





You



You



6.5.3: Insecure cryptographic storage  
(cont.)

SIGMA.cors\_with\_credentials\_http\_origin\_terraform\_azurerm\_app\_service, SIGMA.credentials\_validation\_disabled\_node\_aws\_sdk, SIGMA.database\_encryption\_disabled\_cloudformation\_doc\_db, SIGMA.database\_encryption\_disabled\_cloudformation\_dynamo\_db, SIGMA.database\_encryption\_disabled\_cloudformation\_neptune\_cluster, SIGMA.database\_encryption\_disabled\_cloudformation\_rds\_cluster, SIGMA.database\_encryption\_disabled\_cloudformation\_rds\_instance, SIGMA.database\_encryption\_disabled\_cloudformation\_redshift\_cluster, SIGMA.database\_encryption\_disabled\_terraform\_aws\_athena, SIGMA.database\_encryption\_disabled\_terraform\_aws\_rds, SIGMA.deprecated\_http\_client\_apache\_default\_http\_client, SIGMA.deprecated\_http\_client\_apache\_system\_default\_http\_client, SIGMA.disk\_encryption\_disabled\_cloudformation\_aws\_autoscaling, SIGMA.disk\_encryption\_disabled\_cloudformation\_dax, SIGMA.disk\_encryption\_disabled\_cloudformation\_efs, SIGMA.disk\_encryption\_disabled\_cloudformation\_elastic\_cache\_group, SIGMA.disk\_encryption\_disabled\_cloudformation\_elastic\_search, SIGMA.disk\_encryption\_disabled\_cloudformation\_workspace\_volume, SIGMA.disk\_encryption\_disabled\_terraform\_aws\_dax, SIGMA.disk\_encryption\_disabled\_terraform\_aws\_ebs, SIGMA.disk\_encryption\_disabled\_terraform\_aws\_efs, SIGMA.disk\_encryption\_disabled\_terraform\_azurerm\_managed\_disk, SIGMA.empty\_encryption\_key\_node\_crypto, SIGMA.encryption\_disabled\_cloudformation\_eks, SIGMA.encryption\_disabled\_ios\_multipeer\_connection, SIGMA.encryption\_disabled\_spring\_security, SIGMA.encryption\_disabled\_terraform\_aws\_eks, SIGMA.expect\_ct\_disabled\_express\_helmet, SIGMA.hpkp\_max\_age\_too\_long\_express, SIGMA.hpkp\_max\_age\_too\_long\_koa, SIGMA.hpkp\_report\_uri\_missing\_tls\_express, SIGMA.hpkp\_report\_uri\_missing\_tls\_koa, SIGMA.hsts\_http\_header\_subdomains\_disabled\_express\_helmet, SIGMA.hsts\_http\_header\_subdomains\_disabled\_express\_hsts, SIGMA.improper\_use\_of\_symmetric\_cryptography\_hazelcast\_code, SIGMA.improper\_use\_of\_symmetric\_cryptography\_hazelcast\_xml, SIGMA.improper\_use\_of\_symmetric\_cryptography\_hazelcast\_yaml, SIGMA.insecure\_cipher\_core\_java\_block\_cipher, SIGMA.insecure\_cipher\_core\_java\_block\_cipher\_mode, SIGMA.insecure\_cipher\_core\_java\_stream\_cipher, SIGMA.insecure\_tls\_cipher\_suite\_cloudformation\_load\_balancer, SIGMA.insecure\_tls\_cipher\_suite\_node\_https, SIGMA.insecure\_tls\_cipher\_suite\_node\_request, SIGMA.insecure\_tls\_cipher\_suite\_node\_tls, SIGMA.insecure\_tls\_version\_ats\_exception, SIGMA.insecure\_tls\_version\_cloudformation\_cloudfront, SIGMA.insecure\_tls\_version\_cloudformation\_elastic\_search, SIGMA.insecure\_tls\_version\_cloudformation\_load\_balancer, SIGMA.insecure\_tls\_version\_core\_java, SIGMA.insecure\_tls\_version\_ios\_protocol\_max, SIGMA.insecure\_tls\_version\_ios\_protocol\_min, SIGMA.insecure\_tls\_version\_ios\_stream\_property, SIGMA.insecure\_tls\_version\_kafka, SIGMA.insecure\_tls\_version\_node\_https, SIGMA.insecure\_tls\_version\_node\_request, SIGMA.insecure\_tls\_version\_node\_tls, SIGMA.insecure\_tls\_version\_terraform\_azurerm\_app\_service, SIGMA.insecure\_tls\_version\_terraform\_azurerm\_postgresql, SIGMA.insecure\_tls\_version\_terraform\_azurerm\_storage\_account, SIGMA.insufficient\_asymmetric\_key\_size\_core\_java, SIGMA.insufficient\_symmetric\_key\_size\_core\_java, SIGMA.jwt\_untrusted\_decode\_io\_jsonwebtoken, SIGMA.jwt\_untrusted\_decode\_jsonwebtoken, SIGMA.kms\_encryption\_service\_disabled\_kubernetes, SIGMA.login\_over\_http\_spring\_security, SIGMA.message\_encryption\_disabled\_cloudformation\_sns, SIGMA.message\_encryption\_disabled\_cloudformation\_sqs, SIGMA.missing\_mtls\_consul, SIGMA.missing\_mtls\_istio\_port, SIGMA.missing\_mtls\_istio\_service, SIGMA.missing\_mtls\_istio\_workload, SIGMA.missing\_mtls\_kafka\_broker, SIGMA.missing\_mtls\_rabbitmq, SIGMA.missing\_perfect\_forward\_secrecy\_ats\_exception, SIGMA.missing\_perfect\_forward\_secrecy\_ats\_temporary\_exception, SIGMA.missing\_perfect\_forward\_secrecy\_ats\_temporary\_third\_party\_exception, SIGMA.missing\_perfect\_forward\_secrecy\_ats\_third\_party\_exception, SIGMA.missing\_secure\_attribute\_postman, SIGMA.missing\_secure\_attribute\_remember\_me\_cookie\_spring\_security\_code, SIGMA.missing\_secure\_attribute\_remember\_me\_cookie\_spring\_security\_config, SIGMA.missing\_secure\_attribute\_servlet, SIGMA.missing\_secure\_attribute\_session\_cookie\_express, SIGMA.missing\_secure\_attribute\_session\_cookie\_grails, SIGMA.missing\_secure\_attribute\_session\_cookie\_servlet\_xml, SIGMA.missing\_secure\_attribute\_session\_cookie\_spring\_boot\_properties, SIGMA.missing\_secure\_attribute\_session\_cookie\_spring\_boot\_yaml, SIGMA.missing\_tls\_apache\_http, SIGMA.missing\_tls\_apache\_telnet, SIGMA.missing\_tls\_ats\_arbitrary\_loads, SIGMA.missing\_tls\_ats\_arbitrary\_loads\_for\_media, SIGMA.missing\_tls\_ats\_arbitrary\_loads\_in\_web\_content, SIGMA.missing\_tls\_ats\_domain\_exception, SIGMA.missing\_tls\_ats\_localhost\_exception, SIGMA.missing\_tls\_ats\_temporary\_exception, SIGMA.missing\_tls\_ats\_temporary\_third\_party\_exception, SIGMA.missing\_tls\_ats\_third\_party\_exception, SIGMA.missing\_tls\_axios, (cont. on next page)

6.5.3: Insecure cryptographic storage (cont.)

SIGMA.missing\_tls\_cloudformation\_cloudfront, SIGMA .missing\_tls\_cloudformation\_doc\_db, SIGMA.missing\_tls\_cloudformation\_elastic\_cache, SIGMA.missing\_tls\_cloudformation\_elastic\_search, SIGMA.missing\_tls\_cloudformation\_elastic\_search\_node\_to\_node, SIGMA.missing\_tls\_cloudformation\_load\_balancer, SIGMA.missing\_tls\_cloudformation\_load\_balancer\_classic, SIGMA.missing\_tls\_common\_properties, SIGMA.missing\_tls\_consul, SIGMA.missing\_tls\_consul\_client, SIGMA.missing\_tls\_core\_java\_httprequest, SIGMA.missing\_tls\_core\_java\_httpurlconnection, SIGMA.missing\_tls\_got, SIGMA.missing\_tls\_hapi\_session\_mongo, SIGMA.missing\_tls\_java\_unirest, SIGMA.missing\_tls\_kafka\_broker, SIGMA.missing\_tls\_kafka\_client, SIGMA.missing\_tls\_kafka\_listener, SIGMA.missing\_tls\_node\_aws\_sdk, SIGMA.missing\_tls\_node\_ftp, SIGMA.missing\_tls\_node\_grpc, SIGMA.missing\_tls\_node\_http, SIGMA.missing\_tls\_node\_rest\_client, SIGMA.missing\_tls\_node\_telnet, SIGMA.missing\_tls\_node\_telnet\_client, SIGMA.missing\_tls\_openapi\_oauth2\_endpoint, SIGMA.missing\_tls\_openapi\_ref, SIGMA.missing\_tls\_openapi\_v2\_base\_uri, SIGMA.missing\_tls\_openapi\_v3\_base\_uri, SIGMA.missing\_tls\_openapi\_x\_a127, SIGMA.missing\_tls\_openapi\_x\_amazon\_apigateway\_integration, SIGMA.missing\_tls\_openapi\_x\_google\_backend, SIGMA.missing\_tls\_openapi\_x\_google\_jwks, SIGMA.missing\_tls\_openapi\_x\_servers, SIGMA.missing\_tls\_postman, SIGMA.missing\_tls\_sequelize, SIGMA.missing\_tls\_socket\_io\_client, SIGMA.missing\_tls\_spring\_boot\_cassandra\_properties, SIGMA.missing\_tls\_spring\_boot\_cassandra\_yaml, SIGMA.missing\_tls\_spring\_boot\_couchbase\_properties, SIGMA.missing\_tls\_spring\_boot\_couchbase\_yaml, SIGMA.missing\_tls\_spring\_boot\_elasticsearch\_properties, SIGMA.missing\_tls\_spring\_boot\_elasticsearch\_yaml, SIGMA.missing\_tls\_spring\_boot\_management\_server\_properties, SIGMA.missing\_tls\_spring\_boot\_management\_server\_yaml, SIGMA.missing\_tls\_spring\_boot\_properties, SIGMA.missing\_tls\_spring\_boot\_rabbitmq\_properties, SIGMA.missing\_tls\_spring\_boot\_rabbitmq\_yaml, SIGMA.missing\_tls\_spring\_boot\_redis\_properties, SIGMA.missing\_tls\_spring\_boot\_redis\_yaml, SIGMA.missing\_tls\_spring\_boot\_yaml, SIGMA.missing\_tls\_spring\_ftp, SIGMA.missing\_tls\_spring\_resttemplate, SIGMA.missing\_tls\_terraform\_aws\_cloudfront, SIGMA.missing\_tls\_terraform\_aws\_docdb, SIGMA.missing\_tls\_terraform\_aws\_load\_balancer, SIGMA.missing\_tls\_terraform\_azure\_rm\_app\_service, SIGMA.missing\_tls\_terraform\_azure\_rm\_mysql, SIGMA.missing\_tls\_terraform\_azure\_rm\_postgresql, SIGMA.missing\_tls\_terraform\_azure\_rm\_storage\_account, SIGMA.missing\_tls\_terraform\_google\_sql\_db, SIGMA.missing\_tls\_websocket, SIGMA.missing\_tls\_ws, SIGMA.null\_cipher\_used\_core\_java, SIGMA.plaintext\_storage\_sensitive\_data\_kubernetes, SIGMA.plaintext\_storage\_sensitive\_data\_kubernetes\_env\_vars, SIGMA.plaintext\_storage\_sensitive\_data\_terraform\_aws\_ec2\_user\_data, SIGMA.plaintext\_storage\_sensitive\_data\_terraform\_aws\_lambda\_env\_vars, SIGMA.plaintext\_storage\_sensitive\_data\_terraform\_azure\_rm\_vm\_custom\_data, SIGMA.project\_encryption\_disabled\_cloudformation\_codebuild, SIGMA.project\_encryption\_disabled\_terraform\_aws\_codebuild, SIGMA.query\_encryption\_disabled\_terraform\_aws\_athena, SIGMA.rsa\_no\_padding\_core\_java, SIGMA.sasl\_plain\_enabled\_kafka\_broker, SIGMA.sasl\_plain\_enabled\_kafka\_client, SIGMA.sensitive\_data\_in\_cookie\_servlet, SIGMA.sensitive\_data\_in\_query\_string\_openapi, SIGMA.sensitive\_data\_in\_query\_string\_spring\_security, SIGMA.unprotected\_master\_key\_cloudformation\_aws\_kms, SIGMA.unsafe\_authentication\_filter\_spring\_security, SIGMA.unspecified\_cipher\_transformation\_core\_java, SIGMA.vendor\_provided\_encryption\_key\_cloudformation\_cloudtrail, SIGMA.vendor\_provided\_encryption\_key\_cloudformation\_efs, SIGMA.vendor\_provided\_encryption\_key\_terraform\_google\_compute, SIGMA.weak\_hash\_apache\_commons\_codec, SIGMA.weak\_hash\_core\_java, SIGMA.weak\_hash\_node\_crypto, SIGMA.weak\_password\_hash\_grails\_springsecurity, SIGMA.weak\_password\_hash\_spring\_security\_code, SIGMA.weak\_password\_hash\_spring\_security\_config, STRICT\_TRANSPORT\_SECURITY, UNENCRYPTED\_SENSITIVE\_DATA, UNSAFE\_BASIC\_AUTH, UNSAFE\_SESSION\_SETTING, WEAK\_PASSWORD\_HASH



6.5.4: Insecure communications  
(cont.)

(cont.)0aT1cep5 71.5 (e\_ja70.3Td((cont.))Tj17tlsev)6l7ck\_rs 71\_(loudform75 71\_8cipher\_cor)9.5 (e4jloud





6.5.6: All "high risk" vulnerabilities identified in the vulnerability identification process (as defined in PCI DSS Requirement 6.1).

These Coverity checkers meet this requirement\*:

ALLOC\_FREE\_MISMATCH, ANDROID\_CAPABILITY\_LEAK, ANGULAR\_BYPASS\_SECURITY, ANGULAR\_ELEMENT\_REFERENCE, ANGULAR\_EXPRESSION\_INJECTION, ANGULAR\_SCE\_DISABLED, ANONYMOUS\_DB\_CONNECTION, ARRAY\_VS\_SINGLETON, BAD\_ALLOC\_ARITHMETIC, BAD\_ALLOC\_STRLLEN, BAD\_CERT\_VERIFICATION, BAD\_FREE, BUFFER\_SIZE, COM.BAD\_FREE, COM.BSTR.ALLOC, COM.BSTR.CONV, CONFIG.ASP\_VIEWSTATE\_MAC, CONFIG.BEEGO\_CSRF\_PROTECTION\_DISABLED, CONFIG.CONNECTION\_STRING\_PASSWORD, CONFIG.COOKIE\_SIGNING\_DISABLED, CONFIG.DEAD\_AUTHORIZATION\_RULE, CONFIG.DJANGO\_CSRF\_PROTECTION\_DISABLED, CONFIG.ENABLED\_DEBUG\_MODE, CONFIG.ENABLED\_TRACE\_MODE, CONFIG.HANA\_XS\_PREVENT\_XSRF\_DISABLED, CONFIG.HARDCODED\_CREDENTIALS\_AUDIT, CONFIG.HARDCODED\_TOKEN, CONFIG.HTTP\_VERB\_TAMPERING, CONFIG.JAVAAE\_MISSING\_HTTPONLY, CONFIG.MISSING\_CUSTOM\_ERROR\_PAGE, CONFIG.SYMFONY\_CSRF\_PROTECTION\_DISABLED, CONFIG.UNSAFE\_SESSION\_TIMEOUT, COOKIE\_INJECTION, CORS\_MISCONFIGURATION, CORS\_MISCONFIGURATION\_AUDIT, CSRF, CSS\_INJECTION, DOM\_XSS, DYNAMIC\_OBJECT\_ATTRIBUTES, EL\_INJECTION, FB.BC\_NULL\_INSTANCEOF, FB.BX\_BOXING\_IMMEDIATELY\_UNBOXED\_TO\_PERFORM\_COERCION, FB.DMI\_CONSTANT\_DB\_PASSWORD, FB.DMI\_EMPTY\_DB\_PASSWORD, FB.FI\_PUBLIC\_SHOULD\_BE\_PROTECTED,

6.5.6: All "high risk" vulnerabilities identified in the vulnerability identification process (as defined in PCI DSS Requirement 6.1).  
(cont.)

PMD.ApexOpenRedirect, PMD.ApexSQLInjection, PMD.ApexSharingViolations,



















You



6.5.10: Broken authentication and session management.  
(cont.)

SIGMA.access\_control\_disabled\_openapi\_x\_google\_backend, SIGMA.access\_control\_disabled\_openapi\_x\_wso2, SIGMA.access\_control\_disabled\_zookeeper, SIGMA.anonymous\_access\_enabled\_kubernetes, SIGMA.anonymous\_access\_enabled\_rabbitmq\_local, SIGMA.anonymous\_access\_enabled\_rabbitmq\_remote, SIGMA.api\_key\_auth\_enabled\_openapi\_v2, SIGMA.api\_key\_auth\_enabled\_openapi\_v3, SIGMA.basic\_auth\_enabled\_cloudformation\_aws\_amplify, SIGMA.basic\_auth\_enabled\_kubernetes, SIGMA.basic\_auth\_enabled\_openapi\_v2, SIGMA.basic\_auth\_enabled\_openapi\_v3, SIGMA.basic\_auth\_enabled\_postman, SIGMA.basic\_auth\_enabled\_terraform\_azurerms\_vm, SIGMA.basic\_auth\_enabled\_terraform\_gke, SIGMA.cache\_ttl\_too\_long\_openapi\_x\_a127, SIGMA.cloud\_service\_authn\_disabled\_terraform\_azurerms\_app\_service, SIGMA.disabled\_session\_fixation\_protection\_grails\_springsecurity, SIGMA.empty\_password\_core\_java\_sql, SIGMA.excessive\_session\_lifetime\_connect\_mongo, SIGMA.excessive\_session\_lifetime\_connect\_redis, SIGMA.excessive\_session\_lifetime\_express\_client\_sessions, SIGMA.excessive\_session\_lifetime\_express\_cookie\_session, SIGMA.excessive\_session\_lifetime\_express\_session, SIGMA.excessive\_session\_lifetime\_express\_session,

Synopsys helps development teams build secure, high-quality software, minimizing risks while maximizing speed and productivity. Synopsys, a recognized leader in application security, provides static analysis, software composition analysis, and dynamic analysis solutions that enable teams to quickly find and fix vulnerabilities and defects in proprietary code, open source components, and application behavior. With a combination of industry-leading tools, services, and expertise, only Synopsys helps organizations optimize security and quality in DevSecOps and throughout the software development life cycle.

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