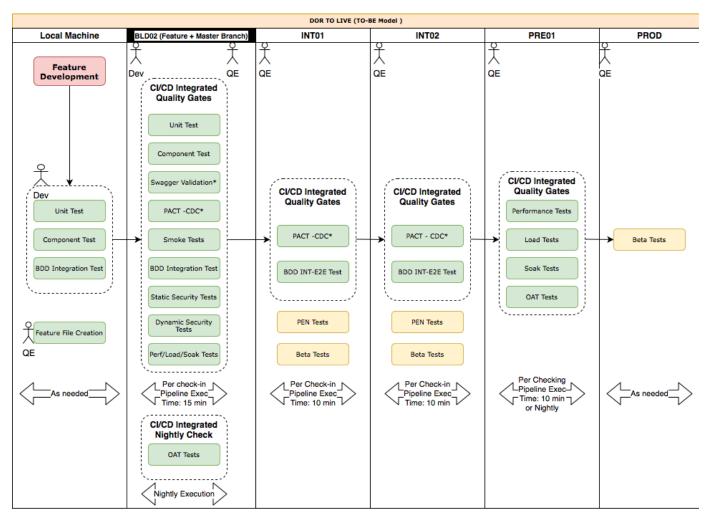
P&A | Quality Engineering Roadmap

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Glossary & Color codes:

UNIT TESTS COMPONENT TESTS SWAGGER VALIDATIONS PACT-CDC TESTS SMOKE TESTS BDD INTEGRATION TESTS BDD INTEGRATION TESTS BDD INTEGRATION TESTS STATIC SECURITY TESTS TESTS DYNAMIC SECURITY TESTS PERFORMANCE TESTS PERFORMANCE TESTS PONAMIC SECURITY TESTS PERFORMANCE TESTS PERFORMANCE TESTS LOAD TESTS OAL TESTS OAL TESTS LOAD TESTS LO	Fully Automated (Test Automation = Yes; CI /CD Enabled= Yes; Automated Reports = Yes)	Partially Automated (Test Automation = Yes; CI /CD Enabled= No; Automated Reports = Yes/No)	Manually Tested (Test Automation = No; CI /CD Enabled= No; Manual Testing = Yes; Manual Reports= Yes)	Not Implemented (Test Automation = No; CI/CD Enabled= No; Manual Tests = No; Automated Reports = No; Manual Reports = No)	Managed at Central Program Level
• PEN TESTS • PEN TESTS • BETA TESTING • BETA TESTING • DAT TESTS • OAT TESTS • PEN TESTS • DAT TESTS • OAT TESTS	COMPONENT TESTS SWAGGER VALIDATIONS PACT-CDC TESTS SMOKE TESTS BDD INTEGRATION TESTS BDD INT-E2E TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMANCE TESTS LOAD TESTS OAT TESTS PEN TESTS PEN TESTS	• COMPONENT TESTS SWAGGER • VALIDATIONS • PACT-CDC TESTS • SMOKE TESTS • BDD INTEGRATION • TESTS • BDD INT-E2E TESTS STATIC SECURITY • TESTS DYNAMIC SECURITY • TESTS • PERFORMANCE TESTS • LOAD TESTS • SOAK TESTS • OAT TESTS • PEN TESTS	COMPONENT TESTS SWAGGER VALIDATIONS PACT-CDC TESTS SMOKE TESTS BDD INTEGRATION TESTS BDD INT-E2E TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMANCE TESTS LOAD TESTS OAT TESTS OAT TESTS	• COMPONENT TESTS SWAGGER • VALIDATIONS • PACT-CDC TESTS • SMOKE TESTS BDD INTEGRATION • TESTS • BDD INT-E2E TESTS STATIC SECURITY • TESTS DYNAMIC SECURITY • TESTS • PERFORMANCE TESTS • LOAD TESTS • SOAK TESTS • OAT TESTS • PEN TESTS	• COMPONENT TESTS SWAGGER • VALIDATIONS • PACT-CDC TESTS • SMOKE TESTS • BDD INTEGRATION • TESTS • BDD INT-E2E TESTS STATIC SECURITY • TESTS DYNAMIC SECURITY • TESTS PERFORMANCE • TESTS • LOAD TESTS • SOAK TESTS



* Test type applied only to Microservices

Automated Tests

Manual/ Partially Automated Tests

P&A Components

- 1. Microservices
- 2. MS APIGEE Proxy
- 3. JBPM Workflows
- 4. Dataflow Spanner
- 5. Dataflow Pubsub
- 6. Dataloader
- 7. Smart Contracts
- 8. Vault/Carbon Stack
- 9. NPAs

Processes Track

		Comp	Quality	Gates: AS-IS STA	TE (Current)	Quality Gates: TO-BE STATE (Future)				
1	Compon ents	SubTy pe	BLD02	INT01/02 Env	PRE01 (NFT) Env	PROD	BLD02	INT01/02 Env	PRE01 (NFT) Env	PROD

4	Products		LINIT TEATA		DACT CDC		DDD			LINET		DACT COC		DDD	
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		3.	SWAGGER VALIDATIONS	3.	PEN TESTS		ORMA NCE TESTS			SWAGGER VALIDATIO	3.	PEN TESTS		PER FOR	
		4.	PACT-CDC TESTS		BETA		LOAD		3.	NS PACT-CDC		BETA		MAN CE TES	
		5.	SMOKE TESTS	4.	TESTING	2.	SOAK		4.	TESTS	4.	TESTING	2.	TS	
			BDD INTEGRATIO			3.	TESTS		5.	SMOKE TESTS			3.	D TES TS	
		6.	N TESTS STATIC			4.	TESTS		6.	BDD INTEGRATI ON TESTS			3.	SOA	
		7.	SECURITY TESTS			5.	PEN TESTS			STATIC SECURITY			4.	K TES TS	
			DYNAMIC SECURITY						7.	TESTS				OAT TES	
		8.	TESTS PERFORMA						8.	DYNAMIC SECURITY TESTS			5.	TS	
		9.	NCE TESTS						9.	PERFORMA NCE TESTS			6.	PEN TES TS	
		10.	LOAD TESTS							LOAD					
		11.	SOAK TESTS						10.	TESTS					
		12.	OAT TESTS						11.	TESTS					
5	Transacti	_	LINIT TEATO		DAGT ODG		DDD		12.	OAT TESTS		DAGT ODG		222	
5	ons	1.	COMPONEN	1.	PACT-CDC TESTS		BDD INT- E2E	BETA TESTI NG	1.	UNIT TESTS	1.	PACT-CDC TESTS		BDD INT- E2E	BET A TES
		2.	T TESTS	2.	BDD INT- E2E TESTS	1.	TESTS PERF		2.	COMPONE NT TESTS	2.	BDD INT- E2E TESTS	1.	TES TS	TING
		3.	SWAGGER VALIDATIONS	3.	PEN TESTS		ORMA NCE TESTS			SWAGGER VALIDATIO	3.	PEN TESTS		PER FOR	
		4.	PACT-CDC TESTS		BETA		LOAD		3.	NS PACT-CDC		BETA		MAN CE TES	
		5.	SMOKE TESTS	4.	TESTING	2.	SOAK		4.	TESTS	4.	TESTING	2.	TS LOA	
			BDD INTEGRATIO			3.	TESTS		5.	SMOKE TESTS			3.	D TES TS	
		6.	N TESTS			4.	TESTS		6.	BDD INTEGRATI ON TESTS			Э.	SOA	
		7.	STATIC SECURITY TESTS			5.	PEN TESTS		0.	STATIC			4.	K TES TS	
			DYNAMIC SECURITY						7.	SECURITY TESTS				OAT	
		8.	TESTS PERFORMA						8.	DYNAMIC SECURITY TESTS			5.	TS	
		9.	NCE TESTS							PERFORMA			6.	PEN TES TS	
		10.	LOAD TESTS							NCE TESTS LOAD					
		11.	SOAK TESTS						10.	TESTS					
		12.	OAT TESTS						11.	TESTS					
									12.	OAT TESTS					

6			1. UNIT TESTS 2. COMPONEN T TESTS 3. VALIDATIONS 4. PACT-CDC TESTS 5. SMOKE TESTS 6. NTESTS BDD INTEGRATIO N TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 9. NCE TESTS 10. TESTS 11. SOAK TESTS 12. OAT TESTS	1. PACT-CDC TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	BDD INT-E2E 1. TESTS PERF ORMANCE TESTS LOAD TESTS 3. TESTS 4. OAT TESTS PEN TESTS 5. TESTS	BETA TESTI NG	2. 3. 4. 5. 6. 7. 8. 9. 10.	UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO NS PACT-CDC TESTS SMOKE TESTS BDD INTEGRATION TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS DEFORMANCE TESTS LOAD TESTS SOAK TESTS DAT TESTS	1. PACT-CDC 1. TESTS BDD INT- E2E TESTS PEN TESTS 4. BETA TESTING	1. 2. 3. 4. 5.	BDD INT- E2E TES TS PER FOR MAN CES TS LOA D TES TS SOA K TES TS OAT TES TS PEN TES TS	BET A TES TING
	APIGEE A	Accounts	1. UNIT TESTS COMPONEN T TESTS SWAGGER 3. VALIDATIONS SMOKE TESTS INTEGRATIO N TESTS	1. BDD INT- EZE TESTS 2. PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. TESTS 3. TESTS 4. OAT TESTS 5. PEN TESTS	BETA TESTI NG	2. 3.	UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO NS SMOKE TESTS BDD INTEGRATI ON TESTS	1. EZE TESTS 2. PEN TESTS 3. BETA TESTING	1. 2. 3. 4. 5.	BDD INT-E2E TES TS PER FOR MAN CE TES TS SOA K TES TS OAT TES TS PEN TES TS	BET A TES TING
8	E	Balance	1. UNIT TESTS 2. COMPONEN T TESTS 3. VALIDATIONS 4. SMOKE TESTS BDD INTEGRATIO N TESTS	1. EZE TESTS 2. PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS LOAD TESTS SOAK TESTS 4. TESTS PEN TESTS 5. TESTS	BETA TESTI NG	2. 3. 4.	UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO NS SMOKE TESTS BDD INTEGRATI ON TESTS	1. E2E TESTS 2. PEN TESTS 3. BETA TESTING	1. 2. 3. 4. 5.	BDD INT-E2E TES TS PER FOR MAN CE TES TS LOA TES TS OAT TES TS OAT TES TS	BET A TES TING

9	Products 1. UNIT TESTS 2. COMPONEN T TESTS 3. VALIDATIONS 4. SMOKE TESTS BDD INTEGRATIO N TESTS	2. TESTS BETA TESTING	PERFORMA NCE TESTS 1. TESTS 2. LOAD TESTS 3. SOAK TESTS 4. OAT TESTS 5. PEN TESTS	1. UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO 3. SMOKE TESTS BDD INTEGRATI ON TESTS	1. BDD INT- E2E TESTS 2. PEN TESTS BETA TESTING	BDD BET A TES TES TES TES TING 1. TS PER FOR MAN CE TES TES 1. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6. TS
10	Transacti ons 1. UNIT TESTS COMPONEN T TESTS SWAGGER 3. VALIDATIONS 4. TESTS BDD INTEGRATIO N TESTS	2. TESTS BETA TESTING	PERFORMA NCE 1. TESTS 1. TESTS 2. LOAD TESTS 3. TESTS 4. OAT TESTS 5. PEN TESTS	1. UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO 3. SMOKE TESTS BDD INTEGRATION TESTS 5. ON TESTS	1. BDD INT- EZE TESTS 2. PEN TESTS 3. BETA TESTING	BDD INT A TES TES TING 1. TS PER FOR MAN CE TES TES TING 1. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6. TS
11	Entitleme nts 1. UNIT TESTS COMPONEN T TESTS 3. VALIDATIONS 4. SMOKE TESTS BDD INTEGRATIO N TESTS	2. TESTS BETA TESTING	PERFORMA NCE TESTS 1. LOAD TESTS 3. SOAK TESTS 4. OAT TESTS 5. PEN TESTS	1. UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO 3. SMOKE TESTS BDD INTEGRATI ON TESTS	1. EZE TESTS PEN TESTS BETA TESTING	BDD BET A TES TES TES TES TING 1. TS PER FOR MAN CE TES TES TING LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6. TS

12 JBPM Workflows	JBPM + Applicati ons	1. UNIT TESTS 2. COMPONENT T TESTS 3. VALIDATION 4. PACT-CDC TESTS 5. SMOKE TESTS 6. N TESTS 7. STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 9. PERFORMANIC TESTS 10. LOAD TESTS 11. SOAK TESTS 12. OAT TESTS	2. E2E TESTS 3. PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. LOAD 2. TESTS 3. TESTS 4. OAT TESTS 5. PEN TESTS	BETA TESTI NG	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	UNIT TESTS COMPONE NT TESTS SWAGGER VALIDATIO NS PACT-CDC TESTS SMOKE TESTS BDD INTEGRATION TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK TESTS OAT TESTS	1. PACT-CDC TESTS 2. BDD INT-E2E TESTS 3. PEN TESTS BETA TESTING	1. 2. 3. 4. 5.	BDD INT- E2E TES TS PER FOR MAN CE TES TS LOA D TES TS SOA K TES TS OAT TES TS OAT TES TS	BET A TES TING
13 DataFlow - Spanner	Accounts	1. UNIT TESTS COMPONENT TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS	1. SPANNER INT TESTS BDD INT-E2E TESTS PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. LOAD TESTS 3. SOAK TESTS 4. OAT TESTS 5. PEN TESTS	BETA TESTI NG	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	UNIT TESTS COMPONE NT TESTS SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK TESTS OAT TESTS	BDD SPANNER INT TESTS BDD INT-E2E TESTS PEN TESTS BETA TESTING	1. 2. 3. 4. 5.	BDD INT- E2E TES TS PER FOR MAN CE TES TS LOA D TES TS SOA K TES TS OAT TES TS PEN TES TS	BET A TES TING

14	Balance	1. UNIT TESTS COMPONEN T TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS DYNAMIC SECURITY TESTS LOAD TESTS SOAK TESTS 9. OAT TESTS	BDD SPANNER INT TESTS BDD INT- E2E TESTS 3. PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 1. LOAD TESTS SOAK TESTS 4. OAT TESTS PEN TESTS	8	COMPONE NT TESTS SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK	BDD SPANNER 1. INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	BDD INT- EZE TES TES 1. TS PER FOR MAN CE TES TES 2. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6. TS
15	Customer	1. UNIT TESTS COMPONEN T TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK TESTS 9. OAT TESTS	BDD SPANNER INT TESTS 1. BDD INT-E2E TESTS 2. PEN TESTS 4. BETA TESTING	PERFORMA NCE 1. TESTS 2. LOAD TESTS 3. OAT TESTS 4. PEN TESTS 5. PEN TESTS	8	COMPONE NT TESTS SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK	BDD SPANNER 1. INT TESTS 2. BDD INT- E2E TESTS 3. PEN TESTS BETA TESTING	BDD INT- E2E TES 1. TES 1. TS PER FOR MAN CE TES 2. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6.
16	Transacti	1. UNIT TESTS 2. COMPONEN T TESTS BDD SPANNER INT TESTS 3. INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS DYNAMIC SECURITY TESTS 6. NCE TESTS LOAD TESTS 8. SOAK TESTS 9. OAT TESTS	1. BDD SPANNER INT TESTS BDD INT-E2E TESTS 3. PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. LOAD TESTS 3. SOAK TESTS 4. OAT TESTS 5. PEN TESTS	5 6 7 8	COMPONE NT TESTS SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK	BDD SPANNER INT TESTS BDD INT-E2E TESTS PEN TESTS BETA TESTING	BDD INT- E2E TES 1. TS PER FOR MAN CE TES TES 2. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6. TS

18	Payment Order Postings	1. UNIT TESTS COMPONEN T TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS A. LOAD TESTS SOAK TESTS 9. OAT TESTS 1. UNIT TESTS COMPONEN	BDD SPANNER INT TESTS 2. BDD INT-E2E TESTS 3. PEN TESTS 4. BETA TESTING BDD SPANNER INT TESTS	PERFORMA NCE 1. TESTS 2. TESTS 3. TESTS 4. TESTS 5. PEN TESTS PERFORMA NCE	BETA TESTI NG BETA TESTI NG	1. UNIT TESTS 2. COMPONE NT TESTS 3. SMOKE TESTS 4. INT TESTS 5. STATIC SECURITY TESTS 7. PERFORMA NCE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS UNIT TESTS	BDD SPANNER 1. INT TESTS BDD INT- E2E TESTS 3. PEN TESTS 4. BETA TESTING BDD SPANNER 1. INT TESTS	BDD INT- E2E TES TING 1. TS PER FOR MAN CE TES TES TS LOA D TES 3. TS SOA K TES TES TS OAT TES TS OAT TES TS PEN TES TS BDD BDT BET A TES TES TS BDD BT A TES
		2. COMPONEN T TESTS BDD SPANNER INT TESTS 3. INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 6. PERFORMA NCE TESTS LOAD TESTS SOAK TESTS 9. OAT TESTS	1. INT TESTS 2. BDD INT- E2E TESTS 3. PEN TESTS 4. TESTING	1. TESTS 2. TESTS 2. TESTS 3. TESTS 4. OAT TESTS 5. PEN TESTS		2. COMPONE NT TESTS 3. SMOKE TESTS 4. INT TESTS 5. TATIC SECURITY TESTS DYNAMIC SECURITY TESTS 7. PERFORMA NCE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	1. INT TESTS BDD INT- E2E TESTS 3. PEN TESTS 4. BETA TESTING	1. TES TES TING PER FOR MAN CE TES TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES TS 6. PEN TES TS
19	EOD	1. UNIT TESTS COMPONEN T TESTS BDD SPANNER INT TESTS 3. INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 6. PERFORMA NCE TESTS 7. LOAD TESTS 8. SOAK TESTS 9. OAT TESTS	1. BDD SPANNER INT TESTS 2. BDD INT-E2E TESTS 3. PEN TESTS 4. BETA TESTING	PERFORMA NCE 1. TESTS 2. TESTS 3. TESTS 4. TESTS 5. PEN TESTS	BETA TESTI NG	1. UNIT TESTS 2. COMPONE NT TESTS 3. SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 7. PERFORMA NCE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	BDD SPANNER INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	BDD INT- E2E TES TES T. PER FOR MAN CE TES TS LOA D TES TES TS SOA K TES TES TS OAT TES TES TS PEN TES TS 6.

20 Nati	2. COMPONEN T TESTS 3. TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 7. PERFORMA NCE TESTS 8. TESTS 9. TESTS 10. OAT TESTS	1. BDD SPANNER INT TESTS BDD INT- EZE TESTS PEN TESTS BETA TESTING	ORMA NCE 1. TESTS LOAD TESTS SOAK 3. TESTS OAT 4. TESTS PEN 5. TESTS	1. UNIT TESTS 2. COMPONE 2. NT TESTS 3. SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 7. PERFORMA NCE TESTS 8. LOAD TESTS SOAK 9. TESTS 10. OAT TESTS	BDD SPANNER INT TESTS BDD INT- 2. E2E TESTS PEN TESTS BETA TESTING	BDD BET A EZE TES TES TES TES TING 1. TS PER FOR MAN CE TES TES 2. TS LOA D TES 3. TS SOA K TES TES 4. TS OAT TES 5. TS PEN TES 6. TS
21 Pubsub Acce	2. COMPONEN T TESTS 2. COMPONEN T TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS 1. LOAD TESTS SOAK TESTS 9. OAT TESTS	BDD SPANNER INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	ORMA TI	1. UNIT TESTS COMPONE 2. NT TESTS SMOKE 3. ESTANCE 4. INT TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	BDD SPANNER 1. INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	BDD INT- E2E TES TIS 1. TS PER FOR MAN CE TES TES 2. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES TS 6. TS
22 Bala	Ance 1. UNIT TESTS COMPONEN T TESTS BDD SPANNER INT TESTS SECURITY TESTS DYNAMIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD 7. LOAD TESTS 8. SOAK TESTS 9. OAT TESTS	BDD SPANNER INT TESTS BDD INT-E2E TESTS PEN TESTS BETA TESTING	ORMA TI	1. UNIT TESTS COMPONE COMPONE NT TESTS 3. SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA 7. NCE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	BDD SPANNER 1. INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	BDD INT- E2E TES TES TES TING 1. TS PER FOR MAN CE TES TES TES TES TES TES TES TES TES TE

23	; ;	DYNAMIC SECURITY TESTS DYNAMIC SECURITY TESTS	BDD SPANNER INT TESTS BDD INT-E2E TESTS PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. LOAD 2. TESTS 3. SOAK 3. TESTS 4. OAT 4. TESTS 5. PEN TESTS	BETA TESTI NG	1. UNIT TESTS COMPONINT TESTS SMOKE TESTS 3. TESTS SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS 7. NCE TEST 7. NCE TEST 9. SOAK TESTS 10. OAT TEST	BDD INT- E2E TESTS 3. PEN TESTS 4. BETA TESTING	BDD INT- EZE TES TES 1. TS PER FOR MAN CE TES TES 2. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES TS 6. PEN TES TS
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	Order	DYNAMIC SECURITY TESTS	BDD SPANNER INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. LOAD 2. TESTS 3. SOAK 4. OAT 4. TESTS 5. PEN TESTS	BETA TESTI NG	1. UNIT TESTS COMPONINT TESTS SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORM NCE TESTS 1. LOAD TESTS 9. TESTS 10. OAT TEST	BDD INT- E2E TESTS 3. PEN TESTS 4. BETA TESTING	BDD INT- E2E TES 1. TS PER FOR MAN CE TES 2. TS LOA D TES 3. TS SOA K TES 4. TS OAT TES 5. TS PEN TES 6. TS

26 Po	ostings 1 2 3 3 4 4 5 6 6 7 8 9	COMPONEN T TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK TESTS	BDD SPANNER INT TESTS 2. BDD INT- E2E TESTS 3. PEN TESTS 4. BETA TESTING	PERFORMA NCE 1. TESTS 2. TESTS 3. TESTS 4. TESTS 5. PEN TESTS	BETA TESTI NG	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	UNIT TESTS COMPONE NT TESTS SMOKE TESTS BDD SPANNER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK TESTS OAT TESTS	BDD SPANNER INT TESTS BDD INT-E2E TESTS PEN TESTS BETA TESTING	1. TS PEEFO MAA CE TE: 2. TS LO. D. TE: 3. TS SO. K TE: TS 4. OA' TE: TS TS 6. TS	A TES TING
27 DataLoader Da		SMOKE TESTS BDD DATALOAD ER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS LOAD TESTS SOAK TESTS	BDD DATALOA DER INT TESTS BDD INT- E2E TESTS PEN TESTS BETA TESTING	PERFORMA NCE 1. TESTS 2. TESTS 3. TESTS 4. TESTS 5. PEN TESTS	BETA TESTI NG	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	UNIT TESTS COMPONE NT TESTS SMOKE TESTS BDD DATALOAD ER INT TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS DYNAMIC SECURITY TESTS LOAD TESTS SOAK TESTS OAT TESTS	BDD DATALOA DER INT 1. TESTS BDD INT- E2E TESTS 3. PEN TESTS BETA TESTING	BDI INT E21 TEE TEE TEE TEE TEE TEE TEE TEE TEE TE	TES TING

Products Track

Compon ents	Compon	Quality Gates State - Current				Quality Gates State - TO-BE (Final)			
	SubType	BLD02	INT01/02 Env	PRE01 (NFT) Env	PROD	BLD02	INT01/02 Env	PRE01 (NFT) Env	PROD

Smart contracts	Smart contracts	1. UNIT TESTS COMPONENT TESTS SMOKE TESTS BDD INTEGRATIO N TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMAN CE TESTS LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	1. EZE TESTS 2. PEN TESTS 3. BETA TESTING	1. TESTS PERFORMAN CE TESTS LOAD TESTS SOAK TESTS OAT TESTS 6. TESTS	BETA TESTI NG	1. UNIT TESTS COMPONEN T TESTS 3. SMOKE TESTS BDD INTEGRATI ON TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA 7. PERFORMA 7. PERFORMA 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	1. BDD INT- E2E TESTS 2. PEN TESTS 3. BETA TESTING	BDD INT- E2E 1. TESTS PERF ORM ANC E 2. TESTS LOA 3. TESTS SOA K 4. TESTS OAT 5. TESTS PEN TES 6. TS
Vault	Vault/ Carbon Stack	1. UNIT TESTS COMPONENT TESTS SMOKE TESTS BDD INTEGRATIO N TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMAN CE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	1. BDD INT- EZE TESTS 2. PEN TESTS 3. BETA TESTING	BDD INT- E2E 1. TESTS PERFO RMAN CE TESTS LOAD 3. TESTS 4. SOAK TESTS OAT TESTS 6. TESTS	BETA TESTI NG	1. UNIT TESTS COMPONEN T TESTS SMOKE TESTS BDD INTEGRATI ON TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS DONAMIC SECURITY TESTS DONAMIC SECURITY TESTS DONAMIC SECURITY TESTS	1. E2E TESTS 2. PEN TESTS 3. BETA TESTING	BDD INT- E2E 1. TESTS PERF ORM ANC E 2. TESTS LOA D 3. TESTS SOA K 4. TESTS OAT 5. TESTS PEN TES TES 6.
Vault	NPAs	1. UNIT TESTS COMPONENT TESTS SMOKE TESTS BDD INTEGRATION TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMAN 7. CE TESTS 8. LOAD TESTS 9. SOAK TESTS 10. OAT TESTS	1. BDD INT- EZE TESTS 2. PEN TESTS 3. BETA TESTING	1. TESTS PERFORMAN CE TESTS LOAD TESTS A. SOAK TESTS OAT TESTS OAT TESTS 6. TESTS	BETA TESTI NG	1. UNIT TESTS COMPONEN T TESTS SWAGGER VALIDATIO 3. NS 4. PACT-CDC TESTS SMOKE TESTS BDD INTEGRATION TESTS STATIC SECURITY TESTS DYNAMIC SECURITY TESTS PERFORMA NCE TESTS 10. LOAD TESTS 11. SOAK TESTS 12. OAT TESTS	1. PACT-CDC TESTS BDD INT-E2E TESTS 3. PEN TESTS BETA TESTING	BDD INT- E2E 1. TESTS PERFORM ANC E 2. TESTS LOA D 3. TESTS SOA K 4. TESTS OAT 5. TESTS PEN TES 6. TS

Some other best practices needed in P&A workstream (Dated: 03 Jul 2020):

- 1. P&A should follow Test Driven Development approach
 - a. Unit Tests are written first and then development starts
- 2. P&A should follow true Behavioral Driven Development approach (and not just BDD tests)
 - a. The story is developed based on feature requirements.
 - i. BA writes the acceptance criteria in the form of Feature File
 - ii. QE integrates feature file in jenkins pipeline
 - iii. The developer develops the functionality ensuring feature file execution passes
 - b. End-to-End story Go-live responsibility should lie with Developer and QE should act as an Enabler and not a Tester (least hand-offs approach)
- 3. Components Tests should be moved from Springboot to Gherkin/Cucumber format (Currently only BDD integration tests are in CucumberGherkin format)
- 4. More focus & coverage should be given on Unit & Component tests rather BDD integration tests (Test Pyramid approach is missing ATM)
- 5. Tools Like X-Ray can be integrated for Story Test coverage (Already planned for P1.14)
- 6. Webhooks implementation for each pipeline deployment Currently execution happens via jenkins job click only
- 7. Parallel NFR Test stage integration in deployments pipelines Currently Jenkins doesn't support much load
- 8. Environment on-Demand Currently feature branch deployments is a limitation
- 9. Reporting: Proper Speedy integration & regular monitoring of all quality gates Currently no latest data is present in Speedy

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