce
    + ChannelId
    + Signer
    + Receiver
    + GroupId
    + Expiration

Claim(msg)

Claim Channel

Signatures:
- receiver

Channel UTxO

Address: channel script + _

Value:
    + **1** channel_token
    + **M - K** AGIX

Datum:
  + ChannelDatum:
    + Nonce'
    + ChannelId
    + Signer
    + Receiver
    + GroupId
    + Expiration

Receiver UTxO

Value:
    + **K** AGIX

Note:

msg is signed by the signer

Nonce' = Nonce + 1

Claim Multiple Channels

Channel UTxO$_1$

Address: channel script + _

Value:
    + **1** channel_token$_1$
    + **M$_1$** AGIX

Datum:
  + ChannelDatum:
    + Nonce$_1$
    + ChannelId$_1$
    + Signer$_1$
    + Receiver$_1$
    + GroupId$_1$
    + Expiration$_1$

"Claim(msg$_1$)"

Channel UTxO$_2$

Address: channel script + _

Value:
    + **1** channel_token$_2$
    + **M$_2$** AGIX

Datum:
  + ChannelDatum:
    + Nonce$_2$
    + ChannelId$_2$
    + Signer$_2$
    + Receiver$_2$
    + GroupId$_2$
    + Expiration$_2$

.
.
.

"Claim(msg$_2$)"

Channel UTxO$_n$

Address: channel script + _

Value:
    + **1** channel_token$_n$
    + **M$_n$** AGIX

Datum:
  + ChannelDatum:
    + Nonce$_n$
    + ChannelId$_n$
    + Signer$_n$
    + Receiver$_n$
    + GroupId$_n$
    + Expiration$_n$

"Claim(msg$_n$)"

Claim Channel

Mint:
- **1 channel_token$_2$**

Signatures:
• receiver

Channel UTxO$_1$

Address: channel script + _

Value:
    + **1** channel_token$_1$
    + **M$_1$ - K$_1$** AGIX

Datum:
  + ChannelDatum:
    + Nonce$_1$'
    + ChannelId$_1$
    + Signer$_1$
    + Receiver$_1$
    + GroupId$_1$
    + Expiration$_1$

Sender$_2$ UTxO

Address: sender$_2$ address + _

Value:
    + **M$_2$ - K$_2$** AGIX

.
.
.

Channel UTxO$_n$

Address: channel script + _

Value:
    + **1** channel_token$_n$
    + **M$_n$ - K$_n$** AGIX

Datum:
  + ChannelDatum:
    + Nonce$_n$'
    + ChannelId$_n$
    + Signer$_n$
    + Receiver$_n$
    + GroupId$_n$
    + Expiration$_n$

Receiver UTxO

Value:
    + **K$_1$ + ... + K$_n$** AGIX

Note:

msg$_i$ is signed by the signer$_i$

Nonce$_i$' $=$ Nonce$_i$ + 1

Close Channel

Channel UTxO   Close

Address: **channel script** + _

Value:
     + **1** channel_token
     + **M** AGIX

Datum:
   + ChannelDatum:
     + Nonce
     + ChannelId
     + Signer
     + Receiver
     + GroupId
     + Expiration

Claim Channel

Mint:
- **1 channel_token**

Signatures:
- sender

Valid Range:
Expiration $\leq$ slot

Sender UTxO

Value:
     + **M** AGIX

Note: