

Requirement	ID	Group	Group Short Name	Name	Purpose	Console Input	File Input	Console Output	File Output
Login									
No transaction other than login should be accepted before the first login	R1T1			Logout Blocking	Cannot logout before logging in	logout	None	Error prompt for user to log in	None
	R1T2			Createacct Blocking	Cannot create account before login	createacct	None	Error prompt for user to log in	None
	R1T3			Deleteacct Blocking	Cannot delete account before login	deleteacct	None	Error prompt for user to log in	None
	R1T4			Deposit Blocking	Cannot deposit before login	deposit	None	Error prompt for user to log in	None
	R1T5			Withdraw Blocking	Cannot withdraw before login	withdraw	None	Error prompt for user to log in	None
	R1T6			Transfer Blocking	Cannot transfer before login	transfer	None	Error prompt for user to log in	None
	R1T7			Login Permitted	Allow login	login	None	Login type prompt (machine or agent)	None
	R1T8			Invalid Input	Prompt for logging in	hello	None	Error prompt for user to log in	None
After ATM login, only ATM transactions and logout are accepted.	R2T1			ATM Login	Allow ATM login Allow logout after machine command Block logout after logout	login machine logout logout	Valid Account List File 1000000 2000000 0000000	ATM logged in, transaction types prompt Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
No transaction other than login should be accepted after logging out	R2T2			ATM Withdraw	Allow ATM withdraw Allow logout after withdraw command Block logout after logout	login machine withdraw logout withdraw	Valid Account List File 1000000 2000000 0000000	Ask for futher input for withdraw Logout successfully Error prompt for user to log in	Transaction Summary File File: EOS 0000000 000 0000000 ***
	R2T3			ATM Deposit	Allow ATM deposit Allow logout after deposit command Block deposit after logout	login machine deposit logout deposit	Valid Account List File 1000000 2000000 0000000	Ask for futher input for deposit Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R2T4			ATM Transfer	Allow ATM transfer Allow logout after transfer command Block transfer after logout	login machine transfer logout transfer	Valid Account List File 1000000 2000000 0000000	Ask for futher input for transfer Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R2T5			ATM Createacct	Forbid creating an account via ATM Allow logout after createacct command Block createacct after logout	login machine createacct logout createacct	Valid Account List File 1000000 2000000 0000000	Error: no permission Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R2T6			ATM Deleteacct	Forbid deleting an account via ATM Allow logout after deleteacct command Block deleteacct after logout	login machine deleteacct logout deleteacct	Valid Account List File 1000000 2000000 0000000	Error: no permission Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R2T7			ATM Login-login	Forbid logging in again after ATM login	login machine login	Valid Account List File 1000000 2000000 0000000	Error: already logged in	None
	R2T8			ATM Logout-login	Allow logging in after ATM logout	login machine logout login	Valid Account List File 1000000 2000000 0000000	Login type prompt (machine or agent)	Transaction Summary File: EOS 0000000 000 0000000 ***
	R2T9			ATN Invalid Input	Block invalid input	login machine 1000000	Valid Account List File 1000000 2000000 0000000	Ask to chose one of the valid services	None
Logout									
After agent login, all transactions and logout are accepted.	R3T1			Privileged Login	Allow privileged login Allow logout after agent command Block logout after logout	login agent logout logout	Valid Account List File 1000000 2000000 0000000	Successfully logged in as agent, service types prompt Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
No transaction other than login should be accepted after logging out	R3T2			Privileged Withdraw	Allow privileged withdraw Allow logout after withdraw command Block withdraw after logout	login agent withdraw logout withdraw	Valid Account List File 1000000 2000000 0000000	Ask for futher input for withdraw Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***

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	R3T3			Privileged Deposit	Allow privileged deposit Allow logout after deposit command Block deposit after logout	login agent deposit logout deposit	Valid Account List File 1000000 2000000 0000000	Ask for futher input for deposit Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R3T4			Privileged Transfer	Allow privileged transfer Allow logout after transfer command Block transfer after logout	login agent transfer logout transfer	Valid Account List File 1000000 2000000 0000000	Ask for futher input for transfer Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R3T5			Privileged Createacct	Allow privileged creating account Allow logout after createacct command Block createacct after logout	login agent createacct logout createacct	Valid Account List File 1000000 2000000 0000000	Ask for futher input for create account Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R3T6			Privileged Deleteacct	Allow privileged deleting account Allow logout after deleteacct command Block deleteacct after logout	login agent deleteacct logout deleteacct	Valid Account List File 1000000 2000000 0000000	Ask for futher input for delete account Logout successfully Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
	R3T7			Privileged Login-login	Forbid logging in again after privileged login	login agent login	Valid Account List File 1000000 2000000 0000000	Error: already logged in	None
	R3T8			Privileged Logout-login	Allow logging in after privileged login	login agent logout login	Valid Account List File 1000000 2000000 0000000	Login type prompt (machine or agent)	Transaction Summary File: EOS 0000000 000 0000000 ***
	R3T9			Privileged Invalid Input	Block invalid inputs	login agent 123ABC	Valid Account List File 1000000 2000000 0000000	Ask to chose one of the valid services	None
	R4T1			Logout	Can log out during logging in	login logout	None	Successfully logged out	Transaction Summary File: EOS 0000000 000 0000000 ***
	R4T2			Logout Blocking	Cannot logout after logged out	login logout logout	None	Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
No transaction other than login should be accepted after logging out	R4T3			Alow Login	Able to log in again agter logged out	login logout login	None	Error prompt for user to log in	Transaction Summary File: EOS 0000000 000 0000000 ***
Create Account									
Privileged transcation, only accepted in agent mode	R5T1			Logout	Allow login	login agent logout	Valid Account File: 1000000 2000000 0000000	Successfully logged out	Transaction Summary: EOS 0000000 000 0000000 ***
	R5T2			Login	Aloow logout	login agent	Valid Account File: 1000000 2000000 0000000	Successfully logged in	Transaction Summary: EOS 0000000 000 0000000 ***
	R5T3			Deleteacct Blocking	Cannot delete account before create account	login agent deleteacct 8000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None
	R5T4			Deposit Blocking	Cannot deposit before create account	login agent depost 8000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None

Requirement	ID	Group	Group Short Name	Name	Purpose	Console Input	File Input	Console Output	File Output
	R5T5			Withdraw Blocking	Cannot withdraw before create account	login agent withdraw 8000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None
	R5T6			Transfer Blocking	Cannot transfer before create account	login agent transfer 8000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None
	R5T7			Invalid Account Number	Cannot use alphabte as account number	login agent createacct ABCDEFGFG	Valid Account File: 1000000 2000000 0000000	Error invalid account number	None
	R5T8			Invalid Account Number	cannot create an account number that starts with ezro	login agent createacct 0123456	Valid Account File: 1000000 2000000 0000000	Error invalid account number	None
	R5T9			Invalid Account Number	cannot create an account number that digits are less than seven or more than seven	login agent createacct 12345678 digits	Valid Account File: 1000000 2000000 0000000	Error invalid account number	None
	R5T10			Invalid Account Number	cannot create an account number that is the same as existing number	login agent createacct 1000000	Valid Account File: 1000000 2000000 0000000	Error account already exists	None
	R5T11			Invalid account name	cannot create an account name that the beginning or the end or both with space	login agent createacct 10000000 1000000	Valid Account File: 1000000 2000000 0000000	Error invalid account name	None
	R5T12			Invalid account name	cannot create an account name that length is less than 3 or more than 30 alphanumeric characters	login agent createacct 10000000 invalid 1000000	Valid Account File: 1000000 2000000 0000000	Error invalid account name	None
	R5T13			Invalid account name	cannot create an account that all characters are alphabte or number	login agent createacct 10000000 abcdefd	Valid Account File: 1000000 2000000 0000000	Error invalid account name	None
	R5T14			vaild account name	check account name if vaild	login agent createacct 30000000 TEST1 logout	Valid Account File: 1000000 2000000 0000000	Success	NEW 3000000 000 0000000 TEST1 EOS 0000000 000 0000000 ***
Delete Account									
Privileged transction, only accepted in agent mode									
	R6T1			create blocking	Cannot deleteacct account before createacct	login agent deleteacct 3000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None

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	R6T2			deposit blocking	Cannot deposit after delete account	login agent deleteacct 1000000 login agent deposit 1000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None
	R6T3			withdraw blocking	Cannot withdraw after delete account	login agent deleteacct 1000000 login agent withdraw 1000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None
	R6T4			transfer blocking	Cannot transfer after delete account	login agent deleteacct 1000000 login agent transfer 1000000	Valid Account File: 1000000 2000000 0000000	The account numbe does not existing	None
	R6T5			delete account permitted	Allow delete account	login agent deleteacct 1000000	Valid Account File: 1000000 2000000 0000000	Success	Account File
Deposit									
Check that the Account # is valid	R7T1	Deposit Account Format Validation	account_format	reject_invalid	Reject invalid account # format	login agent deposit 1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R7T2			reject_alpha	Reject alphabetical account input	login agent deposit ABCDEFG	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R7T3	Deposit Account Existence Validation	account_existence	reject_nonexistent	Reject non-existent account #	login agent deposit 3000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None
No further transactions should be accepted on a deleted account	R8T1			reject_deleted	Reject deleted account	login agent delacct 1000000 TEST deposit 1000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None
0000000 is a special account and cannot be used. Decision to let users use account 0000000 to cancel a transaction	R9T1	Deposit Account Cancel Verification	transaction_cancel	transaction_cancel	Cancel deposit	login agent depoit 0000000 logout	Valid Account File: 1000000 2000000 0000000	OK - Transaction Cancelled	Transaction Summary: EOS 0000000 000 0000000 ***
ATM: Reject deposits above 2000\$	R10T1	Machine Deposit Limit Validation	transaction_limits (machine)	upper	ATM: Test deposit limit upper bound	login machine deposit 1000000 200000 logout	Valid Account File: 1000000 2000000 0000000	OK	Transaction Summary: DEP 1000000 200000 0000000 *** EOS 0000000 000 0000000 ***

Requirement	ID	Group	Group Short Name	Name	Purpose	Console Input	File Input	Console Output	File Output
	R10T2			lower	ATM: Test deposit limit lower bound	login machine deposit 1000000 0 logout	Valid Account File: 1000000 2000000 0000000	OK - Transaction Cancelled	Transaction Summary: EOS 0000000 000 0000000 ***
	R10T3			violate_upper	ATM: Violate limit upper bound	login machine deposit 1000000 200001	Valid Account File: 1000000 2000000 0000000	ERROR Deposit amount exceeds limit	None
	R10T4			violate_lower	ATM: Violate limit lower bound	login machine deposit 1000000 -1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a positive number	None
ATM: Daily total cannot exceed 5000\$ for any given account	R11T1	Machine Daily Account Deposit Limit Validation		violate_daily	ATM: Violate 5000\$ account limit	login machine deposit 1000000 200000 deposit 1000000 200000 deposit 1000000 100001	Valid Account File: 1000000 2000000 0000000	ERROR Deposit exceeds daily limit for account	None
Agent: Reject deposits above 999,999.99\$	R12T1	Agent Deposit Limit Validation	transaction_limits (agent)	upper	Agent: Test deposit limit upper bound	login agent deposit 1000000 99999999 logout	Valid Account File: 1000000 2000000 0000000	OK	Transaction Summary: DEP 1000000 99999999 0000000 *** EOS 0000000 000 0000000 ***
	R12T2			lower	Agent: Test deposit limit lower bound	login agent deposit 1000000 0 logout	Valid Account File: 1000000 2000000 0000000	OK - Transaction Cancelled	Transaction Summary: EOS 0000000 000 0000000 ***
	R12T3			violate_upper	Agent: Violate limit upper bound	login agent deposit 1000000 100000000	Valid Account File: 1000000 2000000 0000000	ERROR Deposit amount exceeds limit	None
	R12T4			violate_lower	Agent: Violate limit lower bound	login agent deposit 1000000 -1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a positive amount	None
Withdraw									
Check that the Account # is valid	R13T1	Withdrawal Account Format Validation	account_format	reject_invalid	Reject invalid account # format	login agent withdraw 1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R13T2			reject_alpha	Reject alphabetical account input	login agent withdraw ABCDEFGF	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R13T3	Withdrawal Account Existence Validation	account_existence	reject_nonexistent	Reject non-existent account #	login agent withdraw 3000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None

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Requirement	ID	Group	Group Short Name	Name	Purpose	Console Input	File Input	Console Output	File Output
Transfer									
Check that bouth Account #s are valid	R19T1	Transfer Account Format Validation	account_format	reject_invalid_src	Reject invalid account # format (from)	login agent transfer 1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R19T2			reject_invalid_dst	Reject invalid account # format (to)	login agent transfer 1000000 1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R19T3			reject_alpha_srt	Reject alphabetical account input (from)	login agent transfer ABCDEFGFG	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R19T4			reject_alpha_dst	Reject alphabetical account input (to)	login agent transfer 1000000 ABDEFG	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a valid account number	None
	R19T5	Transfer Account Existence Validation	account_existence	reject_nonexistent_src	Reject non-existent account # (from)	login agent transfer 3000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None
	R19T6			reject_nonexistent_dst	Reject non-existent account # (to)	login agent transfer 1000000 3000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None
No further transactions should be accepted on a deleted account	R20T1	Transfer Account Existence Validation		reject_deleted_src	Reject deleted account (from)	login agent delacct 1000000 TEST transfer 1000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None
	R20T2			reject_deleted_dst	Reject deleted account (to)	login agent delacct 2000000 TEST transfer 1000000 2000000	Valid Account File: 1000000 2000000 0000000	ERROR Account number does not exist	None
Don't transfer money to same account	R21T1		account_diff	reject_same	Reject from and to being same account	login agent transfer 1000000 1000000	Valid Account File: 1000000 2000000 0000000	ERROR Source and destination accounts must be different	
0000000 is a special account and cannot be used. Decision to let users use account 0000000 to cancel a transaction	R22T1	Transfer Account Cancel Verification	transaction_cancel	transaction_cancel_src	Cancel transfer (from)	login agent transfer 0000000 logout	Valid Account File: 1000000 2000000 0000000	OK - Transaction Cancelled	Transaction Summary: EOS 0000000 000 0000000 ***
	R22T2			transaction_cancel_dst	Cancel transfer (to)	login agent transfer 1000000 0000000 logout	Valid Account File: 1000000 2000000 0000000	OK - Transaction Cancelled	Transaction Summary: EOS 0000000 000 0000000 ***
ATM: Reject transfers above 10,000\$	R23T1	Machine Transfer Limit Validation	transaction_limits (machine)	upper	ATM: Test transfer limit upper bound	login machine transfer 1000000 2000000 1000000 logout	Valid Account File: 1000000 2000000 0000000	OK	Transaction Summary: XFR 1000000 1000000 2000000 *** EOS 0000000 000 0000000 ***

Requirement	ID	Group	Group Short Name	Name	Purpose	Console Input	File Input	Console Output	File Output
	R23T2			lower	ATM: Test withdraw limit lower bound	login machine transfer 1000000 2000000 0 logout	Valid Account File: 1000000 2000000 0000000	OK	Transaction Summary: XFR 1000000 000 2000000 *** EOS 0000000 000 0000000 ***
	R23T3			violate_upper	ATM: Violate limit upper bound	login machine transfer 1000000 2000000 1000001	Valid Account File: 1000000 2000000 0000000	ERROR Transfer amount exceeds transfer limit	None
	R23T4			violate_lower	ATM: Violate limit lower bound	login machine transfer 1000000 2000000 -1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a positive number	None
ATM: Daily total cannot exceed 5000\$ for any given account	R24T1	Machine Daily Account Transfer Limit Validation		violate_daily	ATM: Violate 10000\$ account transfer limit	login machine transfer 1000000 2000000 1000000 transfer 1000000 2000000 1	Valid Account File: 1000000 2000000 0000000	ERROR Transfer amount exceeds daily limit for account	None
Agent: Reject withdrawals above 999,999.99\$	R25T1	Agent Transfer Limit Validation	transaction_limits (agent)	upper	Agent: Test transfer limit upper bound	login agent transfer 1000000 2000000 999999999 logout	Valid Account File: 1000000 2000000 0000000	OK	Transaction Summary: XFR 1000000 99999999 2000000 *** EOS 0000000 000 0000000 ***
	R25T2			lower	Agent: Test withdraw limit lower bound	login agent transfer 1000000 2000000 0 logout	Valid Account File: 1000000 2000000 0000000	OK Transaction Cancelled	Transaction Summary: DEP 1000000 000 2000000 *** EOS 0000000 000 0000000 ***
	R25T3			violate_upper	Agent: Violate limit upper bound	login agent transfer 1000000 2000000 100000000	Valid Account File: 1000000 2000000 0000000	ERROR Transfer amount exceeds limit	None
	R25T4			violate_lower	Agent: Violate limit lower bound	login agent transfer 1000000 2000000 -1	Valid Account File: 1000000 2000000 0000000	ERROR Please enter a positive amount	None
Account List Login									
Each line is exactly 7 numbers	R26T1	Invalid Accounts Login	invalid_list	reject_invalid	Reject list with invalid account number	login machine	Invalid Account File: 1 0000000	ERROR Invalid Account in Account List	None
No accounts can start with 0	R27T1	Invalid Accounts Login		reject_zero_prefix	Reject list with invalid account number	login machine	Invalid Account File 2: 0111111 0000000	ERROR Invalid Account in Account List	None
The list ends w/ special account 0000000	R28T1	Invalid Accounts Login		reject_missing	Reject list with invalid file terminator	login machine	Invalid Account File 3: 1000000	ERROR Invalid Account File	None

Requirement	ID	Group	Group Short Name	Name	Purpose	Console Input	File Input	Console Output	File Output
Read account list on login	R29T1	Empty Accounts Login	empty_list	login	Reject non-existent account file	login machine	None	ERROR Account file is non-existent	None
Issue! If there are no accounts to complete transactions with, don't ask for an account and return to main menu	R30T1	Empty Accounts Withdraw		withdraw	Reject withdraw if no accounts available	login agent withdraw	Empty Account File: 0000000	ERROR No accounts to withdraw from	None
	R30T2	Empty Accounts Deposit		deposit	Reject deposit if no accounts available	login agent deposit	Empty Account File: 0000000	ERROR No accounts to deposit to	None
	R30T3	Empty Accounts Transfer		transfer	Reject transfer if no accounts available	login agent transfer	Empty Account File: 0000000	ERROR No accounts to transfer from	None
	R30T4	Empty Accounts Delete		deleteacct	Reject deleteacct if no accounts to delete	login agent deleteacct	Empty Account File: 0000000	ERROR No accounts to delete	None
	R30T5	Empty Accounts Create		createacct	Accept createacct if no accounts in list	login agent createacct 1000000 TEST logout	Empty Account File: 0000000	OK	Transaction file: NEW 1000000 000 0000000 TEST EOS 0000000 000 0000000 ***
Transaction Output Test									
Transaction codes must be one of NEW, DEL, WDR, DEP, XFR, EOS	R31T1	Transaction Code Verification	codes	validate	Verify all codes in output files are valid	None	All generated transaction files	OK	None
Transaction file must end with EOS line	R32T1	Transaction End Code Verification		eos	Ensure the last code is EOS	None	All generated transaction files	OK	None
Unused fields must be filled with placeholder strings	R33T1	Transaction Placeholder Verification	placeholders	Transaction Placeholder Verification	Verify all placeholder values in the transaction file are either 000000 for accounts, 000 for amounts, and *** for names	None	All generated transaction files	OK	None