

# Payment Card Industry (PCI) Data Security Standard

## **Attestation of Compliance for Onsite Assessments – Service Providers**

Version 3.2.1

Revision 2

September 2022



#### INDEPENDENT ASSESSOR'S REPORT

To the Management of VMware LLC,

We have examined VMware's compliance with PCI Data Security Standard (PCI-DSS) v3.2.1 requirements for the VMware Cloud (VMC) on AWS and VMware Site Recovery (VSR) platforms as of January 19, 2024. Management of VMware is responsible for VMware's compliance with the specified requirements. Our responsibility is to express an opinion on VMware's compliance with the specified requirements based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the examination to obtain reasonable assurance about whether VMware complied, in all material respects, with the specified requirements referenced above. An examination involves performing procedures to obtain evidence about whether VMware complied with the specified requirements. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risks of material noncompliance, whether due to fraud or error. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements relating to the engagement.

Our examination does not provide a legal determination on VMware's compliance with specified requirements.

In our opinion, VMware complied, in all material respects, with PCI Data Security Standard (PCI-DSS) v3.2.1 requirements as of January 19, 2024.

This report is intended solely for the information and use of the management of VMware and customers of the VMC on AWS and VSR platforms and is not intended to be and should not be used by anyone other than the specified parties.

Crowe LLP

Crowe UP

South Bend, Indiana January 23, 2024



## **Document Changes**

Date	Version	Description
September 2022	3.2.1 Revision 2	Updated to reflect the inclusion of UnionPay as a Participating Payment Brand.



#### **Section 1: Assessment Information**

#### Instructions for Submission

This Attestation of Compliance must be completed as a declaration of the results of the service provider's assessment with the *Payment Card Industry Data Security Standard Requirements and Security Assessment Procedures (PCI DSS)*. Complete all sections: The service provider is responsible for ensuring that each section is completed by the relevant parties, as applicable. Contact the requesting payment brand for reporting and submission procedures.

Part 1. Service Provider and Qualified Security Assessor Information							
Part 1a. Service Provider	Part 1a. Service Provider Organization Information						
Company Name:	VMware LLC		DBA (doing business as):	VMware			
Contact Name:	Compliance		Title:	N/A			
Telephone:	(877) 486-9273		E-mail:	cloudserv broadcom		mpliance@	
Business Address:	3401 Hillview Ave	nue	City:	Palo Alto			
State/Province:	California	Country:	USA		Zip:	94304	
URL:	www.vmware.com						

Part 1b. Qualified Security Assessor Company Information (if applicable)						
Company Name:	Crowe, LLP					
Lead QSA Contact Name:	Andrew Gamble		Title:	IT Assurar Senior Ma		chnical
Telephone:	(818) 271-7584		E-mail:	andrew.gamble@crowe.com		
Business Address:	330 East Jefferso Boulevard	n	City:	South Ben	d	
State/Province:	Indiana	Country:	USA		Zip:	46601
URL:	https://www.crowe.com					



Part 2. Executive Summary	•					
Part 2a. Scope Verification						
Services that were INCLUDE	D in the scope of the PCI DSS Ass	sessment (check all that apply):				
Name of service(s) assessed: VMware Cloud (VMC) on AWS and VMware Site Recovery (VSR)						
Type of service(s) assessed:						
Hosting Provider:	Managed Services (specify):	Payment Processing:				
☐ Applications / software ☐ Hardware ☐ Infrastructure / Network ☐ Physical space (co-location) ☐ Storage ☐ Web ☐ Security services ☐ 3-D Secure Hosting Provider ☐ Shared Hosting Provider ☐ Other Hosting (specify):	☐ Systems security services ☐ IT support ☐ Physical security ☐ Terminal Management System ☑ Other services (specify): Virtualized Infrastructure as a Service	☐ POS / card present ☐ Internet / e-commerce ☐ MOTO / Call Center ☐ ATM ☐ Other processing (specify):				
Account Management	☐ Fraud and Chargeback	☐ Payment Gateway/Switch				
☐ Back-Office Services	☐ Issuer Processing	☐ Prepaid Services				
☐ Billing Management	☐ Loyalty Programs	☐ Records Management				
☐ Clearing and Settlement	☐ Merchant Services	☐ Tax/Government Payments				
☐ Network Provider						
Others (specify):						
an entity's service description. If yo	ed for assistance only, and are not inter u feel these categories don't apply to y a category could apply to your service,	our service, complete				



Part 2a. Scope Verification (d	continued)		
Services that are provided by the PCI DSS Assessment (ch		er but were NC	OT INCLUDED in the scope of
Name of service(s) not assessed:	VMware Cloud Se	ervices outside o	f defined products listed above
Type of service(s) not assessed:			
Hosting Provider: Applications / software Hardware Infrastructure / Network Physical space (co-location) Storage Web Security services 3-D Secure Hosting Provider Shared Hosting Provider Other Hosting (specify):	Managed Services (specify):  Systems security services  IT support Physical security Terminal Management System Other services (specify): See below		Payment Processing:  POS / card present Internet / e-commerce MOTO / Call Center ATM Other processing (specify):
Account Management	☐ Fraud and Charge	eback	☐ Payment Gateway/Switch
☐ Back-Office Services	☐ Issuer Processing		☐ Prepaid Services
☐ Billing Management	☐ Loyalty Programs		☐ Records Management
☐ Clearing and Settlement	☐ Merchant Service	s	☐ Tax/Government Payments
☐ Network Provider			
Others (specify):			
Provide a brief explanation why an were not included in the assessment	•	products that s	des a number of cloud services and support customer's CDE, a number covered and reported on in other ents.



#### Part 2b. Description of Payment Card Business

Describe how and in what capacity your business stores, processes, and/or transmits cardholder data.

VMC on AWS and VSR do not directly process, transmit or store cardholder data. As a result, this report does not have a CDE in scope. VMware does not have direct access to any customer workloads that may or may not contain CHD. Requirements related to the transmission, processing, and storage of CHD is therefore considered the responsibility of VMware's customers. During Crowe's scoping assessment and observations, we validated that VMware's access to customer workloads was not present, and throughout inspection of settings, databases, and logs during our assessment no CHD was detected.

Describe how and in what capacity your business is otherwise involved in or has the ability to impact the security of cardholder data.

VMC on AWS & VSR operate in a shared responsibility model where specific tasks are performed by the customer, VMware, and AWS. The shared responsibilities are as follows. Customers are responsible for "Security in the Cloud" with specific requirements to secure and manage their virtual machines, applications, and the configuration of networking and security of their SDDC. VMware is responsible for "Security of the Cloud" with specific requirements to patch and upgrade the SDDC components including vCenter Server, vSphere, vSAN, NSX Manager, vSphere Replication, and Site Recovery Manager. AWS is responsible for "Security of the Infrastructure" with specific requirements to maintain physical security of the data centers and configuration and operation of the physical servers, networking and security devices deployed therein.

#### Part 2c. Locations

List types of facilities (for example, retail outlets, corporate offices, data centers, call centers, etc.) and a summary of locations included in the PCI DSS review.

Type of facility:	Number of facilities of this type	Location(s) of facility (city, country):
Example: Retail outlets	3	Boston, MA, USA
Not Applicable - No physical locations are in scope for this assessment. All physical security related requirements are the responsibility of Amazon Web Services (AWS).		



Part 2d. Payment Ap	plications					
Does the organization us	e one or more	Payment Application	s? 🗌 Yes 🛮 No			
Provide the following info	rmation regar	ding the Payment App	lications your organizat	ion use	s:	
Payment Application Name	Version Number	Application Vendor	Is application PA-DSS Listed?	I	SS Listing Expiry e (if applicable)	
N/A	N/A	N/A	☐ Yes ☐ No	N/A		
			☐ Yes ☐ No			
			☐ Yes ☐ No			
			☐ Yes ☐ No			
			☐ Yes ☐ No			
			☐ Yes ☐ No			
			☐ Yes ☐ No			
			☐ Yes ☐ No			
Part 2e. Description of	of Environme	nt	T			
Provide a <u>high-level</u> des covered by this assessment of example:  Connections into and of environment (CDE).  Critical system comport devices, databases, we necessary payment contains the contains and the cont	ent.  out of the cardle  nents within the  eb servers, etc  mponents, as	holder data e CDE, such as POS c., and any other applicable.	VMware Cloud on AWS Infrastructure as a Sen provides VMware mana Data Centers (SDDCs) vSAN, and NSX runnin hardware from AWS. Oservice can provision Suse these environment that can transmit and sincluding cardholder day VMware Site Recovery Defined Data Center (S(DR) as a Service mod AWS customers to faci and automation. Users subscribe to VSR can a targets, destinations, a replication for their cus workloads can be deple hosted environments on environments.	vice (laa aged Sc consist g top of custome SDDCs c s to run tore any ata. (VSR) SDDC) I ule avai litate Df of VMC configur nd frequ tomer w	as) offering that oftware Defined ing of vSphere, bare metal rs leveraging the on-demand and virtual machines with the control of the control	
Does your business use environment? (Refer to "Network Segm	•				☐ Yes ⊠ No	
(Refer to "Network Segmentation" section of PCI DSS for guidance on network segmentation)						



Part 2f. Third-Party Service	Providers		
Does your company have a relathe purpose of the services being	•	Qualified Integrator & Reseller (QIR) for	☐ Yes ⊠ No
If Yes:			
Name of QIR Company:		Not Applicable	
QIR Individual Name:			
Description of services provided	d by QIR:		
example, Qualified Integrator Re	esellers (QIR), g osting companie	e or more third-party service providers (for ateways, payment processors, payment s, airline booking agents, loyalty program ng validated?	⊠ Yes □ No
If Yes:			
Name of service provider:	Description o	f services provided:	
Amazon Web Services (AWS)	Cloud Service F	Provider	
Note: Requirement 12.8 applies	s to all entities in	this list.	



#### Part 2g. Summary of Requirements Tested

For each PCI DSS Requirement, select one of the following:

- **Full** The requirement and all sub-requirements of that requirement were assessed, and no sub-requirements were marked as "Not Tested" or "Not Applicable" in the ROC.
- **Partial** One or more sub-requirements of that requirement were marked as "Not Tested" or "Not Applicable" in the ROC.
- None All sub-requirements of that requirement were marked as "Not Tested" and/or "Not Applicable" in the ROC.

For all requirements identified as either "Partial" or "None," provide details in the "Justification for Approach" column, including:

- Details of specific sub-requirements that were marked as either "Not Tested" and/or "Not Applicable" in the ROC
- Reason why sub-requirement(s) were not tested or not applicable

**Note:** One table to be completed for each service covered by this AOC. Additional copies of this section are available on the PCI SSC website.

Name of Service Assessed:		VMware Cloud on AWS and VMware Site Recovery				
	1	Details of Requirements Assessed				
PCI DSS Requirement	Full	Partial	None	Justification for Approach (Required for all "Partial" and "None" responses. Identify which sub-requirements were not tested and the reason.)		
Requirement 1:				Not Applicable:		
				1.1.3, 1.2, 1.3, 1.4: These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a service provider assessment and there is no CHD in-scope or any CDE as part of this assessment. VMC on AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer environments or capability of customer component modifications.		
Requirement 2:				Not Applicable:  2.1.1: These requirements are in reference to procedures, standards, and configuration of wireless networks and wireless network devices. VMware has no wireless technologies/networks in-scope for the assessment, and Crowe inspected/observed product diagrams, inventories, and architecture documentation to corroborate this.  2.2.3: No applicable insecure protocols in-use.  2.6: Entity is not a shared hosting provider.		

Requirement 3:		Not Applicable:  All requirements with the exception of 3.2.1, 3.2.2, and 3.2.3: These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a service provider assessment and there is no CHD inscope or any CDE as part of this assessment. VMC on AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer environments or capability of customer component modifications.
Requirement 4:		Not Applicable:  These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a service provider assessment and there is no CHD inscope or any CDE as part of this assessment. VMC on AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer environments or capability of customer component modifications.
Requirement 5:		Not Applicable:  All requirements with the exception of 5.1.2 and 5.4: This set of requirements is related to systems that are commonly affected by malware. The VMC on AWS and VSR products are all hardened Linux operating systems, vCenter/Hypervisors, or network components, and are not considered commonly affected by malware.
Requirement 6:		Not Applicable: 6.4.3:These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a service provider assessment and there is no CHD inscope or any CDE as part of this assessment. VMC on AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the

		customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer environments or capability of customer component modifications.
		6.4.6: No significant changes occurred relevant to these requirements for testing.
		6.6: The public-facing web application for VMC on AWS is only accessible through CSEP. Please see the CSEP report on compliance for coverage of this requirement.
Requirement 7:		
Requirement 8:		Not Applicable:
		8.1.5: VMware does not grant third parties' access to any of the in-scope systems/components
		8.3.1, 8.7: These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a service provider assessment and there is no CHD inscope or any CDE as part of this assessment. VMC or AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer environments or capability of customer component modifications.
		8.5.1: VMware does not have remote access to customer premises.
Requirement 9:		Not Applicable: These requirements are in reference to CDE physical security and controls. The VMC on AWS product is hosted entirely at Amazon Web Services (AWS), thus these requirements are the responsibility of AWS. The VSR core product and customer SDDC deployments are hosted at AWS, thus these requirements are the responsibility of AWS. In addition, physical security of on-prem deployments would be the customer's responsibility. Therefore, VMware has no physical locations in-scope for the assessment.
Requirement 10:		Not Applicable:
		10.2.1: These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a

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		service provider assessment and there is no CHD inscope or any CDE as part of this assessment. VMC on AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer environments or capability of customer component modifications.  10.4.3: Amazon, as part of their AWS EC2 product provides their Amazon Time Sync Service and is
		responsible for this requirement. VMware does not administrate the time server.
Requirement 11:		Not Applicable:
		11.1: These requirements are in reference to CDE physical security and controls. The VMC on AWS product is hosted entirely at Amazon Web Services (AWS), thus these requirements are the responsibility of AWS. The VSR core product and customer SDDC deployments are hosted at AWS, thus these requirements are the responsibility of AWS. In addition, physical security of on-prem deployments would be the customer's responsibility. Therefore, VMware has no physical locations in-scope for the assessment.
		11.2.3, 11.3.3: No significant changes occurred relevant to these requirements for testing.
		11.3.4: This is a service provider assessment and there is no CHD in-scope or any CDE as part of this assessment. VMware provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation with regard to CHD within their own cloud environments. VMware does not have visibility to CHD in customer environments or capability of customer component modifications.
Requirement 12:		Not Applicable:
		12.3.10: These requirements are in reference to access to a Card Holder Data Environment (CDE), protection of a CDE, development of a CDE, storage of Card Holder Data (CHD), transmission of CHD, and policies/procedures related to a CDE/CHD. This is a service provider assessment and there is no CHD inscope or any CDE as part of this assessment. VMC on AWS and VSR provides cloud and virtualized datacenter services to customers, and it is the customers' responsibility for encryption at rest, encryption in transit, and segmentation regarding CHD within their own cloud environments. VMC / VSR does not have visibility to CHD in customer

Security Standards Council									
				environments or capability of customer component modifications.					
Appendix A1:				Not Applicable: Entity is not a shared hosting provider.					
Appendix A2:				Not Applicable: VMware does not have any POS device in scope that use early TLS.					



### **Section 2: Report on Compliance**

This Attestation of Compliance reflects the results of an onsite assessment, which is documented in an accompanying Report on Compliance (ROC).

The assessment documented in this attestation and in the ROC was completed on:	January 19, 2	2024
Have compensating controls been used to meet any requirement in the ROC?	⊠ Yes	☐ No
Were any requirements in the ROC identified as being not applicable (N/A)?	⊠ Yes	☐ No
Were any requirements not tested?	☐ Yes	⊠ No
Were any requirements in the ROC unable to be met due to a legal constraint?	Yes	⊠ No



#### Section 3: Validation and Attestation Details

#### Part 3. PCI DSS Validation

#### This AOC is based on results noted in the ROC dated January 19, 2024.

Based on the results documented in the ROC noted above, the signatories identified in Parts 3b-3d, as applicable, assert(s) the following compliance status for the entity identified in Part 2 of this document (check one):

<b>Compliant:</b> All sections of the PCI DSS ROC are complete, all questions answered affirmatively, resulting in an overall <b>COMPLIANT</b> rating; thereby <i>VMware, Inc. products of VMC on AWS and VSR</i> has demonstrated full compliance with the PCI DSS.						
<b>Non-Compliant:</b> Not all sections of the PCI DSS ROC are complete, or not all questions are answered affirmatively, resulting in an overall <b>NON-COMPLIANT</b> rating, thereby (Service Provider Company Name) has not demonstrated full compliance with the PCI DSS.						
Target Date for Compliance:						
An entity submitting this form with a status of Non-Compliant may be required to complete the Action Plan in Part 4 of this document. Check with the payment brand(s) before completing Part 4.						
Affected Requirement	Details of how legal constraint prevents requirement being met					

#### Part 3a. Acknowledgement of Status Signatory(s) confirms: (Check all that apply) The ROC was completed according to the PCI DSS Requirements and Security Assessment Procedures, Version 3.2.1, and was completed according to the instructions therein. $\boxtimes$ All information within the above-referenced ROC and in this attestation fairly represents the results of my assessment in all material respects. П I have confirmed with my payment application vendor that my payment system does not store sensitive authentication data after authorization. $\bowtie$ I have read the PCI DSS and I recognize that I must maintain PCI DSS compliance, as applicable to my environment, at all times. $\boxtimes$ If my environment changes, I recognize I must reassess my environment and implement any additional PCI DSS requirements that apply.



#### Part 3a. Acknowledgement of Status (continued)

No evidence of full track data<sup>1</sup>, CAV2, CVC2, CVN2, CVV2, or CID data<sup>2</sup>, or PIN data<sup>3</sup> storage after transaction authorization was found on ANY system reviewed during this assessment.

ASV scans are being completed by the PCI SSC Approved Scanning Vendor *Tenable.io* 

#### Part 3b. Service Provider Attestation

Docusigned by:

Matt Dreyer

7FDEBDE43DF9400

Signature of Service Provider Executive Officer ↑ Date: 1/23/2024

Service Provider Executive Officer Name: Matt Dreyer Title: Director, Technology Product

Manager

#### Part 3c. Qualified Security Assessor (QSA) Acknowledgement (if applicable)

If a QSA was involved or assisted with this assessment, describe the role performed:

QSA performed independent testing of PCI-DSS Version 3.2.1 requirements. See also the Independent Assessor's Report.

angie Hipsher-Williams

Signature of Duly Authorized Officer of QSA Company ↑

Date: 1/23/2024

Duly Authorized Officer Name: Angie Hipsher-Williams

QSA Company: Crowe LLP

#### Part 3d. Internal Security Assessor (ISA) Involvement (if applicable)

If an ISA(s) was involved or assisted with this assessment, identify the ISA personnel and describe the role performed:

Data encoded in the magnetic stripe or equivalent data on a chip used for authorization during a card-present transaction. Entities may not retain full track data after transaction authorization. The only elements of track data that may be retained are primary account number (PAN), expiration date, and cardholder name.

The three- or four-digit value printed by the signature panel or on the face of a payment card used to verify card-not-present transactions.

Personal identification number entered by cardholder during a card-present transaction, and/or encrypted PIN block present within the transaction message.



#### Part 4. Action Plan for Non-Compliant Requirements

Select the appropriate response for "Compliant to PCI DSS Requirements" for each requirement. If you answer "No" to any of the requirements, you may be required to provide the date your Company expects to be compliant with the requirement and a brief description of the actions being taken to meet the requirement.

Check with the applicable payment brand(s) before completing Part 4.

PCI DSS Requirement	Description of Requirement	Compliant to PCI DSS Requirements (Select One)		Remediation Date and Actions (If "NO" selected for any
·		YES	NO	Requirement)
1	Install and maintain a firewall configuration to protect cardholder data			
2	Do not use vendor-supplied defaults for system passwords and other security parameters	$\boxtimes$		
3	Protect stored cardholder data			
4	Encrypt transmission of cardholder data across open, public networks	$\boxtimes$		
5	Protect all systems against malware and regularly update anti-virus software or programs	$\boxtimes$		
6	Develop and maintain secure systems and applications	$\boxtimes$		
7	Restrict access to cardholder data by business need to know	$\boxtimes$		
8	Identify and authenticate access to system components	$\boxtimes$		
9	Restrict physical access to cardholder data			
10	Track and monitor all access to network resources and cardholder data			
11	Regularly test security systems and processes			
12	Maintain a policy that addresses information security for all personnel	$\boxtimes$		
Appendix A1	Additional PCI DSS Requirements for Shared Hosting Providers	$\boxtimes$		
Appendix A2	Additional PCI DSS Requirements for Entities using SSL/early TLS for Card-Present POS POI Terminal Connections	$\boxtimes$		











