

QUALYS SECURITY CONFERENCE 2018

Qualys Compliance Solutions

Automate the Assessment of Technical Controls & Mandate-based Security Requirements

Tim White Director, Product Management, Qualys, Inc.

Compliance Challenges

Continuing Expansion of Industry & Regulatory Mandates

Ensuring Coverage of Technical & Non-Technical Controls

Maintaining Visibility Across Silos

Due Diligence Beyond Regulated Environment





Necessities to Support Digital Transformation

Complete Visibility across Business Units, Technologies, and Environments

Simplified Processes, So they can focus on improving security rather than running products

Flexibility options for capturing required compliance data

Support for emerging technologies and capabilities





Necessities to Support Digital Transformation

Tight integration across security technologies to support complex mandates and audit requirements

Automation and process integration to support DevSecOps

Comprehensive reporting against regulations, mandates & audit objectives





Qualys Security Compliance Apps



Policy Compliance



File Integrity Monitoring



Security Assessment Questionnaire

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5

Use Case: ISO Compliance via unified security program

Customer: EU Financial institution

Digital Transformation underway Leveraging ISO for control objectives company wide GDPR IT Security Goals as a function of ISO

Goals

Address **ISO certification readiness** as a bi-product of good cybersecurity practices

Consolidated cybersecurity dashboard based on the ISO objectives

Requires

Security Vendor Consolidation Integrated Solutions Strong Regulatory Content End-End mandate reporting





Start with a Strong Foundation



Continuously Assess Controls with Qualys Policy Compliance



Define Policies and Controls



Continuously Assess



Report, Inform & Remediate



Manage Exceptions

Overview							
CIS Benchmark	for Amazon Linux 2016, v2	.0.0 [Scored, Level	1 and Level 2]				
Policy Information	•		Assigned Technologies (1) Edit	Asset Groups (0)	Tags (0) Edt. Hoe		
Sections Technologies Controls 23 1 345			Amazon Linux AMI assigned to 345 controls	Amazon Linux AMI assigned to 345 controls You have no assets assigned to this policy y			
Locking J Lest Evolvered	elument 08/21/2017 at 84:49:16 (GMT-9700)						
Cover page The	is CIS certified policy for 'Amazon Line	x 2010 is based on the K	19 Amazon Linux Benchmark, v2.0.0. The policy contains		Read all		
Add Section	Rester						
Section	Title						
Section	Title Filesystem Configuration Add Controls Copy Controls R	emove Est			Common 34		
	Filesystem Configuration	enove Eat					
1	Filesystem Configuration Add Controls Copy Controls R Configure Software Upda	enove Eat tes enove Eat king			34 Centrols		
1 2	Filesystem Configuration Add Control Copy Control R Configure Software Upda Add Control Copy Control N Filesystem Integrity Chec	enove Eat tes enove Eat king enove Eat			34 Contrate 2		
1 2 3	Filesystem Configuration Act Control Corp Control R Configure Software Upda Act Control Corp Control R Filesystem Integrity Charten R Act Control Corp Control R Secure Boot Settings	enove Edit tes enove Edit king enove Edit enove Edit cning			24 Controls 2 Controls 3 Controls		



PC

Complete Visibility

Assessment for Out-of-band Configurations

Expanded UDC Support Cloud Agent Support for OS UDC's Database UDC Windows File Content Command UDC

PC Dashboard



Broad Technology & Control Coverage to support Emerging Technologies & Digital Transformation

Network Devices Applications Operating Systems

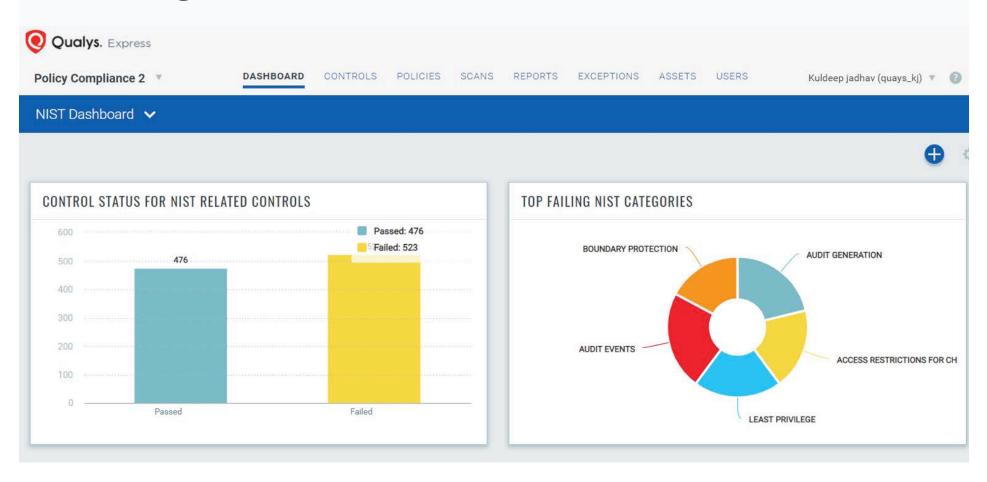
Emerging Technologies

Containers Cloud Security

Qualys Platform Security Report Security Gap Assessment



Coming Soon: PC Dashboard & Control Search



Database UDC

Initial Support: MSSQL, Oracle, MongoDB

Define DB Query (read only), Customizable by DB Version

Set a query to return tabular data to evaluate (which can include evidence)

Database UDC	
Ceneral Information Ceneral Information Canada Canada Scan Options References	Technology Select the technology and add the default control properies. Technology Family Oracle Default Control Properties Remediation In User Management application, set Automated Account Expiration should be set to 90 days SQL Statement SELECT UserID, UserName, Role, LastLogin, AccountEnabled from UserTable
	Cancel Save





		ABOUT CONTROL	
Control Values by Technologies (3)		Status of first	module for 'passw /pam d/passwc
Actions T			2017
Define Pass/Fail Crite	erias		
Windows 10 Technology			10 - 100 - 20 - 10
Connection rules Microsoft SQL Server 2008	v		st module for 'pass '/etc/pam.d/pass
Policies, which w Enabled V Boolean V	= 🔻 True 🔻 🔇		
according to the r			
This Integer valu			
security rules us Evaluation Criteria Matches Co	lumn Criteria 🔹		
HKEY_LOCAL_M ge. A value of 0 When Any Row V Matches	LastLogin V DateTime V >= V	90 Days	s 2012 Server
No (0)		90 Days	15 10 11.x
Yes (1)			
Windows 10 Cancel Save			
The "Windows Fir			17 10:33 AM
which Windows F impossible to det			8:32 AM
This List String value(s) X indicate the current status of the setting	Windows Firewall: Public: Logging: Name using		

Simplifying Processes

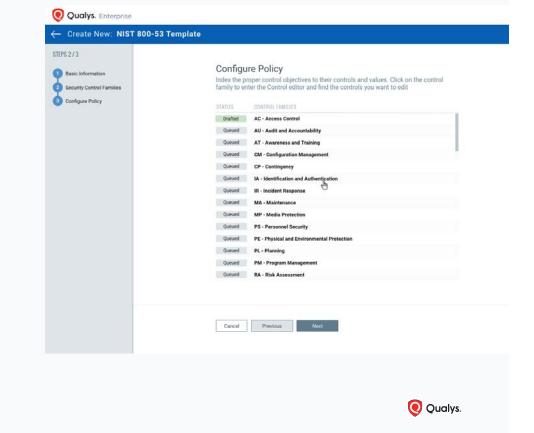
Expanded Library Content Instance Discovery & Controls Migration to New UI – Up First: PC Dashboard Policy & Control Library Reporting Mandate-based Policy Configurator Leverage Asset Inventory for Asset Lifecycle Management





Mandate Policy Configurator

- More Granular, Customizable Control Objectives
- Custom & Library Mandates
- Generate Policies from Mandate
- Mandate-specific Reports
- Gap Analysis Reports





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← Create New: NIST 800-53 Template

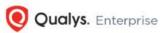
STEPS 2/3



Security Control Families

Select all or just the security controls families you want to configure in this template.

Select Families	Minimum Security Controls	
BUILD LIST OF CONTROL	FAMILIES:	
Q Search		
10 CONTROL FAMILIES		Remove all
AC - Access Control		0
AU - Audit and Accounta	bility	8
AT - Awareness and Trai	ning	0
CM - Configuration Mana	agement	0
CP - Contingency		0
IA - Identification and Au	thentication	8

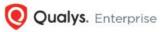


Objective: IA - Identif	ication and Authentification			Cancel Done
11	Q Search			Search Options 🔻
Total Control Objectives	Actions V			¢ <u>+</u> ¢
	NAME	PRIORITY	SECTIONS	CONTROLS
MINIMUM SECURITY CONTROLS High 3.01K Moderate 982 Low 89	IA-5 Authenticator Management The organization manages information system authenticators by: a. Verifying, as part of the initial authenticator distribution, the identity of the individual, group, role, or device receiving the authenticator;	P1	15	384
PRIORITY	IA-5(1) Authenticator Management Password-Based Authentication	Որ	6	242
P0 - Priority Level 0 3.01K P1 - Priority Level 1 982	IA-5(2) Authenticator Management PKI-Based Authentication	£	4	48
P2 - Priority Level 2 89 P3 - Priority Level 3 89	IA-5(3) Authenticator Management In-Person or Trusted Third=Party Registrati	on		1
TECHNOLOGY	IA-5(4) Authenticator Management Automated Support for Password Strength	Determination		31
Windows 2012 Server 25 Windows Server 2012 R2 16	IA-5(5) Authenticator Management Change Authenticators Prior to Delivery			1
Debian GNU/Linux 9.x 5 Docker 1.x 23	IA-5(6) Authenticator Management Protection of Authenticators			8
F5 BIG-IP 11.x 15	IA-5(7) Authenticator Management No Embedded Unencrypted Static Authenti	cators		4
	IA-5(8) Authenticator Management Multiple Information System Accounts			0



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Objective: IA - Identification and Authentification Cancel Done Search Options Q Search... **Total Control Objectives** -C + 0 Actions 🔻 NAME PRIORITY SECTIONS 15 -Authenticator Management P1 384 MINIMUM SECURITY CONTROLS The organization manages information system authenticators by: a. Verifying, as part of the initial authenticator distribution, the identity of the individual, High 3.01K Moderate 982 group, role, or device receiving the authenticator; ... 89 Low 242 6 - IA-5(1) Authenticator Management | Password-Based Authentication PRIORITY P0 - Priority Level 0 3.01K The information system, for password-based authentication: P1 - Priority Level 1 982 P2 - Priority Level 2 89 ✓ IA-5 (1)(a) 36 \sim P3 - Priority Level 3 89 Enforces minimum password complexity of [Assignment: organization-defined requirements for case sensitivity, number of characters, mix of upper-case letters, lower-case letters, numbers, and special characters, including minimum requirements for each type]; TECHNOLOGY 11 Windows 2012 Server IA-5 (1)(b) 25 Windows Server 2012 R2 16 Enforces at least the following number of changed characters when new passwords are created: [Assignment: organization-defined 5 Debian GNU/Linux 9.x number] 23 Docker 1.x 27 IA-5 (1)(c) F5 BIG-IP 11.x 15 Stores and transmits only cryptographically-protected passwords; 😸 10 more 63 IA-5 (1)(d) Enforces password minimum and maximum lifetime restrictions of Assignment: organization-defined numbers for lifetime minimum



\leftarrow Controls: N	IST 80	0-53 for Wi	ndows				
						Search Options	V
36		Q Search					
Controls		Actions				¢ <u>∓</u>	¢
		CID	STATEMENT / TECHNOLOGIES	TYPE	CATEGORY	BASELINE	
IMPACT BASELINE	3.01K	3376	Status of the 'Maximum Password Age' setting (expiration) Windows 2012 Server, Windows Server 2012 R2, Solaris 11.x	CIS	IA-5 (1)(a)	HIGH	
MODERATE LOW	982 89	10734	Status of the 'number of days before a [Prompt user] password expiration warning prompt is displayed at login' for 'users with a password' setting Ubuntu 11.x, Windows 2000 Active Directory, Docker 1.x	DISA	IA-5 (1)(a)	MODERATE	
ANSSI Qualys CIS DISA	3.01K 982 89	10965	Status of first module for 'password' stack, in file '/etc/pam.d/password-auth' Windows 2012 Server, Windows Server 2012 R2, Solaris 11.x	CIS	IA-5 (1)(a)	HIGH	
TECHNOLOGY Windows 2012 Server	89 25	11468	Status of the 'try_first_pass' setting for pam_cracklib.so module in PAM configuration file '/etc/pam.d/common-password' Docker 1.x, Windows 2012 Server	۲	IA-5 (1)(a)	HIGH	
Windows Server 2012 R2 Debian GNU/Linux 9.x Docker 1.x F5 BIG-IP 11.x	16 5 23 15	11524	Status of 'fail_interval' setting in the file '/etc/pam.d/password-auth' Windows 2012 Server	CIS	IA-5 (1)(a)	HIGH	
😻 10 more		10911	Status of 'turn off certificate revocation list (CRL) checking at the Key Distribution Windows 2012 Server, Windows Server 2012 R2	DISA	IA-5 (1)(a)	HIGH	



– Control: Status of first module for 'password' stack, in file '/etc/pam.d/password-auth'

Control Values by Technologies (3)



Windows 10

The 'Windows Firewall: Apply local connection security rules (Domain)' setting enables domain-based connection rules that govern IPSec connections. As this setting enables or restricts local administrative users from creating such local connection rules, in addition to the connection security rules in Group Policies, which will increase the exposure of the system to remote attacks, this should be configured according to the needs of the business.

This Integer value X indicates the current status of the setting Windows Firewall: Domain: Apply local connection security rules using the registry key path

HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\WindowsFirewall\DomainProfile\AllowLocallPsecPolicyMer ge. A value of 0 indicates the setting is set to No, A value of 1 indicates the setting is set to Yes.



Windows 10

The "Windows Firewall: Public: Logging: Name" setting is used to specify the path and name of the file in which Windows Firewall will write its log information. If events are not recorded it may be difficult or impossible to determine the root cause of system problems or the unauthorized activities of malicious users. It should be used according to the needs of the business.

ABOUT CONTROL



Status of first module for 'password' stack, in file '/etc/pam.d/password-auth' Last modified: Apr 12, 2017

Identification

Statement:	Status of first module for 'password' stack, in file '/etc/pam.d/password-auth'
CID:	10965
Baseline:	HIGH
Reference:	17.15.2.1
Status:	Active
Technologies:	 Windows 2012 Server Windows 10 Solaris 11.x
Activity	
Last User Login:	.\KCtech
Created on:	March 1, 2017 10:33 AM
Last Modified on:	8 Mins ago 8:32 AM

Integration Across the Platform: Unified Compliance Assessment

Out of the box Library of Metrics SAQ Self-Assessments Vendor Risk Violations VM & PC Remediation SLA Failures

Customizable! Map back to Control Objectives & Custom Mandates

Result: Single Pane of Glass for Reporting Metrics & Compliance Violation Tracking across the platform!



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Defining Metrics & Mappings

Leverages new Alerting feature as exposed in apps

Define ANY QQL Query

Action is Log a Compliance Metric

Metrics are then mapped to Control Objectives, which are cross-mapped to regulations

eate New: Rule		
	Rule Details	
	Something about what the user will need to know about the fields below	х.
	Rule Information	
	Something about what the user will need to know about the fields below	v.
	Action Name	
	Description	OPTIONAL
	Add a brief description for this action.	
	Alert Query Something about what the user will need to know about the fields below	v.
	Begin typing your query	
	Sample Queries	Test Query
	Trigger Criteria	

vulnerabilities.vulnerability.severity:"5" and vulnerabilities.vulnerability.patchAvailable:"true" and vulnerabilities.firstFound > now-90d



Security Metric Examples

High Severity Vulnerabilities/ Patching

FIM Incident Review Expired

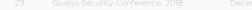
Cloud Security Configuration Issues

Expired or Self-Signed Certificates

Vendor Risk - Failure to Respond

Procedural Control Gap Identified

Qualys. Entr	(C	DASHBOARD S	EARCH SCANS R	EPORTS A	SSETS KI	NOWLEDGEBASE US	SER g	-frame-standa	ard (123) 🛛 🚯	12
Reports		Reports	Schedules	Templates R	lisk Analysis	Search	Lists Complian	ice Setup			
942		Q. Search.								Search Options	Y
Metrics		Actions	v							८ ⊥	¢
		METRIC			NIST ID	QID	VULNERABILITY		SEVERITY	ASSETS	
SEVERITY Severity 5	471		lity Management ng 7 or more	- Vulnerabilities with	RA-5	371248	HPE Intelligent Man Multiple Vulnerabilit	agement Center (iMC) ies (HPESBHF037		120	
Severity 4 Severity 3 Severity 2	251 76 44	Vulnerabi	lity Management	- Java Vulnerabilities	RA-5	371090	Java Debug Wire Pr Execution Vulnerabi	otocol Remote Code lity		132	
Severity 1	32	Vulnerabi	lity Management	- Java Vulnerabilities	RA-5	371265	Oracle Java SE Criti October 2018	cal Patch Update -		508	
		Vulnerabi technolog	lity Management jies	- End of Life	RA-5	370573	EOL/Obsolete Softw Detected	vare: Apache Struts 1		70	
		Vulnerabi technolog	lity Management jies	- End of Life	RA-5	105759	EOL/Obsolete Softw Studio 2008 Detecte	vare: Microsoft Visual ed		76	
		Vulnerabi technolog	lity Management jies	- End of Life	RA-5	105757	EOL/Obsolete Softw 2.2.x Detected	vare: pfSense Version		44	
		Vulnerabi technolog	lity Management jies	- End of Life	RA-5	105753	EOL/Obsolete Opera Windows 10 Version	ating System: Microsoft n 1607 Detected		350	
		Vulnerabi	lity Management	- Java Vulnerabilities	RA-5	22002	Oracle Database Se Code Execution Vul	rver Java VM Remote nerability		55	
		Vulnerabi	lity Management	- Java Vulnerabilities	RA-5	371035	Apache Cassandra	Arbitrary Java Code	-	20	





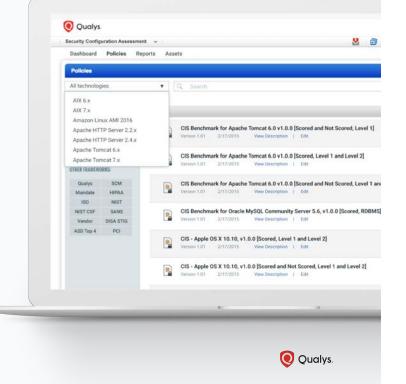
Assess ALL your assets against CIS With Qualys Security Configuration Assessment



Security Configuration Assessment

Lightweight add-on to VM Broad platform coverage Accurate controls & content Simple assessment workflow Scan remotely or via agent Powered by the Qualys Cloud Platform

Support for NIST Reporting coming soon!



Introducing Out-of-Band Configuration Assessment OCA, add-on to VM/PC

Ourshus -

Flexible Data Collection via API/UI

Support for Inventory, Policy Compliance and Vulnerability Assessment

Bulk data, Automated and Customizable

ut-of-Band Config	Asses	sment			g-frame	-standard (123) 🔞 🖾
ssets						
160		Q. Search				Search Options 👻
Assets		Actions V Add A	SSETS	NETBIOS	NETWORK	
		74.217.73.201		ctions V COMPUTERNAME.1	N-name.here	Apr 11, 2018
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reEye Applicance sco UCS Server 18 IMS ocade Switches	78 13 17 10 2	74.217.73.201 host1 example.com	Cisco IOS 1 View D		Network.Name	Apr 11, 2018
me Packet Net Platform 3 more		74.217.73.201 host1.example.com	WebSphere Delete	COMPUTERNAME.1	Another-Network	Apr 11, 2018
Severity 4 5	124 55	192.168.255.255 host1.example.com	FireEye CMS 8.x	COMPUTERNAME.1	Network	Apr 11, 2018
	63 11 9	74.217.73.201 host1.example.com	B DCX-8510 7.1.0a	COMPUTERNAME.1	US-Headquarters	Apr 11, 2018
		74.217.73.201 host1.example.com	🚽 FireEye CMS 8.x	COMPUTERNAME.1	Network-long-nam	Apr 11, 2018
		74.217.73.201	WebSphere Liberty 9	0 COMPUTERNAME.1	PUNE	Apr 11, 2018

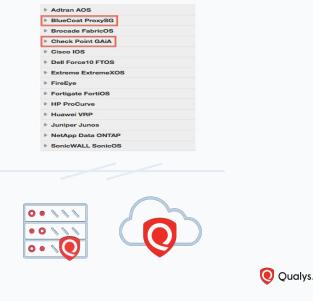


Out of Band Configuration Assessment Large Global Bank

Disconnected/Inaccessible systems to be a part of overall Vulnerability, Risk and Compliance program

Sensitive Systems/Regulated Devices Legacy Systems Highly locked down systems Network Appliances

Air-gapped Networks

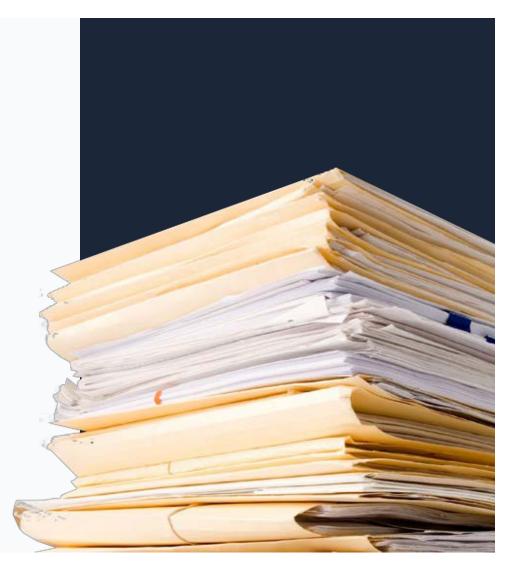


Current Options

Ad-hoc scripts

Procedural controls (manual assessment) Outside audits

Limited software-based solutions



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Configuration Upload Workflow

Push the Asset data

Upload Configuration Data

Qualys creates agent-based data snapshot

Report Generation

► ASSET PROVISIONING		
POST • http://	{base_url}}/oca/v1.0/asset	
7ab2daa34045/comm 1 ~ { 2 3 ~ "data": { 4 ~ "items": [] "version", 5 "items": [] "version", 6 "items": [] "syslogdiphow-all", 9 10 11 Post http://(lone_ut])/oca/v1.	7.eng.sjc01.qualys.com:53670/oca/v1.0/asset/03df187 nands/PolicyCompliance 2/asset/03df1879-458c-495d-873d-7ab2daa34045/command Body Pre-request Script Tests encoded Praw Dinary	
KEY	VALUE	DESCRIPTION
configshow -all	Choose Files No file chosen	
syslogdipshow	syslog.1 10.170.65.31	
sclockserver	Active NTP Server 10.170.158.12	
version	Kernel: 2.6.14.2	
Key	Value	Description



Technology Support

V0.9 and v1.0 release November - 2018

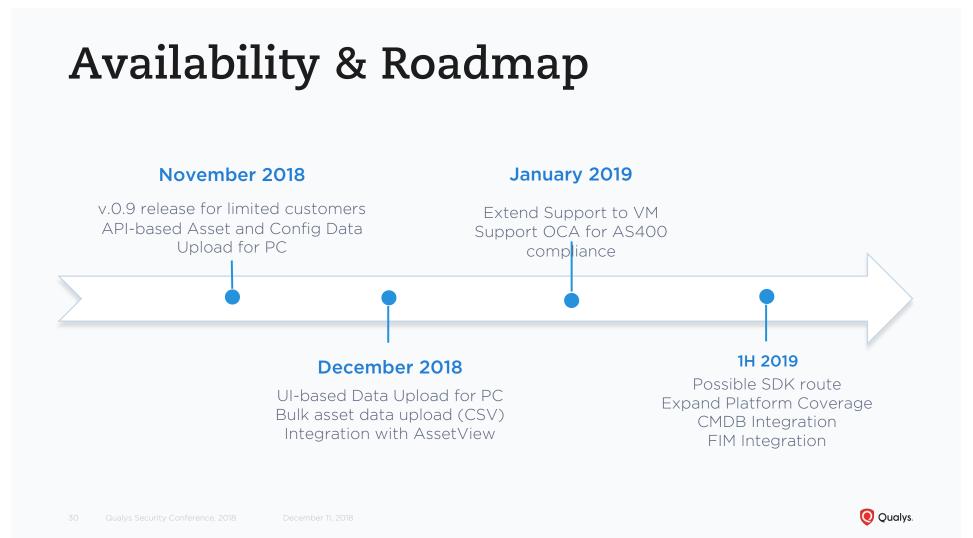
FireEye Appliances BigIP F5 Brocade DCX Switch Acme Packet Net Imperva Firewall Cisco Wireless Lan Controller 7 Cisco UCS Server NetApp OnTap Juniper IVE

Future Priorities

AS/400 Cisco Meraki Sonic Firewall Fortinet Firewalls Aruba WLC Dell EMC Data Domain Oracle Tape Library

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File Integrity Monitoring Log and track file changes across global IT systems.

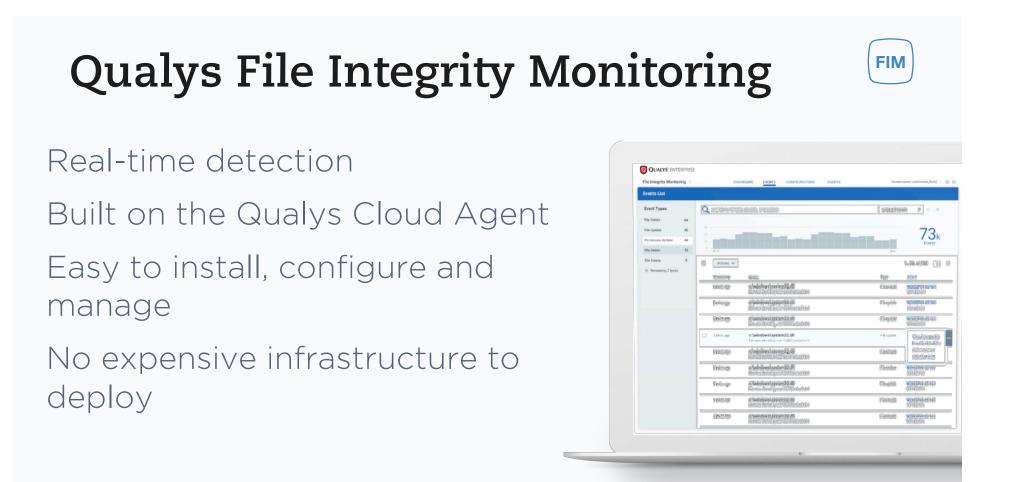
Validating Integrity

Why do organizations need File Integrity Monitoring solutions?

Change control enforcement Compliance & audit requirements Explicit mandates like PCI Security best practices Compromise detection









Use Case: File Integrity Monitoring for PCI

Customer: Retail

Distributed network environment that benefits from cloud-based model 20k+ Windows systems Large Linux back end infrastructure on-prem and in the cloud

Goals

Monitor for change control enforcement PCI auditor requirements

Requires

Scalable, cloud-based solution Hands-off management of distributed agents VM+PC+FIM at the Point of Sale Broad Linux platform support





FIM Challenges

Deciding what depth to monitor

Tuning out noise, but not missing important events

Scalability of legacy solutions

Meeting auditor event review requirements





What Are Customers Monitoring?

Critical Operating System Binaries

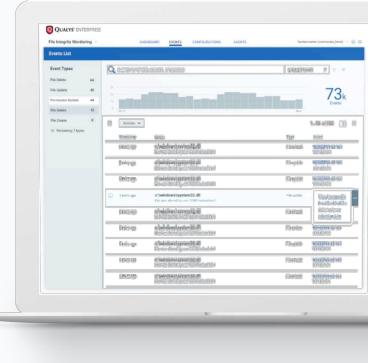
OS and Application Configuration Files

Content, such as Web source

Permissions (such as on Database Stores)

Security Data (Logs, Folder Audit Settings)

User & Authentication Configurations



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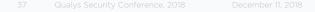


Focus for 2019

Simplest tuning in the industry! Secondary Event Filtering and Automated Correlation API access to data Rule-based Alerting Reporting Expanded data collection & whitelisting

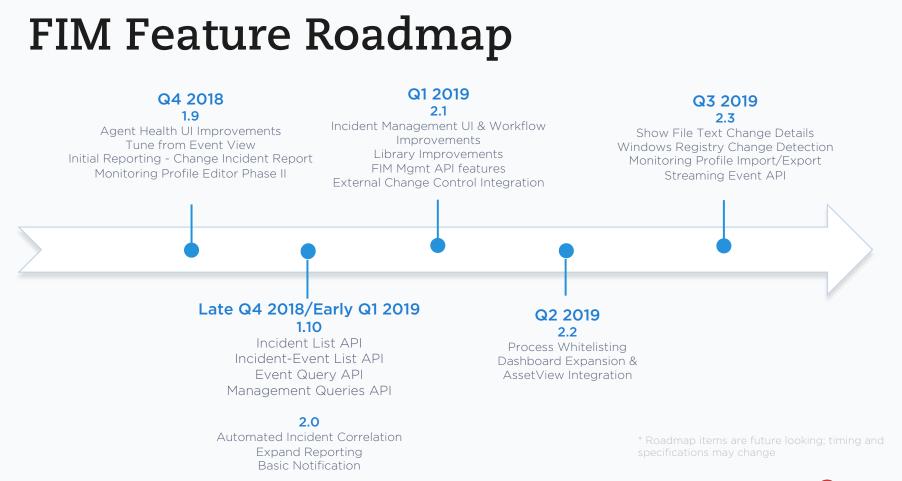
Expanded data collection & whitelisting features

Expanded Platform Support









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Security Assessment Questionnaire

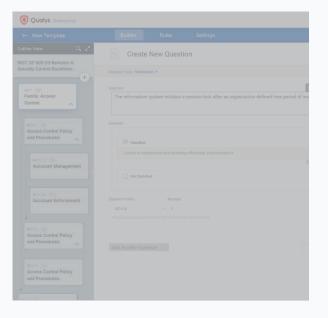
Automate the Assessment of Procedural Controls & Vendor Risk

Tim White Director, Product Management, Qualys, Inc.

Assess Procedural Controls with Security Assessment Questionnaire

Cloud-Based Questionnaires

- Visually design questionnaires
- Assign assessment leveraging embedded workflow
- Intuitive response
- Track using an operational dashboard
- Review answers and evidences





SAQ

One of the biggest Financial Institutions Assesses their Internal Procedural and Process controls

Need to comply with number of International and regional mandates/ standards.



Took 2 hours to rebuild Excel based 76 question assessment using web-based UI and Outof-box Rich content

They understand >50% compliance requirements are related to assessing processes and procedures

Important that Respondents find it easy and make the collected data actionable



Dashboards the process deficiencies and risk posed by Internal controls failure



Consolidates the Internal procedural control posture with Technical compliance controls



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New-age Vendor Assessment Challenges

Extend the Perimeter to include vendors - security & vulnerability data collection

Vendor Profiling based on the services, Vendor Assessment based on criticality

Vendor control data aggregation with Internal security and compliance data

Automated workflow, operational dashboards



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One of the biggest pharmaceutical companies Assessing their vendor risk through SAQ



Vendors Profiling – Defines Criticality based on Service areas/Cybersecurity domains



Assesses vendors per their risk profile, in a standardized (SIG) manner



Uses out-of-the-box content, including regional mandates



Dashboards the risk posed by the highly critical vendors and ranks them per risk



Easy online workflow for the vendors, receives reminders, alerts and status



Consolidates the vendor control posture with Internal procedural & technical compliance controls







Rich Template Library

Industry

PCI DSS SAQ A, B, C, D IT for SOX GLBA BASEL 3 (IT) HIPAA HITRUST NERC CIP v5 SWIFT NERC CIP

Popular Standards

ISO 27001-2013 ISMS NIST CSF COBIT 5 FedRAMP COSO ITIL CIS TOP 20 Controls Shared Assessment (SIG) *- vendor assessment

Regional

GDPR

Abu Dhabi Info Sec Standards ANSSI (France) MAS IBTRM (Singapore) BSP (Philippines) BSI Germany ISM (Australia) UK Data Protection RBI Guidelines (India) California Privacy** Canada Data Protection 2018**

Technical Services

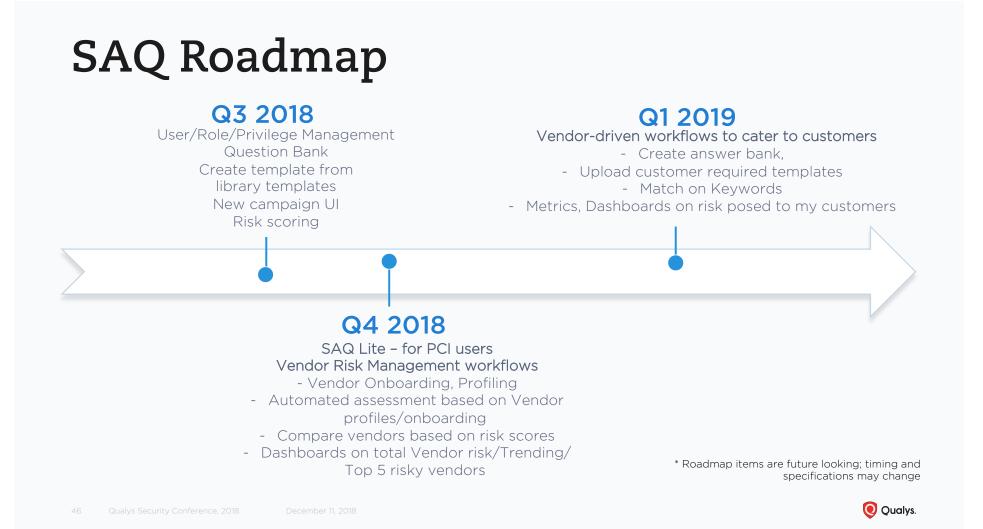
CSA CAIQ v3.0.1 CSA CCM v3.0.1 Vendor Security for Hosting Service Provider AWS ** Procedural controls for cloud, containers**

Includes premium content – Shared Assessments (SIG)

Use as-is or customize to your needs







In the world where everyone is a vendor of someone SAQ Feature coming up in Q1: Answer bank Technology company wants to understand Risk posed to the customers



Receives 100s of questionnaires from their customers and answers them offline, through spread-sheets



Want to understand What risk they pose to their critical customers



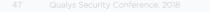
Costly & resource-intensive to respond and gains no visibility into risk intelligence



Want to understand the top failing, passing cybersecurity areas/ answers to improve their own internal controls



Wants to drive the vendor-management project to showcase their good security practices and use the data for contract negotiation



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Security Assessment Questionnaire

TOP 5 PASSING CLUSTOMEN OUESTICHMAINES



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Thank You

Tim White twhite@qualys.com