

## Internet Routing Blockchain - Functional Tets

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## I. Functional Tests

The functional test execution proves the correctness of the ASN-pairs smart contract. We tested all the asset state transition functions and their authorization model. Results are shown in table.

We next show some examples of tested cases.

[illegible]

Fig. 1: Issue successful, Test Case n.1

[illegible]

Fig. 2: Issue failure, Test Case n.3

```

1  # The following flow is valid: type SourceType v or h: v
2  #
3  # Note: warnings: It should be the case:
4  #
5  # Comment: 2: fabric gateway
6  #
7  # network channel: mychannel
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Fig. 3: Sign successful, Test Case n.7

[illegible]

Fig. 4: Sign failure, Test Case n.8

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1  # Use the latest line to RHEL7 Open Susecase Y or R: Y
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Fig. 5: Invalid successful, Test Case n.11

[illegible]

Fig. 6: Invalid failure, Test Case n.22

TABLE I: Functional Tests

No	Precondition	Test Case	Transaction Issuer	Description	Expected Result	Test Result
1	AS_Pair (as1,as2) and (as2,as1) do not exist in DB	AS_Pair (as1,as2) issuance success	as1	AS_Pair issuance	OK	OK
2	AS_Pair (as2,as1) and (as1,as2) do not exist in DB	AS_Pair (as2,as1) issuance success	as2	AS_Pair issuance	OK	OK
3	AS_Pair (as2,as1) already issued	AS_Pair (as2,as1) issuance failure	as2	Attempted to issue an existing AS_Pair	Fail	OK
4	AS_Pair (as1,as2) already issued	AS_Pair (as1,as2) issuance failure	as1	Attempted to issue an existing AS_Pair	Fail	OK
5	AS_Pair (as1,as2) already issued	AS_Pair (as2,as1) issuance failure	as2	Attempted to issue an existing AS_Pair	Fail	OK
6	AS_Pair (as2,as1) already issued	AS_Pair (as1,as2) issuance failure	as1	Attempted to issue an existing AS_Pair	Fail	OK
7	AS_Pair (as1,as2) issued by as1	AS_Pair (as1,as2) signing success	as2	Increasing Security Level by double signing	OK	OK
8	AS_Pair (as1,as2) issued by as1	AS_Pair (as1,as2) signing failure	as1	Signing attempted by as1 owner who has issued the AS_Pair	Fail	OK
9	AS_Pair (as2,as1) issued by as2	AS_Pair (as2,as1) signing success	as1	Increasing Security Level by double signing	OK	OK
10	AS_Pair (as2,as1) issued by as2	AS_Pair (as2,as1) signing failure	as2	Signing attempted by as2 owner who has issued the AS_Pair	Fail	OK
11	AS_Pair (as1,as2) issued by as1	AS_Pair (as1,as2) invalidate	as1	Invalidate previous issued AS_Pair	OK	OK
12	AS_Pair (as2,as1) issued by as2	AS_Pair (as2,as1) invalidate	as1	Invalidate previous issued AS_Pair	OK	OK
13	AS_Pair (as1,as2) issued by as1	AS_Pair (as1,as2) invalidate	as2	Invalidate previous issued AS_Pair	OK	OK
14	AS_Pair (as2,as1) issued by as2	AS_Pair (as2,as1) invalidate	as2	Invalidate previous issued AS_Pair	OK	OK
15	AS_Pair (as2,as1) or (as1,as2) Invalidated	AS_Pair (as1,as2) issuance success	as1	AS_Pair issuance	OK	OK
16	AS_Pair (as2,as1) or (as1,as2) Invalidated	AS_Pair (as2,as1) issuance success	as2	AS_Pair issuance	OK	OK
17	AS_Pair (as1,as2) and (as2,as1) do not exist in DB or Invalid	AS_Pair (as1,as2) signing failure	as1	Attempted to sign an invalid or not existing AS_Pair	Fail	OK
18	AS_Pair (as1,as2) and (as2,as1) do not exist in DB or Invalid	AS_Pair (as1,as2) signing failure	as2	Attempted to sign an invalid or not existing AS_Pair	Fail	OK
19	AS_Pair (as1,as2) and (as2,as1) do not exist in DB	AS_Pair (as1,as2) issuance failure	asx where x != 1 and 2	Attempted AS_Pair issuance with no Authorization	Fail	OK
20	AS_Pair (as1,as2) issued by as1	AS_Pair (as1,as2) signing failure	asx where x != 2	Attempted AS_Pair sign with no Authorization	Fail	OK
21	AS_Pair (as2,as1) issued by as2	AS_Pair (as2,as1) signing failure	asx where x != 1	Attempted AS_Pair sign with no Authorization	Fail	OK
22	AS_Pair (as1,as2) issued by as1	AS_Pair (as1,as2) invalidate	asx where x != 1 and 2	Attempted to invalidate AS_Pair with no Authorization	Fail	OK
23	AS_Pair (as2,as1) issued by as2	AS_Pair (as2,as1) invalidate	asx where x != 1 and 2	Attempted to invalidate AS_Pair with no Authorization	Fail	OK