Alibaba Cloud International Services
PCI DSS Responsiblity Management Matrix

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1 Executive Summary

Alibaba Cloud (Singapore) Private Limited, also known as "Alibaba Cloud". Alibaba Cloud is an independent Cloud Computing Service Provider (CSP) provides the capability for clients utilizing Alibaba Cloud' processing capacity, storage, networks, and other fundamental computing resources. The type of services including Infrastructure as a Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). Alibaba Cloud services do not directly store, process, or transmit cardholder data and sensitive authentication data, and the PCI compliant environment facilitates customers' PCI DSS compliance (i.e. the products or systems do not enforce implementation or configuration settings that violates a PCI DSS requirement).

atsec (Beijing) Information Technology Co., Ltd (Hereinafter referred to as "atsec") the Qualified Security Assessor (QSA) company validated that Alibaba Cloud has completed Payment Card Industry Data Security Standard (PCI DSS) V3.2.1 assessment for Public Cloud International Services. The detail information about the Attestation of Compliance is described as below:

- Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019.
- Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

Intended Use: This document is intended to be used by Alibaba Cloud customers to understand the scope of the Alibaba Cloud PCI DSS assessment and expectations for responsibilities when using Alibaba Cloud services as part of the customer's cardholder data environment.

For customers to meet PCI DSS compliance while using Albiaba Cloud services, please refer "Section 4 PCI DSS Requirements and Responsibility Management Matrix For Alibaba Cloud Customer" below.

2 Alibaba Cloud PCI DSS Compliance Description

Alibaba Cloud Management Environment is the underlying physical and logical infrastructure that supports the Alibab Cloud services including servers, operating systems, hypervisor and control environment for management and operations of the Alibaba Cloud service.

The Alibaba Cloud Management Environment and the following services were included in the PCI DSS compliance assessment.

2.1 Alibaba Cloud Management Environment

2.1.1 Physical Security

All of the Alibaba Cloud data center and office areas are configured with access control, with visitor areas marked out separately. Visitors are required to carry entry pass and be escorted by Alibaba Cloud staff when visiting Alibaba Cloud premises. Alibaba Cloud's data centers are all in compliance with the requirements for Class A in the GB 50174 Code for Design of Electronic Information System Room and the T3+ standards in the TIA-942 Telecommunications Infrastructure Standard for Data Centers. Following requirements for physical and environmental security control are manged by Alibaba Cloud:

- IDC Disaster Recovery
- Personnel Management
  - Access management
  - Account management and identity authentication
  - Authorization management
  - Separation of duties
- Operation Audit
  - Surveillance
  - Audit
- Storage Device Recycling/Decommissioning

2.1.2 Host Operating System

Alibaba Cloud manages and operates infrastructure (including but not limited to data centers deployed across regions and zones, and Alibaba backbone networks), physical devices (including computing, storage, and network devices), distributed cloud OS named Apsara, and various cloud services and products running on top of the Apsara OS. Alibaba Cloud protects the security of hardware, software, and network of the cloud platform by means of OS- and database-patch management, network access control, etc.

2.1.3 Network Security

Alibaba Cloud manages and isolates production networks from non-production networks. Direct access is forbidden from a non-production network to any servers and network devices in a production network. Alibaba Cloud isolates cloud service networks that provide services externally from the physical networks that supports the underlying cloud services functionalities. Network ACLs are configured to forbid access from cloud service networks to physical networks. Alibaba Cloud also takes network control measures to prevent unauthorized devices from connecting to the internal network of the Alibaba Cloud platform and prevent the servers of the internal platform from connecting to external devices.

2.1.4 Virtualization Security

Virtualization technology lays the foundation for cloud computing, and ensures isolation between multiple tenants in a cloud computing environment by means of virtualized computing, storage, and network. Alibaba Cloud virtualization security technology mangement involves three basic security features – Tenant isolation, VM escape detection and Hotfix Dynamic Patching.

2.1.4.1 Tenant Isolation

Virtual Machine Manager (VMM) allows virtual machines at multiple computing nodes to be isolated from each other at the system level, preventing unauthorized access to system resources between tenants and thus guaranteeing the basic computing isolation between computing nodes. Virtualization management layer also provides storage isolation and network isolation.

- **Computing Isolation**

  Alibaba Cloud provides a variety of cloud-based computing instances and services that allow automatic scaling to meet application or business needs. These computing instances and services provide computing isolation at multiple levels to protect data, while ensuring configuration flexibility of users. Such isolation is provided by the hypervisor. Alibaba Cloud platform uses a virtualized environment where user instances run as standalone virtual machines and the isolation is enforced by using different processor ring levels to avoid unauthorized access of a user's virtual machine to the host and to another virtual machine.

- **Storage Isolation**

  Alibaba Cloud separates virtual machine-based computing from storage. This separation allows computing and storage to be scaled independently, and makes it easier to provide multi-tenant services. All the I/O operations of a virtual machine are intercepted by the hypervisor to ensure that the virtual machine can only access the physical disk space allocated to it, thus realizing the security isolation of hard disk space between different virtual machines. After an ECS instance is released, the original disk space and memory space are reliably scrubbed to ensure user data security.

- **Network Isolation**

  To provide network connections for ECS server instances, Alibaba Cloud connects virtual machines to the Alibaba cloud virtual network. Alibaba Cloud virtual network is a logical structure built on top of the physical network structure. All the logical virtual networks are isolated from each other. This isolation prevents the network traffic data from being snooped and/or intercepted by other malicious instances.

2.1.4.2 VM Escape Detection

Alibaba Cloud's VMM uses advanced virtual machine distribution algorithm to prevent a malicious virtual machine from running on a specific physical machine. At the hypervisor level, Alibaba Cloud also provides three core technologies – hypervisor security hardening, attack detection, and hotfix – to mitigate the attacks from malicious virtual machines.

2.1.4.3 Hotfix Dynamic Patching

Alibaba Cloud virtualization platform supports hotfix dynamic patching technology, which can fix system defects or vulnerabilities without user intervention.

2.1.5 Identity and Access Management

Alibaba Cloud provides multiple tools and features to help users securely authorize access to resources for different scenarios. The Resource Access Management (RAM) provides centralized services for user identity management and resource access control. RAM enables an Alibaba Cloud account (i.e. primary account) to have multiple independent subusers (i.e. RAM users). It also supports such features as multi-factor authentication, strong password policies, separation of console users from OpenAPI users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account temporary suspension. The RAM service can be used to define fine-grained authorizations at an OpenAPI action or resource ID level. The RAM service also supports various restrictive conditions on permission granting (such as constraints on source IP, required SSL/TLS channel, access time period, and MFA, etc.).

2.1.6 OpenAPI

Alibaba Cloud provides OpenAPI for cloud products / services to launch and terminate instances, perform other functions are all authenticated to an Alibaba Cloud account or role and signed for message integrity. In addition, OpenAPI calls can be encrypted with TLS to maintain security. Alibaba Cloud recommends always using TLS-protected API endpoints. Alibaba Cloud RAM also enables an Alibaba Cloud customer to further control what APIs a user has access to utilize.

2.1.7 Data Security

Customer data security and user privacy are the top most priorities of Alibaba Cloud. Alibaba cloud helps its customers to manage and control data security throughout the data lifecycle (production, storage, usage, transmission, propagation, and destruction).

2.1.7.1 Multi-copy Redundancy Storage

Alibaba Cloud uses a distributed storage system, in which a data file is divided into many data fragments that are redundantly stored on multiple devices. Distributed storage improves both data reliability and security.

2.1.7.2 Encryption at Rest and in Motion

Alibaba Cloud uses data encryption to ensure data security, including sensitive data encryption in applications, transparent data encryption in the RDS database, OSS encryption, hardware security modules, and encryption for network data transmission.

- **Data Encryption in Motion**

The Alibaba Cloud console uses HTTPS encryption for data transmission. Alibaba Cloud services provide customers with API access points with HTTPS encryption enabled, allowing customers to use AccessKeys to call Alibaba Cloud Service API securely. Industry standard TLS protocol with 256-bit key length is used to address the need for encrypted transmission of sensitive data.

- **Data Encryption at Rest**

  Alibaba Cloud provides Key Management Service (KMS) for key management and data encryption capabilities for the encrypted storage of sensitive data on the cloud platform. Such sensitive data include authorization credentials, passwords, and encryption keys. In addition, data encryption is also enabled in different Alibaba Cloud products.

2.2 PCI DSS compliance In-Scope Services

Below are descriptions of each service as described by Alibaba Cloud and derived from Alibaba Cloud website at https://www.alibabacloud.com/product/

- **Elastic Compute Service**

  Elastic Compute Service (ECS) is a virtual computing machine which includes vCPU, memory, OS, disks, bandwidth, and other basic computing components. An instance is the actual operating entity offered by ECS to Alibaba Cloud‘s customers. The user has the administrator permission for created instances and can log on to, use, and manage the instances at any time. The user can also perform basic operations on an instance, such as attaching a disk, creating a snapshot, creating an image, or deploying an environment, etc.

- **ApsaraDB RDS**

  ApsaraDB for RDS (Relational Database Service) is a stable, reliable, and scalable online database service. Based on a distributed file system designed by Alibaba Cloud and incorporated with high-performance SSDs, RDS supports MySQL, SQL Server, PostgreSQL, Postgre Plus Advanced Server (PPAS), and MariaDB engines. It provides a complete solution that includes backup, recovery, monitoring, migration, and more, and allows you to focus more on services rather than database O&M.

  - **ApsaraDB RDS for MySQL**

    ApsaraDB RDS for MySQL is an on-demand database hosting service for MySQL with automated monitoring, backup and disaster recovery capabilities

  - **ApsaraDB RDS for PostgreSQL**

    ApsaraDB RDS for PostgreSQL enables OLTP databases that handle enterprise-level SQL statements, supports NoSQL data types such as JSON, XML and hstore, and supports GIS data processing.

  - **ApsaraDB RDS for PPAS**

    ApsaraDB for PPAS is a database service that has been jointly developed by Alibaba Cloud and EnterpriseDB, and is compatible with Oracle. The service enables easy data migration and supports Oracle PL/SQL, data types, advanced functions, and table partitioning.

- **ApsaraDB for MariaDB TX**

  ApsaraDB for MariaDB TX is compatible with Oracle and designed with multiple enterprise database features. It uses multiple storage engines, including MySQL InnoDB, to meet different user requirements.

- **ApsaraDB for Redis**

  ApsaraDB for Redis is an automated and scalable tool for developers to manage data storage shared across multiple processes, applications or servers. As a Redis protocol compatible tool, ApsaraDB for Redis offers exceptional read-write capabilities and ensures data persistence by using memory and hard disk storage. ApsaraDB for Redis provides data read-write capabilities at high speed by retrieving data from in-memory caches and ensures data persistence by using both memory and hard disk storage mode. ApsaraDB for Redis also supports advanced data structures such as leaderboard, counting, session, and tracking, which are not readily achievable through ordinary databases.

- **ApsaraDB for MongoDB**

  ApsaraDB for MongoDB is a secure, reliable, and elastically scalable cloud database service. It currently supports the ReplicaSet and Sharding architectures and can be quickly deployed in just a few steps. ApsaraDB for MongoDB’s highly available service includes automatic monitoring, backup, and disaster tolerance capabilities.

- **ApsaraDB for Memcache**

- ApsaraDB for Memcache is a memory-based cache service that supports high-speed access to large amounts of small data. ApsaraDB for Memcache can greatly cut down the backend storage load and speed up the response of websites and applications. ApsaraDB for Memcache supports the key-value data structure and can communicate with clients that are compatible with the Memcached protocol. ApsaraDB for Memcache also supports out-of-the-box quick deployment and relieves the database load for dynamic web applications through the cache service, improving the overall response speed of the website.

- **Virtual Private Cloud**

  Virtual Private Cloud (VPC) is a private network established in Alibaba Cloud. VPCs are logically isolated from other virtual networks in Alibaba Cloud. Customer has full control over its VPC, such as specifying its IP address range, and configuring route tables and network gateways.

- **Server Load Balancer**

  Server Load Balancer (SLB) is a traffic distribution and control service that distributes inbound traffic among multiple ECS server instances or other cloud products according to configured forwarding rules. SLB expands service capabilities of applications and enhances their availability.

- **Object Storage Service**

  Object Storage Service (OSS) is an encrypted, secure, cost-effective, and easy-to-use object storage service that enables customer to store, back up, and archive large amounts of data in the cloud, with a guaranteed reliability of 99.999999999%. RESTful APIs allow storage and access to OSS anywhere on the Internet.

- **Resource Access Management**

  Resource Access Management (RAM) is an identity and access management service that helps customer to manage user identities and

access to its Alibaba Cloud resources. Customer can use RAM to create and manage RAM users and control their level of access permissions to resources under customer's Alibaba Cloud account. RAM allows customer to give users the minimum level of necessary permissions to reduce security risks.

- **Key Management Service**

  Key Management Service (KMS) is a managed service for customer to create and manage encryption keys (master keys) used to encrypt customer's data. KMS enables customer to maintain control over who can use its master keys and gain access to its encrypted data.

- **Log Service**

  Log Service (SLS) allows customer to quickly complete the collection, consumption, shipping, query, and analysis of log data without the need for development, which improves the Operation & Maintenance (O&M) efficiency, and builds the processing capabilities to handle massive logs.

- **Cloud Enterprise Network**

  Cloud Enterprise Network (CEN) is a service that allows customer to create a global network for rapidly building a distributed business system with a hybrid cloud computing solution. CEN enables customer to build a secure, private, and enterprise-class interconnected network between VPCs in different regions and customer's local data centers.

- **Alibaba Cloud Content Delivery Network**

  Content Delivery Network (CDN) is a distributed network that overlays on the bearer network and is composed of edge node server clusters distributed across different regions. The CDN network replaces the traditional data transmission modes centered on web servers. The CDN console can help customer add a CDN domain, refresh cache, and perform other configuration tasks. It also provides resource monitoring services including real-time data analysis.

- **Container Service**

  Container Service provides the high-performance and scalable container application management service, which enables customer to manage the lifecycle of containerized applications by using Docker and Kubernetes. Container Service provides multiple application release methods and the continuous delivery ability, and supports microservice architecture. By simplifying the setup of container cluster and integrating with the Alibaba Cloud abilities of virtualization, storage, network, and security, Container Service makes an ideal running cloud environment for containers.

- **Express Connect**

  Express Connect allows customer to establish high bandwidth, reliable, secure, and private connections between different networks. Dedicated physical connections link customer's on-premise data centers with Alibaba Cloud, which improves the flexibility of customer's network topology and the performance of cross-network connectivity. Based on Smart Access Gateway and SD-WAN capabilities, Express Cloud Connect offers an all-in-one network service by integrating the high reliability, high performance, and low latency features of dedicated physical connections. The service also supports peering connections between VPC networks across regions and Alibaba Cloud accounts.

- **VPN Gateway**

VPN Gateway is an Internet-based service that securely and reliably connects enterprise data centers, office networks, and Internet terminals to Alibaba Cloud VPCs through encrypted channels. VPN Gateway supports both IPsec-VPN connection and SSL-VPN connection.

- **Action Trail**

  ActionTrail records the operations on customer‘s Alibaba Cloud resources. Customer can use these records to analyze its account security, track changes made to its resources, and achieve compliance. ActionTrail records operations taken in the Alibaba Cloud console, SDKs, and APIs (including API calls triggered through the console). Customer can also leverage all the features of OSS to manage the records, such as access control, lifecycle management, and archiving. It then transfers these records to the specified OSS buckets in 10 minutes after an activity occurs, and stores the records in a standard format as logs. Customer can access the last 30 days of records through OSS, the ActionTrail console, and APIs.

- **Threat Detection Service**

  Threat Detection Service (TDS) of Security Center integrates the features of popular antivirus engines, and provides customer with comprehensive and real-time virus detection and protection service. The service features a unique detection model, which is based on machine learning and deep learning techniques, and large amount of threat information gathered by Alibaba Cloud. Threat Detection Service checks hundreds of millions of files every day and serves millions of cloud servers.

- **Server Guard**

  Security Center offers Server Guard (Server Security) that acts as a server security O&M manager. Through the linkage between the lightweight Agent plug-in installed on a server and rules of the on-cloud Security Center, Server Guard provides real-time awareness of and defense against intrusion events, safeguarding server security.

- **Anti-Bot Service**

  Anti-Bot Service (Anti-Bot) is a web application security service that effectively detects and identifies Web crawlers. It reduces the impact of Web crawlers and automation tools on customer's website. Anti-Bot provides a comprehensive security solution to defend against malicious bot traffic for customer‘s Web, app or API services. This eliminates weaknesses in the security of customer‘s business applications.

- **Anti-DDoS Premium**

  Anti-DDoS Premium service helps customer to mitigate DDoS attacks. By enabling Anti-DDoS Premium for customer‘s server that deployed outside the mainland China, all attack traffic against customer‘s server is pulled to customer‘s Anti-DDoS Premium’s dedicated IP. The Anti-DDoS Premium service filters attack traffic that diverted to global distributed scrubbing centers by using Anycast technology, and forward clean traffic back to the origin server.

- **Web Application Firewall**

  Web Application Firewall (WAF) is a web application firewall that monitors, filters, and blocks HTTP traffic to and from web applications. Based on the big data capacity of Alibaba Cloud Security, WAF helps customer to defend against common web attacks such as SQL injections, Cross-site scripting (XSS), web shell, Trojan, and unauthorized access, and to filter out massive HTTP flood requests. It protects customer‘s web resources from being exposed and guarantees customer‘s website security and availability.

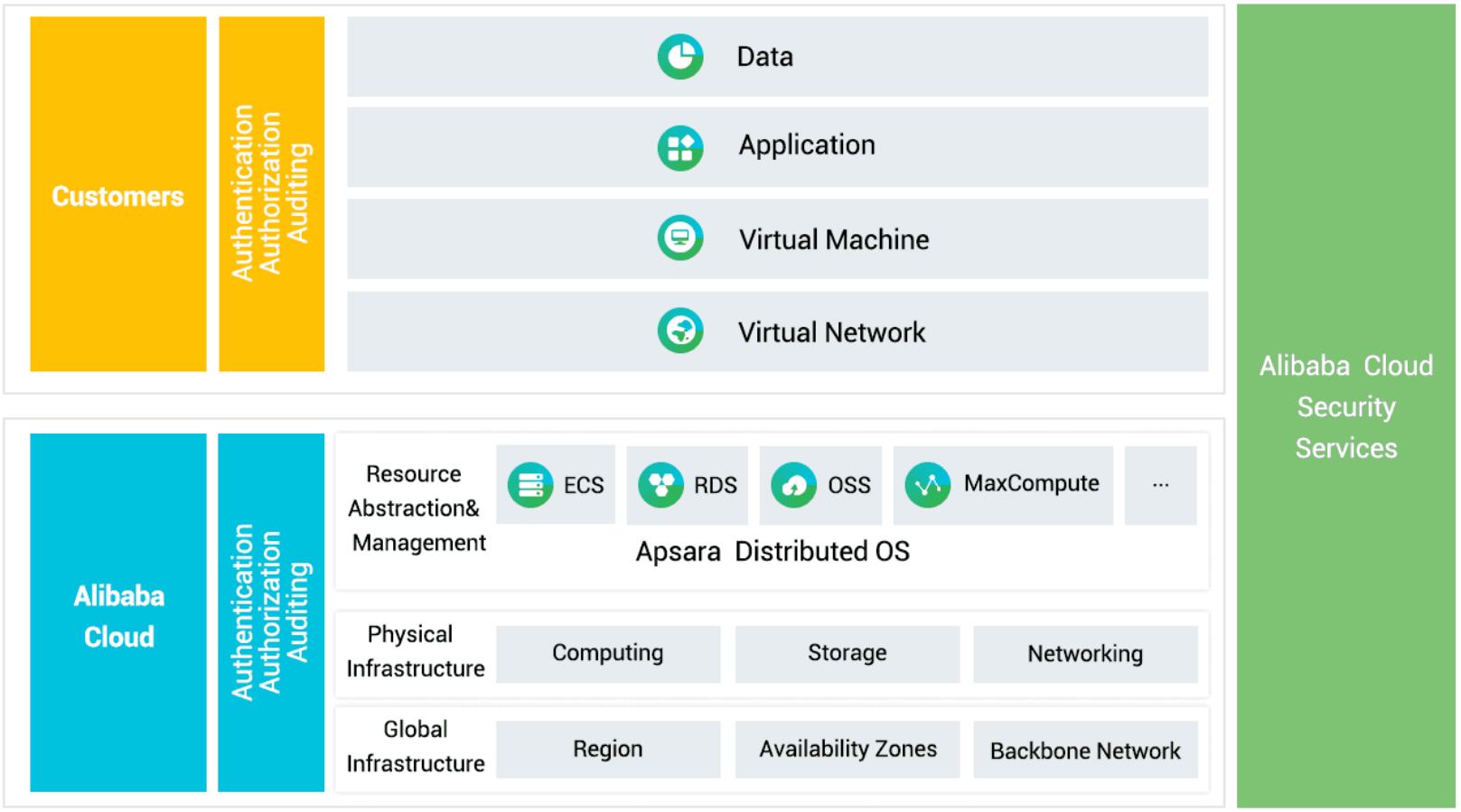
Anti-DDoS service

Anti-DDoS Basic is a free Distributed Denial of Service protection service that safeguards data and applications. Anti-DDoS Basic prevents and mitigates DDoS attacks by routing traffic away from customer‘s infrastructure. Anti-DDoS service guarantees availability and performance of customer‘s properties on Alibaba Cloud. It also provides enhanced visibility and control over customer‘s security. As a global service from Alibaba Cloud Security, Anti-DDoS Basic functions with 5Gbps capacity of DDoS mitigation against common DDoS attacks.

3 Alibaba Cloud Security Responsibilities Considerations

3.1 Alibaba Cloud Shared Security Responsibilities Model

Alibaba Cloud and its customers are jointly responsible for the security of customers' applications built on Alibaba Cloud. Alibaba Cloud is responsible for the security of the underlying cloud service platform and infrastructure, and customers are responsible for the security of applications built on top of or connected to the cloud. The shared security responsibility model is somewhat different than the typical security model a customer would see in an on-premises data center. Customers are able to leverage the underlying security assurance and capabilities that Alibaba Cloud provides, thus getting an overall better security return by using Alibaba Cloud.



Alibaba Cloud must ensure a securely managed and operated infrastructure (including but not limited to data centers deployed across regions and zones, and Alibaba backbone networks), physical devices (including computing, storage, and network devices), distributed cloud OS named Apsara, and various cloud services and products running on top of the Apsara OS.

By leveraging its years of expertise in attack prevention technologies, Alibaba Cloud offers various security features and services to help protect customers' applications and systems. In turn, customers must, in a secure manner, configure and use cloud products (such as the Elastic Compute Service (ECS), Relational Database Service (RDS) instances, etc.), and build applications based on such securely configured cloud products. Customers can choose to use the Alibaba Cloud security services or any third-party security products in the Alibaba Cloud security ecosystem to protect their applications and assets

With security responsibilities shared between Alibaba Cloud and its customers, Alibaba Cloud provides a secure infrastructure to help mitigate the security needs of customers, thus relieving much of the underlying security burdens while allowing customers to focus more on their core business needs.

3.1.1 Security Responsibilities of Alibaba Cloud

Alibaba Cloud is responsible for the security of its infrastructure, physical devices, Apsara OS, and cloud services/products, and provides customers with the technical means necessary to protect their cloud applications and data. Alibaba Cloud ensures the cloud platform security by:

- Protecting the physical security of cloud data centers;
- Protecting the security of hardware, software, and network of the cloud platform by means of OS- and database-patch management, network access control, Anti-DDoS, and disaster recovery, etc.;
- Identifying and fixing security vulnerabilities of the cloud platform in a timely manner without affecting customers' service availability;
- Cooperating with independent third-party security regulation and audit agencies to audit and evaluate security and compliance of Alibaba Cloud.

Alibaba Cloud provides customers with the following technical security measures:

- Providing multi homed BGP access networks and cloud data centers distributed across multiple regions and zones, thus enable customers to build high availability cloud applications;
- Providing Alibaba Cloud account authentication and authorization that support two level account credentials (Alibaba Cloud account and individual RAM user accounts) for easy segregation of duties, multi-factor authentication(MFA), grouped authorization polices, fine-grained authorization control, and temporary authorization token;
- Providing security audit support;
- Providing data encryption support;
- Providing various Alibaba Cloud security services (in-house & third party);
- Introducing third-party security vendors to offer customers security solutions tailored for their needs.

3.1.2 Security Responsibilities of Customers

Customers who build cloud applications based on Alibaba Cloud services is responsible for protecting their own systems by using the security features of Alibaba Cloud products, Alibaba Cloud Security services, and the third-party security products provided by the Alibaba Cloud security ecosystem.

Customers must protect their Alibaba Cloud account credentials by allocating an independent RAM (Resource Access Management) user account for each maintenance personnel, granting only the minimum permissions required, and ensuring a separation of duties by means of assigning authorization by groups. We recommend that the customers enable the multi-factor authentication (MFA) for their accounts. Furthermore, customers could use the Alibaba Cloud ActionTrail to record OpenAPI call logs and operations performed on the management and control console, and use encryption at rest and in motion capabilities in various Alibaba Cloud products to protect sensitive data.

Customers have full control of the ECS and Virtual Private Cloud (VPC) instances provided by Alibaba Cloud, and are responsible for managing these instances and performing the necessary security configurations. For example, customers could perform security hardening to their ECS Operating Systems, install security patches in a timely fashion, and configure firewalls (security groups) for network access control enforcement.

For other Alibaba Cloud services, such as OSS, SLB, RAM, KMS, SLS, CEN, RDS, ApsaraDB for Redis, ApsaraDB for MongoDB, ApsaraDB for Memcache, Container Service, Express Connect, VPN Gateway and Anti-DDoS service, customers do not need to maintain the underlying computing instances, such as keeping the OS and database updated, hardened, and patched. Instead, customers are only responsible for managing the service account credentials and resource authorization, and using the build-in security features, such as configuring a source IP address whitelist for RDS, TLS protocol and encryption cipher suites configuration for SLB, password policies configuration for RAM, etc.

4 PCI DSS Requirements and Responsibility Management Matrix For Alibaba Cloud Customer

This section describes the Alibaba Cloud customers' responsibilities for leveraging the PCI validated Alibaba Cloud services in a compliant. The following defines the column headings for the PCI DSS Requirements and Responsiblity Management Matrix:

- **PCI DSS Requirements** – This column defines the Data Security Standard requirements; PCI DSS compliance is validated against these requirements.
- **Responsibility** – This column defines the PCI DSS responsibility for Alibaba Cloud and Customers. The responsibility categorize as "Alibaba Cloud", "Customer", and "Shared" respectively, indicate where the control originates. All controls originate from a system or from a business process. It is important to understand where the control originates from so that it is clear whose responsibility it is to implement, manage, and monitor the control. Below is the definitions for each security control originates.
    - **Alibaba Cloud:** Alibaba Cloud is responsible in managing and maintaining the control to comply with PCI DSS requirement. Customers can use Alibaba Cloud Public Cloud International Service's Attestation of Compliance (AOC) to validate the scope.
    - **Customer:** Control that is solely the responsibility of the customer, based on the application being deployed within Alibaba Cloud services. Customer must validate compliance of such controls through their own PCI DSS program.
    - **Shared:** Control that is managed and implemented partially by Alibaba Cloud and partially by the customer. Both Alibaba Cloud and its customers own the responsibility to manage and maintain such controls to comply with PCI DSS.
- **Scope of Customer PCI DSS Responsibility** – This column describes the scope of customer PCI DSS compliance responsibility.
- **Scope of Alibaba Cloud PCI DSS Responsibility** – This column describes the scope of Alibaba Cloud PCI DSS compliance responsibility.
- **Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance** – This column describes how Alibaba Cloud will provide evidence of compliance to customers.

4.1 Build and Maintain a Secure Network and Systems

4.1.1 Install and maintain a firewall configuration to protect cardholder data

Firewalls are devices that control computer traffic allowed between an entity's networks (internal) and untrusted networks (external), as well as traffic into and out of more sensitive areas within an entity's internal trusted networks. The cardholder data environment is an example of a more sensitive area within an entity's trusted network. A firewall examines all network traffic and blocks those transmissions that do not meet the specified security criteria.

All systems must be protected from unauthorized access from untrusted networks, whether entering the system via the Internet as e-commerce, employee Internet access through desktop browsers, employee e-mail access, dedicated connections such as business-to-business connections, via wireless networks, or via other sources. Often, seemingly insignificant paths to and from untrusted networks can provide unprotected pathways into key systems. Firewalls are a key protection mechanism for any computer network.

Other system components may provide firewall functionality, as long as they meet the minimum requirements for firewalls as defined in Requirement 1. Where other system components are used within the cardholder data environment to provide firewall functionality, these devices must be included within the scope and assessment of Requirement 1.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
1.1 Establish and implement firewall and router configuration standards that include the following:				
1.1.1 A formal process for approving and testing all network connections and changes to the firewall and router configurations	**Shared**	**All In-Scope Services:** Customers are responsible for testing and approving their network connectivity and configuration for storing cardholder data in Alibaba Cloud services. **ECS and VPC:** Customers are responsible for configuration and approval of the network connections for their VM instances (i.e., via Security Groups, ACLs), and approval of ECS instance sharing and port access protocols for SLB, VPN Gateway, CEN, and Express Connect, etc.	**All In-Scope Services:** Alibaba Cloud is responsible for testing and approving the network connectivity and configuration for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.1.2 Current network diagram that identifies all connections between the cardholder data environment and other networks, including any wireless	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining network diagrams for their Cardholder Data	N/A	N/A

networks		Environment (CDE).		
1.1.3 Current diagram that shows all cardholder data flows across systems and networks	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining the cardholder data flows for their Cardholder Data Environment (CDE).	N/A	N/A
1.1.4 Requirements for a firewall at each Internet connection and between any demilitarized zone (DMZ) and the internal network zone	**Customer**	**All In-Scope Services:** Customers are responsible for creating DMZ, internal networks and other security zones by using VPC security groups, ACLs or other firewall technologies.	N/A	N/A
1.1.5 Description of groups, roles, and responsibilities for management of network components	**Shared**	**All In-Scope Services:** Customers are responsible for defining the roles and responsibilities for managing their Security Groups, ACLs and any other network related configurations.	**All In-Scope Services:** Alibaba Cloud is responsible for defining the roles and responsibilities for managing the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.1.6 Documentation of business justification and approval for use of all services, protocols, and ports allowed, including documentation of security features implemented for those protocols considered to be insecure.	**Shared**	**All In-Scope Services:** Customers are responsible for documenting the ports and protocols with justification for inbound and outbound access. Documentation should include network access configured in their security groups, ACLs or other firewall technologies used for creating DMZ, internal	**All In-Scope Services:** Alibaba Cloud is responsible for documenting the ports and protocols with justification for inbound and outbound access of the Alibaba Cloud Management Environment and Alibaba Cloud service	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

		networks and other security zones. Customers are responsible for identifying insecure services and implementing appropriate security controls and security features to mitigate the risk of the protocols from being used.	infrastructure. Alibaba Cloud are responsible for identifying insecure services and implementing appropriate security controls and security features to limit the risk of the protocols from being used.	
1.1.7 Requirement to review firewall and router rule sets at least every six months	**Shared**	**All In-Scope Services:** Customers are responsible for performing reviews of their firewalls and other network technology and services that are used to filter traffic into the CDE every six months. This includes but may not be limited to ECS, and VPC Security Groups, ACLs, SLB port and IP address configuration and CEN configuration.	**All In-Scope Services:** Alibaba Cloud is responsible for performing reviews of their firewalls and other network technology and services that are used to filter traffic into the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure every six months.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.2 Build firewall and router configurations that restrict connections between untrusted networks and any system components in the cardholder data environment. Note: An “untrusted network” is any network that is external to the networks belonging to the entity under review, and/or which is out of the entity's ability to control or manage.				
1.2.1 Restrict inbound and outbound traffic to that which is necessary for the cardholder data environment, and specifically deny all other traffic.	**Shared**	**ECS, VPC, SLB and CEN:** Customers are responsible for implementing perimeter firewalls and configuring Security	**All In-Scope Services:** Alibaba Cloud maintains instance isolation for Host Operating System and the Alibaba Cloud	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for

		Groups and ACLs through the Alibaba Cloud OpenAPI and other user interfaces for their in-scope services. Customers are responsible for developing appropriate firewall rules or using additional firewall technologies to develop appropriate DMZ and internal networks. Customers are responsible for verifying inbound and outbound traffic for their Cardholder Data Environment that includes ECS, and VPC instances. Customers are responsible for configuring SLB and CEN to deny any traffic that is not explicitly required for the service to function. **ApsaraDB RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB, ApsaraDB for Memcache and OSS**: Customers are responsible for reviewing the connectivity models and exposure of their instances to these data stores, to ensure that appropriate zones are created, and to determine that access mechanisms to the data stores that have cardholder data are not directly exposed to the	Management Environment including Host Operating System, Network Security, and Virtualization Security. Alibaba Cloud meets all PCI DSS requirements for implementing and managing access control for the Alibaba Cloud management environment and Alibaba Cloud service infrastructure. **ECS:** Alibaba Cloud VPC Security Group Firewall implement stateful inspection network access control and are suitable for compliant network segmentation.	Alibaba Cloud Security Services issued by atsec on July 17, 2019.

		Internet.		
1.2.2 Secure and synchronize router configuration files.	**Shared**	**ECS:** Customers that use server-based technologies for implementing routing and firewall rules are responsible for synchronizing and securing these technologies.	**All In-Scope Services:** Alibaba Cloud is responsible for synchronizing and securing the router configuration files used by Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.2.3 Install perimeter firewalls between all wireless networks and the cardholder data environment, and configure these firewalls to deny or, if traffic is necessary for business purposes, permit only authorized traffic between the wireless environment and the cardholder data environment.	**Shared**	**All In-Scope Services:** Customers that use wireless networks are responsible for isolating their cardholder data environment from those wireless networks.	**All In-Scope Services:** Alibaba Cloud maintains the perimeter firewalls and or ACLs to control traffic between wireless networks and systems in Alibaba Cloud data centers.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.3 Prohibit direct public access between the Internet and any system component in the cardholder data environment.				
1.3.1 Implement a DMZ to limit inbound traffic to only system components that provide authorized publicly accessible services, protocols, and ports.	**Shared**	**ECS, VPC, SLB and CEN:** Customers are responsible for implementing perimeter firewalls and configuring Security Groups and ACLs through the Alibaba Cloud OpenAPI and other user interfaces	**All In-Scope Services:** Alibaba Cloud maintains instance isolation for Host Operating System and the Alibaba Cloud Management Environment including Host Operating System, Network Security, and	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.3.2 Limit inbound Internet traffic to IP addresses within the DMZ.	**Shared**			

1.3.3 Implement anti-spoofing measures to detect and block forged source IP addresses from entering the network. (For example, block traffic originating from the Internet with an internal source address.)	**Shared**	for their in-scope services. Customers are responsible for developing appropriate firewall rules or using additional firewall technologies to develop appropriate DMZ and internal networks. **ApsaraDB RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB, ApsaraDB for Memcache and OSS**: Customers are responsible for reviewing the connectivity models and exposure of their instances to these data stores, to ensure that appropriate zones are created, and to determine that access mechanisms to the data stores that have cardholder data are not directly exposed to the Internet.	Virtualization Security. Alibaba Cloud meets all PCI DSS requirements for implementing and managing access control for the Alibaba Cloud management environment and Alibaba Cloud service infrastructure. **ECS:** Alibaba Cloud VPC Security Group Firewall implement stateful inspection network access control and are suitable for compliant network segmentation.	
1.3.4 Do not allow unauthorized outbound traffic from the cardholder data environment to the Internet.	**Shared**			
1.3.5 Permit only “established” connections into the network.	**Shared**	**ECS, VPC, SLB and CEN:** Customers are responsible for ensuring the use of stateful inspection firewalls if any host-based or other firewalls are implemented in the ECS, and VPC instances.	**All In-Scope Services:** Alibaba Cloud meets all PCI DSS requirements for implementing and managing access control for the Alibaba Cloud management environment and Alibaba Cloud service infrastructure. **ECS:** Alibaba Cloud VPC Security Group Firewall implement stateful inspection network	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

			access control and are suitable for compliant network segmentation.	
1.3.6 Place system components that store cardholder data (such as a database) in an internal network zone, segregated from the DMZ and other untrusted networks.	**Customer**	Customers are responsible for placing system components that store cardholder data (such as a database) in an internal network zone, segregated from the DMZ and other untrusted networks. **ApsaraDB RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB, ApsaraDB for Memcache and OSS**: Customers are responsible for reviewing the connectivity models and exposure of their instances to these data stores, to ensure that appropriate zones are created, and to determine that access mechanisms to the data stores that have cardholder data are not directly exposed to the Internet.	N/A	N/A

1.3.7 Do not disclose private IP addresses and routing information to unauthorized parties. Note: Methods to obscure IP addressing may include, but are not limited to: ● Network Address Translation (NAT) ● Placing servers containing cardholder data behind proxy servers/firewalls, ● Removal or filtering of route advertisements for private networks that employ registered addressing, ● Internal use of RFC1918 address space instead of registered addresses.	**Shared**	**ECS:** Customers are responsible for developing appropriate configuration on ECS and VPC server instances to prevent the disclosure of IP addresses and routing information.	**All In-Scope Services:** Alibaba Cloud is responsible for preventing the disclosure of IP Addresses and routing information for the Alibaba Cloud management environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
1.4 Install personal firewall software or equivalent functionality on any portable computing devices (including company and/or employee-owned) that connect to the Internet when outside the network (for example, laptops used by employees), and which are also used to access the CDE. Firewall (or equivalent) configurations include: ● Specific configuration settings are defined. ● Personal firewall (or equivalent functionality) is actively running. ● Personal firewall (or equivalent functionality) is not alterable by users of the portable computing devices.	**Customer**	**All In-Scope Services:** Customers are responsible for implementing firewall rules for systems with direct connectivity to the Internet for systems used to manage the CDE.	N/A	N/A
1.5 Ensure that security policies and operational procedures for managing firewalls are documented, in use, and known to all affected parties.	**Shared**	Customers are responsible for ensuring that their policies and procedures are documented and known to all affected	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019.

		parties.	documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.1.2 Do not use vendor-supplied defaults for system passwords and other security parameters

Malicious individuals (external and internal to an entity) often use vendor default passwords and other vendor default settings to compromise systems. These passwords and settings are well known by hacker communities and are easily determined via public information.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
2.1 Always change vendor-supplied defaults and remove or disable unnecessary default accounts before installing a system on the network. This applies to ALL default passwords, including but not limited to those used by operating systems, software that provides security services, application and system accounts, point-of-sale (POS) terminals, payment applications, Simple Network Management Protocol (SNMP) community strings, etc.).	**Shared**	**ECS:** Customers are responsible for changing vendor-supplied defaults on ECS.	**All In-Scope Services:** Alibaba Cloud develops and maintains configuration and hardening standards for the Alibaba Cloud Management Environment that provides the virtualization technologies and applications for providing the cloud services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.1.1 For wireless environments connected to the cardholder data environment or transmitting cardholder data, change ALL wireless vendor defaults at installation, including but not limited to default wireless encryption keys, passwords, and SNMP community strings.	**Customer**	**All In-Scope Services:** Customers are responsible for management of their networks, including those with wireless connectivity.	N/A	N/A

2.2 Develop configuration standards for all system components. Assure that these standards address all known security vulnerabilities and are consistent with industry-accepted system hardening standards. Sources of industry-accepted system hardening standards may include, but are not limited to: ● Center for Internet Security (CIS) ● International Organization for Standardization (ISO) ● SysAdmin Audit Network Security (SANS) Institute ● National Institute of Standards Technology (NIST).	**Shared**	**All In-Scope Services:** Customers are responsible for documenting the functional and security configuration standards of Alibaba Cloud services used within the CDE to ensure that the secure state designed for the service can be maintained. **ECS:** Customers are responsible for documenting, developing and implementing configuration standards for the ECS instances.	**All In-Scope Services:** Alibaba Cloud develops and maintains configuration and hardening standards for the Alibaba Cloud Management Environment that provides the virtualization technologies and applications for providing the cloud services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.2.1 Implement only one primary function per server to prevent functions that require different security levels from co-existing on the same server. (For example, web servers, database servers, and DNS should be implemented on separate servers.) Note: Where virtualization technologies are in use, implement only one primary function per virtual system component.	**Shared**	**ECS:** Customers are responsible for ensuring that only one primary function is implemented per customer-managed ECS instance.	**All In-Scope Services:** Alibaba Cloud develops and maintains configuration and hardening standards for the Alibaba Cloud Management Environment that provides the virtualization technologies and applications for providing the cloud services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.2.2 Enable only necessary services, protocols, daemons, etc., as required for the function of the system.	**Shared**	**All In-Scope Services:** Customers are responsible for documenting the functional and security configuration standards of Alibaba Cloud services used within the CDE to ensure that the secure state designed for the service can be maintained.	**All In-Scope Services:** Alibaba Cloud develops and maintains configuration and hardening standards for the Alibaba Cloud Management Environment that provides the virtualization	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.2.3 Implement additional security features for any required services, protocols, or daemons that are considered to be insecure.	**Shared**			
2.2.4 Configure system security	**Shared**			

parameters to prevent misuse.		**ECS:** Customers are responsible for documenting, developing and implementing configuration standards for the ECS instances.	technologies and applications for providing the cloud services.	
2.2.5 Remove all unnecessary functionality, such as scripts, drivers, features, subsystems, file systems, and unnecessary web servers.	**Shared**			
2.3 Encrypt all non-console administrative access using strong cryptography.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that access to OpenAPI are only allowed over TLS connections to protect the confidentiality and integrity of the transmission of configuration information. Customers are responsible for using TLS 1.1 protocol or higher. If early versions of TLS 1.1 or SSL protocol are in place in the cardholder data environment, customers are responsible for developing a compensating control to mitigate the security risk. **ECS:** Customers are responsible for ensuring secure communication for administrative access to the ECS server instances including Windows Remote Desktop (RDP) using “High Encryption” or “FIPS compatible” encryption settings or SSH v2 or above and appropriate SSH keys.	**All In-Scope Services:** Alibaba Cloud develops and maintains configuration and hardening standards for the Alibaba Cloud Management Environment that provides the virtualization technologies and applications for providing the cloud services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.4 Maintain an inventory of system components that are in scope for PCI	**Shared**	**All In-Scope Services:** Customers are responsible	**All In-Scope Services:** Alibaba Cloud is	Attestation of Compliance for Alibaba Cloud Public Cloud

DSS.		for maintaining an inventory of Alibaba Cloud resources that are in scope for their PCI DSS compliance.	responsible for maintaining an inventory of Alibaba Cloud resources that are in scope for its PCI DSS compliance.	International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.5 Ensure that security policies and operational procedures for managing vendor defaults and other security parameters are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
2.6 Shared hosting providers must protect each entity's hosted environment and cardholder data. These providers must meet specific requirements as detailed in *Appendix A1: Additional PCI DSS Requirements for Shared Hosting Providers.*	**Shared**	**All In-Scope Services:** Customers may also be considered a shared hosting provider, if they run applications or store data for their customers. Customers are responsible for protecting their customer's data within Alibaba Cloud services. **ECS:** The Secondary Shared-Hosting Provider is responsible to protect entities' hosted environments and ECS server instances.	**All In-Scope Services:** Alibaba Cloud maintains responsibility for customer server instance segregation architecture	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.2 Protect Cardholder Data

4.2.1 Protect stored cardholder data

Protection methods such as encryption, truncation, masking, and hashing are critical components of cardholder data protection. If an intruder circumvents other security controls and gains access to encrypted data, without the proper cryptographic keys, the data is unreadable and unusable to that person. Other effective methods of protecting stored data should also be considered as potential risk mitigation opportunities.

For example, methods for minimizing risk include not storing cardholder data unless absolutely necessary, truncating cardholder data if full PAN is not needed, and not sending unprotected PANs using end-user messaging technologies, such as e-mail and instant messaging.

Please refer to the *PCI DSS and PA-DSS Glossary of Terms, Abbreviations, and Acronyms* for definitions of "strong cryptography" and other PCI DSS terms.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
3.1 Keep cardholder data storage to a minimum by implementing data retention and disposal policies, procedures and processes that include at least the following for all cardholder data (CHD) storage: ● Limiting data storage amount and retention time to that which is required for legal, regulatory, and/or business requirements ● Specific retention requirements for cardholder data ● Processes for secure deletion of data when no longer needed ● A quarterly process for identifying and securely deleting stored cardholder data that exceeds defined retention.	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining appropriate data retention policies and procedures, encryption technologies and key management processes for maintaining PCI DSS requirements. **OSS:** OSS provides lifecycle policies for the stored content. Customers are responsible for the lifecycle policies configuration in accordance with this PCI DSS requirement when storing cardholder data in OSS.	N/A	N/A
3.2 Do not store sensitive authentication data after authorization (even if encrypted). If sensitive authentication data is received, render all data unrecoverable upon completion of the authorization process. It is permissible for issuers and companies that support issuing services to store sensitive	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining appropriate data retention policies and procedures, encryption technologies and key management processes for maintaining PCI DSS requirements.	N/A	N/A

authentication data if: ● There is a business justification and ● The data is stored securely. Sensitive authentication data includes the data as cited in the following Requirements 3.2.1 through 3.2.3:				
3.2.1 Do not store the full contents of any track (from the magnetic stripe located on the back of a card, equivalent data contained on a chip, or elsewhere) after authorization. This data is alternatively called full track, track, track 1, track 2, and magnetic-stripe data. Note: In the normal course of business, the following data elements from the magnetic stripe may need to be retained: ● The cardholder's name ● Primary account number (PAN) ● Expiration date ● Service code To minimize risk, store only these data elements as needed for business.	**Customer**			
3.2.2 Do not store the card verification code or value (three-digit or four-digit number printed on the front or back of a payment card used to verify card-not- present transactions) after authorization.	**Customer**			
3.2.3 Do not store the personal identification number (PIN) or the encrypted PIN block after authorization.	**Customer**			

3.3 Mask PAN when displayed (the first six and last four digits are the maximum number of digits to be displayed), such that only personnel with a legitimate business need can see more than the first six/last four digits of the PAN. Note: This requirement does not supersede stricter requirements in place for displays of cardholder data—for example, legal or payment card brand requirements for point- of-sale (POS) receipts.	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining appropriate data retention policies and procedures, encryption technologies and key management processes for maintaining PCI DSS requirements.	N/A	N/A
3.4 Render PAN unreadable anywhere it is stored (including on portable digital media, backup media, and in logs) by using any of the following approaches: ● One-way hashes based on strong cryptography, (hash must be of the entire PAN) ● Truncation (hashing cannot be used to replace the truncated segment of PAN) ● Index tokens and pads (pads must be securely stored) ● Strong cryptography with associated key-management processes and procedures. Note: It is a relatively trivial effort for a malicious individual to reconstruct original PAN data if they have access to both the truncated and hashed version of a PAN. Where hashed and truncated versions of the same PAN are present in an entity's environment, additional controls must be in place to ensure that the hashed and truncated versions cannot be correlated to	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining appropriate data retention policies and procedures, encryption technologies and key management processes for maintaining PCI DSS requirements. **KMS:** Customers are responsible for the creation, usage, and management of encryption keys in accordance with PCI DSS when using this service.	**KMS:** KMS secures keys using hardware security modules and provides functions to use and manage keys. Alibaba Cloud is responsible for protecting the key security inside KMS.	N/A

reconstruct the original PAN.				
3.4.1 If disk encryption is used (rather than file- or column-level database encryption), logical access must be managed separately and independently of native operating system authentication and access control mechanisms (for example, by not using local user account databases or general network login credentials). Decryption keys must not be associated with user accounts. Note: This requirement applies in addition to all other PCI DSS encryption and key- management requirements.	**Customer**	**All In-Scope Services:** Customers are responsible for maintaining appropriate data retention policies and procedures, encryption technologies and key management processes for maintaining PCI DSS requirements. **KMS:** Customers are responsible for the creation, usage, and management of encryption keys in accordance with PCI DSS when using this service.	**KMS:** KMS secures keys using hardware security modules and provides functions to use and manage keys. Alibaba Cloud is responsible for protecting the key security inside KMS.	N/A
3.5 Document and implement procedures to protect keys used to secure stored cardholder data against disclosure and misuse: Note: This requirement applies to keys used to encrypt stored cardholder data, and also applies to key-encrypting keys used to protect data-encrypting keys—such key- encrypting keys must be at least as strong as the data-encrypting key.	**Shared**	**All In-Scope Services:** Customers are responsible for maintaining encryption technologies and key management processes for maintaining PCI DSS requirements. **KMS:** Customers are responsible for the creation, usage, and management of encryption keys in accordance with PCI DSS when using this service.	**KMS:** KMS secures keys using hardware security modules and provides functions to use and manage keys. Alibaba Cloud is responsible for protecting the key security inside KMS.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019.
3.5.1 Additional requirement for service providers only: Maintain a documented description of the cryptographic architecture that includes: ● *Details of all algorithms, protocols, and keys used for the protection of cardholder data, including key strength and expiry date* ● *Description of the key usage for*	**Shared**			

each key ● *Inventory of any HSMs and other SCDs used for key management*				
3.5.2 Restrict access to cryptographic keys to the fewest number of custodians necessary.	**Shared**			
3.5.3 Store secret and private keys used to encrypt/decrypt cardholder data in one (or more) of the following forms at all times ● Encrypted with a key-encrypting key that is at least as strong as the data- encrypting key, and that is stored separately from the data-encrypting key ● Within a secure cryptographic device (such as a hardware (host) security module (HSM) or PTS-approved point-of-interaction device) ● As at least two full-length key components or key shares, in accordance with an industry-accepted method Note: It is not required that public keys be stored in one of these forms.	**Shared**			
3.5.4 Store cryptographic keys in the fewest possible locations.	**Shared**			
3.6 Fully document and implement all key- management processes and procedures for cryptographic keys used for encryption of cardholder data, including the following: Note: Numerous industry standards for key management are available from various resources including NIST, which can be found at	**Shared**	**All In-Scope Services:** Customers are responsible for maintaining encryption technologies and key management processes for maintaining PCI DSS requirements. **KMS:** Customers are responsible for the	**KMS:** KMS secures keys using hardware security modules and provides functions to use and manage keys. Alibaba Cloud is responsible for protecting the key security inside KMS.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019.

http://csrc.nist.gov.		creation, usage, and management of encryption keys in accordance with PCI DSS when using this service.		
3.6.1 Generation of strong cryptographic keys	**Shared**			
3.6.2 Secure cryptographic key distribution	**Shared**			
3.6.3 Secure cryptographic key storage	**Shared**			
3.6.4 Cryptographic key changes for keys that have reached the end of their cryptoperiod (for example, after a defined period of time has passed and/or after a certain amount of cipher-text has been produced by a given key), as defined by the associated application vendor or key owner, and based on industry best practices and guidelines (for example, NIST Special Publication 800-57).	**Shared**			
3.6.5 Retirement or replacement (for example, archiving, destruction, and/or revocation) of keys as deemed necessary when the integrity of the key has been weakened (for example, departure of an employee with knowledge of a clear-text key component), or keys are suspected of being compromised. Note: If retired or replaced cryptographic keys need to be retained, these keys must be securely archived (for example, by using a key-encryption key). Archived cryptographic keys should only be used for decryption/verification	**Shared**			

purposes.				
3.6.6 If manual clear-text cryptographic key-management operations are used, these operations must be managed using split knowledge and dual control. Note: Examples of manual key-management operations include, but are not limited to: key generation, transmission, loading, storage and destruction.	**Shared**			
3.6.7 Prevention of unauthorized substitution of cryptographic keys.	**Shared**			
3.6.8 Requirement for cryptographic key custodians to formally acknowledge that they understand and accept their key- custodian responsibilities.	**Shared**			
3.7 Ensure that security policies and operational procedures for protecting stored cardholder data are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019.

4.2.2 Encrypt transmission of cardholder data across open, public networks

Sensitive information must be encrypted during transmission over networks that are easily accessed by malicious individuals. Misconfigured wireless networks and vulnerabilities in legacy encryption and authentication protocols continue to be targets of malicious individuals who exploit these vulnerabilities to gain privileged access to cardholder data environments.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
4.1 Use strong cryptography and security protocols to safeguard sensitive cardholder data during transmission over open, public networks, including the following: ● Only trusted keys and certificates are accepted. ● The protocol in use only supports secure versions or configurations. ● The encryption strength is appropriate for the encryption methodology in use. Examples of open, public networks include but are not limited to: ● The Internet ● Wireless technologies, including 802.11 and Bluetooth ● Cellular technologies, for example, Global System for Mobile communications (GSM), Code division multiple access (CDMA) ● General Packet Radio Service (GPRS) ● Satellite communications	**Shared**	**All In-Scope Services:** Customers are responsible for cryptography and security protocols configuration or implementation for connections to any storage system that is transmitting cardholder data. Customers are responsible for ensuring the data is encrypted in transit as well as when stored. **ECS, SLB:** Customers are responsible for configuring web servers or the SLB with appropriate certificates to protect cardholder data transmission over public networks. **IPsec VPN:** Customers are responsible for configuring IPsec VPN configuration to protect cardholder data transmission over IPsec VPN network if the service is used.	**All In-Scope Services:** Alibaba Cloud encrypts access and manages encryption within the Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
4.1.1 Ensure wireless networks transmitting cardholder data or connected to the cardholder data	**Customer**	**All In-Scope Services:** Customers are responsible for management of their	N/A	N/A

environment, use industry best practices to implement strong encryption for authentication and transmission.		networks, including those with wireless connectivity.		
4.2 Never send unprotected PANs by end- user messaging technologies (for example, e- mail, instant messaging, SMS, chat, etc.).	**Customer**	**All In-Scope Services:** Customers are responsible for the use of any end-user messaging technologies for transmitting PAN.	N/A	N/A
4.3 Ensure that security policies and operational procedures for encrypting transmissions of cardholder data are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.3 Maintain a Vulnerability Management Program

4.3.1 Protect all systems against malware and regularly update anti-virus software or programs

Malicious software, commonly referred to as “malware”—including viruses, worms, and Trojans—enters the network during many business-approved activities including employee e-mail and use of the Internet, mobile computers, and storage devices, resulting in the exploitation of system vulnerabilities. Anti-virus software must be used on all systems commonly affected by malware to protect systems from current and evolving malicious software threats. Additional anti-malware solutions may be considered as a supplement to the anti-virus software; however, such additional solutions do not replace the need for anti-virus software to be in place.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
5.1 Deploy anti-virus software on all systems commonly affected by malicious software (particularly personal computers and servers).	**Shared**	**ECS:** Customers are responsible for implementing and managing anti-virus on	**All In-Scope Services:** Alibaba Cloud manages anti-virus software for the Alibaba Cloud	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019.

5.1.1 Ensure that anti-virus programs are capable of detecting, removing, and protecting against all known types of malicious software.	**Shared**	customer- managed ECS server instances to meet PCI requirements.	Management Environment and, where appropriate, for identified services.	Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
5.1.2 For systems considered to be not commonly affected by malicious software, perform periodic evaluations to identify and evaluate evolving malware threats in order to confirm whether such systems continue to not require anti-virus software.	**Shared**			
5.2 Ensure that all anti-virus mechanisms are maintained as follows: ● Are kept current, ● Perform periodic scans ● Generate audit logs which are retained per PCI DSS Requirement 10.7.	**Shared**	**ECS:** Customers are responsible for implementing and managing anti-virus on customer- managed ECS server instances to meet PCI requirements.	**All In-Scope Services:** Alibaba Cloud manages anti-virus software for the Alibaba Cloud Management Environment and, where appropriate, for identified services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
5.3 Ensure that anti-virus mechanisms are actively running and cannot be disabled or altered by users, unless specifically authorized by management on a case-by-case basis for a limited time period. Note: Anti-virus solutions may be temporarily disabled only if there is legitimate technical need, as authorized by management on a case-by-case basis. If anti-virus protection needs to be disabled for a specific purpose, it must be formally authorized. Additional security measures may also need to be implemented for the period of time during which anti-virus protection is not active.	**Shared**	**ECS:** Customers are responsible for implementing and managing anti-virus on customer- managed ECS server instances to meet PCI requirements.	**All In-Scope Services:** Alibaba Cloud manages anti-virus software for the Alibaba Cloud Management Environment and, where appropriate, for identified services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

5.4 Ensure that security policies and operational procedures for protecting systems against malware are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.3.2 Develop and maintain secure systems and applications

Unscrupulous individuals use security vulnerabilities to gain privileged access to systems. Many of these vulnerabilities are fixed by vendor-provided security patches, which must be installed by the entities that manage the systems. All systems must have all appropriate software patches to protect against the exploitation and compromise of cardholder data by malicious individuals and malicious software.

Note: Appropriate software patches are those patches that have been evaluated and tested sufficiently to determine that the patches do not conflict with existing security configurations. For in-house developed applications, numerous vulnerabilities can be avoided by using standard system development processes and secure coding techniques.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance

6.1 Establish a process to identify security vulnerabilities, using reputable outside sources for security vulnerability information, and assign a risk ranking (for example, as “high,” “medium,” or “low”) to newly discovered security vulnerabilities. Note: Risk rankings should be based on industry best practices as well as consideration of potential impact. For example, criteria for ranking vulnerabilities may include consideration of the CVSS base score, and/or the classification by the vendor, and/or type of systems affected. Methods for evaluating vulnerabilities and assigning risk ratings will vary based on an organization’s environment and risk- assessment strategy. Risk rankings should, at a minimum, identify all vulnerabilities considered to be a “high risk” to the environment. In addition to the risk ranking, vulnerabilities may be considered “critical” if they pose an imminent threat to the environment, impact critical systems, and/or would result in a potential compromise if not addressed. Examples of critical systems may include security systems, public-facing devices and systems, databases, and other systems that store, process, or transmit cardholder data.	**Shared**	Customers are responsible for maintaining a vulnerability management process in line with PCI DSS requirement. 6.1. **ECS:** Customers are responsible for managing the security patches of their ECS server instances. **TDS:** Customers are responsible for reviewing all TDS Bulletins and ensuring that any recommendations that are applicable to the customer’s environment are reviewed and implemented as necessary if the service is used.	**All In-Scope Services:** Alibaba Cloud maintains a process to identify security vulnerabilities for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

6.2 Ensure that all system components and software are protected from known vulnerabilities by installing applicable vendor- supplied security patches. Install critical security patches within one month of release. Note: Critical security patches should be identified according to the risk ranking process defined in Requirement 6.1.	**Shared**	**ECS:** Customers are responsible for managing the security patches of their ECS server instances. Customers are responsible for reviewing all Alibaba Cloud Security Bulletins and ensuring that any recommendations that are applicable to the customer's environment are reviewed and implemented as necessary.	**All In-Scope Services:** Alibaba Cloud maintains a security patching process for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
6.3 Develop internal and external software applications (including web-based administrative access to applications) securely, as follows: ● In accordance with PCI DSS (for example, secure authentication and logging) · Based on industry standards and/or best practices. ● Incorporating information security throughout the software-development life cycle Note: this applies to all software developed internally as well as bespoke or custom software developed by a third party.	**Shared**	**ECS:** Customers are responsible to maintain software development standards aligned with PCI DSS requirements for applications developed and deployed on customer-managed ECS server instances.	**All In-Scope Services:** Alibaba Cloud is responsible to maintain software development standards aligned with PCI DSS requirements for applications developed and deployed in Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
6.3.1 Remove development, test and/or custom application accounts, user IDs, and passwords before applications become active or are released to customers.	**Shared**			

6.3.2 Review custom code prior to release to production or customers in order to identify any potential coding vulnerability (using either manual or automated processes) to include at least the following: ● Code changes are reviewed by individuals other than the originating code author, and by individuals knowledgeable about code-review techniques and secure coding practices. ● Code reviews ensure code is developed according to secure coding guidelines · Appropriate corrections are implemented prior to release. ● Code-review results are reviewed and approved by management prior to release. Note: This requirement for code reviews applies to all custom code (both internal and public-facing), as part of the system development life cycle. Code reviews can be conducted by knowledgeable internal personnel or third parties. Public-facing web applications are also subject to additional controls, to address ongoing threats and vulnerabilities after implementation, as defined at PCI DSS Requirement 6.6.	**Shared**			
6.4 Follow change control processes and procedures for all changes to system components. The processes must include the following:	**Shared**	**All In-Scope Services:** Customers are responsible for any custom configurations that may be created using development criteria that are allowed by the OpenAPI. Changes to	**All In-Scope Services:** Alibaba Cloud is responsible to maintain software development and change control standards aligned with PCI DSS requirements for	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services

		Alibaba Cloud service configurations must be subject to customer change control procedures. **ECS:** Customers are responsible to maintain software development and change control programs aligned with PCI DSS requirements for applications developed and deployed on customer-managed ECS server instances.	applications developed and deployed in Alibaba Cloud Management Environment.	issued by atsec on July 17, 2019.
6.4.1 Separate development/test environments from production environments, and enforce the separation with access controls.	**Shared**	**ECS:** Customers are responsible to maintain software development and change control programs aligned with PCI DSS requirements for applications developed and deployed on customer-managed ECS server instances.	**All In-Scope Services:** Alibaba Cloud is responsible to maintain software development and change control standards aligned with PCI DSS requirements for applications developed and deployed in Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
6.4.2 Separation of duties between development/test and production environments	**Shared**			
6.4.3 Production data (live PANs) are not used for testing or development	**Shared**			
6.4.4 Removal of test data and accounts from system components before the system becomes active / goes into production.	**Shared**			
6.4.5 Change control procedures must include the following:	**Shared**	**All In-Scope Services:** Customers are responsible for any custom configurations that may be created using development criteria that are allowed by the OpenAPI. Changes to Alibaba Cloud service configurations must be subject to customer	**All In-Scope Services:** Alibaba Cloud is responsible to maintain change control standards aligned with PCI DSS requirements for applications developed and deployed in Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
6.4.5.1 Documentation of impact.	**Shared**			
6.4.5.2 Documented change approval by authorized parties.	**Shared**			
6.4.5.3 Functionality testing to verify that the change does not adversely impact the security of the system.	**Shared**			

6.4.5.4 Back-out procedures.	**Shared**	change control procedures. **ECS:** Customers are responsible to maintain change control programs aligned with PCI DSS requirements for applications developed and deployed on customer-managed ECS server instances.		
6.4.6 Upon completion of a significant change, all relevant PCI DSS requirements must be implemented on all new or changed systems and networks, and documentation updated as applicable.	**Shared**			
6.5 Address common coding vulnerabilities in software-development processes as follows: ● Train developers at least annually in up- to-date secure coding techniques, including how to avoid common coding vulnerabilities. ● Develop applications based on secure coding guidelines. Note: The vulnerabilities listed at 6.5.1 through 6.5.10 were current with industry best practices when this version of PCI DSS was published. However, as industry best practices for vulnerability management are updated (for example, the OWASP Guide, SANS CWE Top 25, CERT Secure Coding, etc.), the current best practices must be used for these requirements.	**Shared**	**ECS:** Customers are responsible to maintain software development programs aligned with PCI DSS requirements for applications developed and deployed on customer-managed ECS server instances.	**All In-Scope Services:** Alibaba Cloud is responsible to maintain software development standards aligned with PCI DSS requirements for applications developed and deployed in Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
Note: Requirements 6.5.1 through 6.5.6, below, apply to all applications (internal or external).				
6.5.1 Injection flaws, particularly SQL injection. Also consider OS Command Injection, LDAP and XPath injection flaws as well as other injection flaws.	**Shared**	**ECS:** Customers are responsible to maintain software development programs aligned with PCI DSS requirements for applications developed and deployed on customer-managed ECS server	**All In-Scope Services:** Alibaba Cloud is responsible to maintain software development standards aligned with PCI DSS requirements for applications developed and deployed in Alibaba	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
6.5.2 Buffer overflows	**Shared**			
6.5.3 Insecure cryptographic storage	**Shared**			

6.5.4 Insecure communications	**Shared**	instances.	Cloud Management Environment.	
6.5.5 Improper error handling	**Shared**			
6.5.6 All “high risk” vulnerabilities identified in the vulnerability identification process (as defined in PCI DSS Requirement 6.1).	**Shared**			
6.5.7 Cross-site scripting (XSS)	**Shared**			
6.5.8 Improper access control (such as insecure direct object references, failure to restrict URL access, directory traversal, and failure to restrict user access to functions).	**Shared**			
6.5.9 Cross-site request forgery (CSRF)	**Shared**			
6.5.10 Broken authentication and session management.	**Shared**			
6.6 For public-facing web applications, address new threats and vulnerabilities on an ongoing basis and ensure these applications are protected against known attacks by either of the following methods: ● Reviewing public-facing web applications via manual or automated application vulnerability security assessment tools or methods, at least annually and after any changes. Note: This assessment is not the same as the vulnerability scans performed for Requirement 11.2. ● Installing an automated technical solution that detects and prevents web- based attacks (for example, a web- application firewall) in front of public- facing web applications, to continually check all traffic.	**Shared**	**ECS:** Customers are responsible for Web Application Filtering or application security reviews for web applications deployed on customer-managed ECS server instances. **WAF:** Customers are responsible for deploying WAF for web applications deployed on customer-managed ECS server instances as a compliance solution to meet PCI DSS requirement 6.6.	**All In-Scope Services:** Alibaba Cloud is responsible for Web Application Filtering or application security reviews for web applications deployed in the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

6.7 Ensure that security policies and operational procedures for developing and maintaining secure systems and applications are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.4 Implement Strong Access Control Measures

4.4.1 Restrict access to cardholder data by business need to know

To ensure critical data can only be accessed by authorized personnel, systems and processes must be in place to limit access based on need to know and according to job responsibilities.

“Need to know” is when access rights are granted to only the least amount of data and privileges needed to perform a job.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
7.1 Limit access to system components and cardholder data to only those individuals whose job requires such access.	**Shared**	**All In-Scope Services:** Customers are responsible for managing access to all Alibaba Cloud services that are included in their CDE. Alibaba Cloud provides various mechanisms for controlling access to the services including RAM with granular access controls to the Alibaba Cloud Management Console. **ECS:** Customers are responsible for access control within all ECS server instances. **ApsaraDB for RDS,**	**All In-Scope Services:** Alibaba Cloud maintains the access controls related to underlying infrastructure systems and the Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
7.1.1 Define access needs for each role, including: · System components and data resources that each role needs to access for their job function · Level of privilege required (for example, user, administrator, etc.) for accessing resources.	**Shared**			
7.1.2 Restrict access to privileged user IDs to least privileges necessary to perform job responsibilities.	**Shared**			
7.1.3 Assign access based on individual personnel’s job classification	**Shared**			

and function.		**ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for Memcache:** Customers are responsible for managing the access control to RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for Memcache instance.		
7.1.4 Require documented approval by authorized parties specifying required privileges.	**Shared**			
7.2 Establish an access control system(s) for systems components that restricts access based on a user's need to know, and is set to "deny all" unless specifically allowed. This access control system(s) must include the following:				
7.2.1 Coverage of all system components	**Shared**	**All In-Scope Services:** Customers are responsible for managing access to all Alibaba Cloud services that are included in their CDE. Alibaba Cloud provides various mechanisms for controlling access to the services including RAM with granular access controls to the Alibaba Cloud Management Console. **ECS:** Customers are responsible for access control within all ECS server instances. **ApsaraDB for RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for**	**All In-Scope Services:** Alibaba Cloud maintains the access controls related to underlying infrastructure systems and the Alibaba Cloud Management Environment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
7.2.2 Assignment of privileges to individuals based on job classification and function.	**Shared**			
7.2.3 Default "deny-all" setting.	**Shared**			

		Memcache: Customers are responsible for managing the access control to RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for Memcache instance.		
7.3 Ensure that security policies and operational procedures for restricting access to cardholder data are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.4.2 Identify and authenticate access to system components

Assigning a unique identification (ID) to each person with access ensures that each individual is uniquely accountable for their actions. When such accountability is in place, actions taken on critical data and systems are performed by, and can be traced to, known and authorized users and processes.

The effectiveness of a password is largely determined by the design and implementation of the authentication system—particularly, how frequently password attempts can be made by an attacker, and the security methods to protect user passwords at the point of entry, during transmission, and while in storage.

Note: These requirements are applicable for all accounts, including point-of-sale accounts, with administrative capabilities and all accounts used to view or access cardholder data or to access systems with cardholder data. This includes accounts used by vendors and other third parties (for example, for support or maintenance). These requirements do not apply to accounts used by consumers (e.g., cardholders).

However, Requirements 8.1.1, 8.2, 8.5, 8.2.3 through 8.2.5, and 8.1.6 through 8.1.8 are not intended to apply to user accounts within a point-of- sale payment application that only have access to one card number at a time in order to facilitate a single transaction (such as cashier accounts).

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
8.1 Define and implement policies and procedures to ensure proper user identification management for non-consumer users and administrators on all system components as follows:	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts to align with the applicable PCI DSS requirements. **RAM:** Customers are responsible for configuring the RAM policies to align with this PCI DSS requirement if the service is used.	**All In-Scope Services:** Alibaba Cloud is responsible to provide each user in the Alibaba Cloud Management Environment with a unique ID. Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with these PCI DSS requirements. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account temporary suspension.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
8.1.1 Assign all users a unique ID before allowing them to access system components or cardholder data.	**Shared**			
8.1.2 Control addition, deletion, and modification of user IDs, credentials, and other identifier objects.	**Shared**			
8.1.3 Immediately revoke access for any terminated users.	**Shared**			
8.1.4 Remove/disable inactive user accounts within 90 days.	**Shared**			
8.1.5 Manage IDs used by third parties to access, support, or maintain system components via remote access as follows: ● Enabled only during the time period needed and disabled when not in use. ● Monitored when in use.	**Shared**			

8.1.6 Limit repeated access attempts by locking out the user ID after not more than six attempts.	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts to align with the applicable PCI DSS requirements. **ECS:** Customers are responsible for establishing a policy for the ECS server instances that align with the applicable PCI DSS requirements. **RAM:** Customers are responsible for configuring the RAM policies to align with the applicable PCI DSS requirements if the service is used.	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with these PCI DSS requirements. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account temporary suspension.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
8.1.7 Set the lockout duration to a minimum of 30 minutes or until an administrator enables the user ID.	**Shared**			
8.1.8 If a session has been idle for more than 15 minutes, require the user to re-authenticate to re-activate the terminal or session.	**Shared**			
8.2 In addition to assigning a unique ID, ensure proper user-authentication management for non-consumer users and administrators on all system components by employing at least one of the following methods to authenticate all users: ● Something you know, such as a password or passphrase ● Something you have, such as a token device or smart card	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts, including Alibaba Cloud accounts. This includes access controls to all in scope Alibaba Cloud Services as well as to the server instances and applications that customers may be hosting on ECS server instances.	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

• Something you are, such as a biometric.				
8.2.1 Using strong cryptography, render all authentication credentials (such as passwords/phrases) unreadable during transmission and storage on all system components.	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts to align with this PCI DSS requirement. **ECS:** customers are responsible for the processes and creation of accounts and access controls using the various authentication mechanisms offered by Alibaba Cloud. This includes access controls to all Alibaba Cloud Services included in scope as well as to the server instances and applications that customers may be hosting in ECS. Any applications or authentication ECS, customers are responsible for ensuring proper configuration of the authentication mechanisms to ensure that passwords are unreadable in storage and transmission. **RAM:** Customers are	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with this PCI DSS requirement. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account temporary suspension.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

		responsible for configuring the RAM policies to align with this PCI DSS requirement if the service is used.		
8.2.2 Verify user identity before modifying any authentication credential—for example, performing password resets, provisioning new tokens, or generating new keys.	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts, including Alibaba Cloud accounts. This includes access controls to all in scope Alibaba Cloud Services as well as to the server instances and applications that customers may be hosting on ECS server instances.	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with this PCI DSS requirement.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
8.2.3 Passwords/passphrases must meet the following: ● Require a minimum length of at least seven characters. ● Contain both numeric and alphabetic characters. Alternatively, the passwords/ passphrases must have complexity and strength at least equivalent to the parameters specified above.	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts to align with the applicable PCI DSS requirement. **ECS:** Customers are responsible for establishing a policy for the ECS server instances that align with the applicable PCI DSS requirements. **RAM:** Customers are responsible for configuring the RAM policies to align with the applicable PCI DSS requirement if the service is used.	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with these PCI DSS requirements. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
8.2.4 Change user passwords/passphrases at least once every 90 days.	**Shared**			
8.2.5 Do not allow an individual to submit a new password/passphrase that is the same as any of the last four passwords/passphrases he or she has used.	**Shared**			

8.2.6 Set passwords/passphrases for first-time use and upon reset to a unique value for each user, and change immediately after the first use.	**Shared**		separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account	
8.3 Secure all individual non-console administrative access and all remote access to the CDE using multi-factor authentication. Note: Multi-factor authentication requires that a minimum of two of the three authentication methods (see Requirement 8.2 for descriptions of authentication methods) be used for authentication. Using one factor twice (for example, using two separate passwords) is not considered multi-factor authentication.				
8.3.1 Incorporate multi-factor authentication for all non-console access into the CDE for personnel with administrative access.	**Shared**	**All In-Scope Services:** Customers are responsible for the authentication mechanisms to the management consoles and OpenAPI for managing their Alibaba Cloud accounts. Alibaba Cloud RAM provides an opt-in Multi-Factor Authentication solution to support customers meeting the PCI DSS requirement. **ECS:** customers have control over the authentication mechanisms to the management consoles and OpenAPI for managing their ECS and VPC accounts. Alibaba Cloud RAM provides an opt-in	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with these PCI DSS requirements. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and separation of console	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
8.3.2 Incorporate multi-factor authentication for all remote network access (both user and administrator, and including third-party access for support or maintenance) originating from outside the entity's network.				

		Multi-Factor Authentication solution to support Alibaba Cloud customers in meeting the PCI DSS requirement for Multi-Factor authentication. Customers are responsible for maintaining Multi-Factor Authentication methods for access to their ECS server instances. **RAM:** Customers are responsible for configuring the RAM policies to align with the applicable PCI DSS requirement if the service is used.	users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account	
8.4 Document and communicate authentication policies and procedures to all users including: ● Guidance on selecting strong authentication credentials ● Guidance for how users should protect their authentication credentials ● Instructions not to reuse previously used passwords ● Instructions to change passwords if there is any suspicion the password could be compromised.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that their policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
8.5 Do not use group, shared, or generic IDs, passwords, or other authentication methods as follows: ● Generic user IDs are disabled or removed. ● Shared user IDs do not exist for system administration and other	**Shared**	**All In-Scope Services:** Customers are responsible for managing the creation of user accounts to align with this PCI DSS requirement. **ECS:** Customers are	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that their policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

critical functions. ● Shared and generic user IDs are not used to administer any system components.		responsible for establishing a policy for the ECS server instances that align with the applicable PCI DSS requirements.	Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with these PCI DSS requirements. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account	
8.5.1 Additional requirement for service providers only: Service providers with remote access to customer premises (for example, for support of POS systems or servers) must use a unique authentication credential (such as a password/phrase) for each customer. Note: This requirement is not intended to apply to shared hosting providers accessing their own hosting environment, where multiple customer environments are hosted.	**Shared**			
8.6 Where other authentication mechanisms are used (for example, physical or logical security tokens, smart cards, certificates, etc.), use of these mechanisms must be assigned as follows: ● Authentication mechanisms must be assigned to an individual account and not shared among multiple accounts. ● Physical and/or logical controls must be in place to ensure only the intended account can use that mechanism to gain access.	**Shared**	**All In-Scope Services:** Customers are responsible for the authentication mechanisms to the management consoles and OpenAPI for managing their Alibaba Cloud accounts. Alibaba Cloud RAM provides an opt-in Multi-Factor Authentication (MFA) solution to support customers meeting the PCI DSS requirement.	**All In-Scope Services:** Alibaba Cloud is responsible to provide security options that enable Alibaba Cloud customers to further protect their Alibaba Cloud Account and control access to align with these PCI DSS requirements. **RAM:** RAM provides security options that enable Alibaba Cloud customers to further	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

			protect their Alibaba Cloud Account and control access, such features as multi-factor authentication, strong password policies, and separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account	
8.7 All access to any database containing cardholder data (including access by applications, administrators, and all other users) is restricted as follows: ● All user access to, user queries of, and user actions on databases are through programmatic methods. ● Only database administrators have the ability to directly access or query databases. ● Application IDs for database applications can only be used by the applications (and not by individual users or other non-application processes).	**Customer**	**ECS:** Customers are responsible for managing the creation of user accounts. This includes access controls to all applications installed by the customer, including databases. **ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for Memcache**: customers are responsible for managing the creation of user accounts with access to databases	N/A	N/A
8.8 Ensure that security policies and operational procedures for identification and authentication are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.4.3 Restrict physical access to cardholder data

Any physical access to data or systems that house cardholder data provides the opportunity for individuals to access devices or data and to remove systems or hardcopies, and should be appropriately restricted. For the purposes of Requirement 9, “onsite personnel” refers to full-time and part-time employees, temporary employees, contractors and consultants who are physically present on the entity’s premises. A “visitor” refers to a vendor, guest of any onsite personnel, service workers, or anyone who needs to enter the facility for a short duration, usually not more than one day. “Media” refers to all paper and electronic media containing cardholder data.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
9.1 Use appropriate facility entry controls to limit and monitor physical access to systems in the cardholder data environment.	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the physical security for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.1.1 Use either video cameras or access control mechanisms (or both) to monitor individual physical access to sensitive areas. Review collected data and correlate with other entries. Store for at least three months, unless otherwise restricted by law. Note: “Sensitive areas” refers to any data center, server room or any area that houses systems that store, process, or transmit cardholder data. This excludes public-facing areas where only point-of- sale terminals are present, such as the cashier areas in a retail store.	**Alibaba Cloud**			
9.1.2 Implement physical and/or logical controls to restrict access to publicly accessible network jacks. For example, network jacks located in public areas and areas accessible to visitors could be disabled and only enabled when network access is	**Alibaba Cloud**			

explicitly authorized. Alternatively, processes could be implemented to ensure that visitors are escorted at all times in areas with active network jacks.				
9.1.3 Restrict physical access to wireless access points, gateways, handheld devices, networking/communications hardware, and telecommunication lines.	**Alibaba Cloud**			
9.2 Develop procedures to easily distinguish between onsite personnel and visitors, to include: ● Identifying onsite personnel and visitors (for example, assigning badges) ● Changes to access requirements ● Revoking or terminating onsite personnel and expired visitor identification (such as ID badges).	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the physical security for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.3 Control physical access for onsite personnel to sensitive areas as follows: ● Access must be authorized and based on individual job function. ● Access is revoked immediately upon termination, and all physical access mechanisms, such as keys, access cards, etc., are returned or disabled.	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the physical security for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.4 Implement procedures to identify and authorize visitors. Procedures should include the				

following:				
9.4.1 Visitors are authorized before entering, and escorted at all times within, areas where cardholder data is processed or maintained.	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the physical security for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.4.2 Visitors are identified and given a badge or other identification that expires and that visibly distinguishes the visitors from onsite personnel.	**Alibaba Cloud**			
9.4.3 Visitors are asked to surrender the badge or identification before leaving the facility or at the date of expiration.	**Alibaba Cloud**			
9.4.4 A visitor log is used to maintain a physical audit trail of visitor activity to the facility as well as computer rooms and data centers where cardholder data is stored or transmitted. Document the visitor's name, the firm represented, and the onsite personnel authorizing physical access on the log. Retain this log for a minimum of three months, unless otherwise restricted by law.	**Alibaba Cloud**			
9.5 Physically secure all media.	**Shared**	**All In-Scope Services:** Customers are responsible for backup, compliance with PCI DSS requirements outside of the Alibaba Cloud environment.	**All In-Scope Services:** Alibaba Cloud maintains the media handling controls for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.5.1 Store media backups in a secure location, preferably an off-site facility, such as an alternate or backup site, or a commercial storage facility. Review the location's security at least annually.	**Shared**			
9.6 Maintain strict control over the internal or external distribution of any kind of media, including the following:	**Shared**	**All In-Scope Services:** Customers are responsible for backup, compliance	**All In-Scope Services:** Alibaba Cloud maintains the media handling	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by

9.6.1 Classify media so the sensitivity of the data can be determined.	**Shared**	with PCI DSS requirements outside of the Alibaba Cloud environment.	controls for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.6.2 Send the media by secured courier or other delivery method that can be accurately tracked.	**Shared**			
9.6.3 Ensure management approves any and all media that is moved from a secured area (including when media is distributed to individuals).	**Shared**			
9.7 Maintain strict control over the storage and accessibility of media.	**Shared**	**All In-Scope Services:** Customers are responsible for backup, compliance with PCI DSS requirements outside of the Alibaba Cloud environment.	**All In-Scope Services:** Alibaba Cloud maintains the media handling controls for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.7.1 Properly maintain inventory logs of all media and conduct media inventories at least annually.	**Shared**			
9.8 Destroy media when it is no longer needed for business or legal reasons as follows:	**Shared**	**All In-Scope Services:** Customers are responsible destruction of media outside of the Alibaba Cloud environment.	**All In-Scope Services:** Alibaba Cloud maintains the media handling controls for Alibaba Cloud data centers and colocations supporting the services included in the PCI DSS assessment.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
9.8.1 Shred, incinerate, or pulp hard-copy materials so that cardholder data cannot be reconstructed. Secure storage containers used for materials that are to be destroyed.	**Shared**			
9.8.2 Render cardholder data on electronic media unrecoverable so that cardholder data cannot be reconstructed.	**Shared**			
9.9 Protect devices that capture payment card data via direct physical interaction with the card from tampering and substitution. Note: These requirements apply to card- reading devices used in card-present transactions (that is, card swipe or dip) at the point of sale. This	**Customer**	**All In-Scope Services:** Customers are responsible for all devices management that capture payment card data via direct physical interaction with the card.	N/A	N/A

requirement is not intended to apply to manual key-entry components such as computer keyboards and POS keypads.				
9.9.1 Maintain an up-to-date list of devices. The list should include the following: ● Make, model of device ● Location of device (for example, the address of the site or facility where the device is located) ● Device serial number or other method of unique identification.	**Customer**	**All In-Scope Services:** Customers are responsible for all devices management that capture payment card data via direct physical interaction with the card.	N/A	N/A
9.9.2 Periodically inspect device surfaces to detect tampering (for example, addition of card skimmers to devices), or substitution (for example, by checking the serial number or other device characteristics to verify it has not been swapped with a fraudulent device). Note: Examples of signs that a device might have been tampered with or substituted include unexpected attachments or cables plugged into the device, missing or changed security labels, broken or differently colored casing, or changes to the serial number or other external markings.	**Customer**	**All In-Scope Services:** Customers are responsible for all devices management that capture payment card data via direct physical interaction with the card.	N/A	N/A
9.9.3 Provide training for personnel to be aware of attempted tampering or replacement of devices. Training should include the following: ● Verify the identity of any third-party persons claiming to be	**Customer**	**All In-Scope Services:** Customers are responsible for providing training to ensure appropriate personnel are aware of any tampering or replacement of point-of-	N/A	N/A

repair or maintenance personnel, prior to granting them access to modify or troubleshoot devices. ● Do not install, replace, or return devices without verification. ● Be aware of suspicious behavior around devices (for example, attempts by unknown persons to unplug or open devices). ● Report suspicious behavior and indications of device tampering or substitution to appropriate personnel (for example, to a manager or security officer).		sale devices or abnormalities of point-of-sale locations.		
9.10 Ensure that security policies and operational procedures for restricting physical access to cardholder data are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.5 Regularly Monitor and Test Networks

4.5.1 Track and monitor all access to network resources and cardholder data

Logging mechanisms and the ability to track user activities are critical in preventing, detecting, or minimizing the impact of a data compromise. The presence of logs in all environments allows thorough tracking, alerting, and analysis when something does go wrong. Determining the cause of a compromise is very difficult, if not impossible, without system activity logs.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
10.1 Implement audit trails to link all access to system components to each	**Shared**	**All In-Scope Services:** Customers are responsible	**All In-Scope Services:** Alibaba Cloud maintains	Attestation of Compliance for Alibaba Cloud Public Cloud

individual user.		for configuring logging parameters, when available. Alibaba Cloud Console and all command-line of OpenAPI actions are logged by Alibaba Cloud and may be accessed via ActionTrail. **ECS:** Customers are responsible to log and monitor their ECS server instances in alignment with PCI DSS requirements.	and monitors audit logs for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
10.2 Implement automated audit trails for all system components to reconstruct the following events:				
10.2.1 All individual user accesses to cardholder data	**Shared**	**All In-Scope Services:** Customers are responsible for configuring logging parameters, when available. Alibaba Cloud Console and all command-line of OpenAPI actions are logged by Alibaba Cloud and may be accessed via ActionTrail. **ECS:** Customers are responsible to log and monitor their system and ECS server instances in alignment with PCI DSS requirements. **ApsaraDB RDS:** Customers are responsible to configure database logging. **ApsaraDB for MariaDB**	**All In-Scope Services:** Alibaba Cloud maintains and monitors audit logs for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
10.2.2 All actions taken by any individual with root or administrative privileges	**Shared**			
10.2.3 Access to all audit trails	**Shared**			
10.2.4 Invalid logical access attempts	**Shared**			
10.2.5 Use of and changes to identification and authentication mechanisms—including but not limited to creation of new accounts and elevation of privileges—and all changes, additions, or deletions to accounts with root or administrative privileges	**Shared**			
10.2.6 Initialization, stopping, or pausing of the audit logs	**Shared**			
10.2.7 Creation and deletion of	**Shared**			

system- level objects		**TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for Memcache:** Cardholder data access logging must be provided by the customer. Customers are responsible to maintain compliant access logs, if these are used to store cardholder data. **OSS:** Customers are responsible to enable OSS bucket logging.		
10.3 Record at least the following audit trail entries for all system components for each event:				
10.3.1 User identification	**Shared**	**All In-Scope Services:** Customers are responsible for configuring logging parameters, when available. Alibaba Cloud Console and all command-line of OpenAPI actions are logged by Alibaba Cloud and may be accessed via ActionTrail. **ECS:** Customers are responsible to log and monitor their system and ECS server instances in alignment with PCI DSS requirements. **ApsaraDB RDS:** Customers are responsible to configure database logging. **ApsaraDB for MariaDB**	**All In-Scope Services:** Alibaba Cloud maintains and monitors audit logs for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
10.3.2 Type of event	**Shared**			
10.3.3 Date and time	**Shared**			
10.3.4 Success or failure indication	**Shared**			
10.3.5 Origination of event	**Shared**			
10.3.6 Identity or name of affected data, system component, or resource.	**Shared**			

		TX, ApsaraDB for Redis, ApsaraDB for MongoDB and ApsaraDB for Memcache: Cardholder data access logging must be provided by the customer. Customers are responsible to maintain compliant access logs, if these are used to store cardholder data. **OSS:** Customers are responsible to enable OSS bucket logging.		
10.4 Using time-synchronization technology, synchronize all critical system clocks and times and ensure that the following is implemented for acquiring, distributing, and storing time. Note: One example of time synchronization technology is Network Time Protocol (NTP).	**Shared**	**ECS:** Customers are responsible for appropriately managing time service (NTP) configuration for their system and ECS server instances.	**All In-Scope Services:** Alibaba Cloud is responsible for managing time service (NTP) configuration for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
10.4.1 Critical systems have the correct and consistent time.	**Shared**			
10.4.2 Time data is protected.	**Shared**			
10.4.3 Time settings are received from industry-accepted time sources.	**Shared**			
10.5 Secure audit trails so they cannot be altered.	**Shared**	**All In-Scope Services:** Customers are responsible for setting permissions and access controls for audit logs. RAM can be used to set permissions for accounts with access to ActionTrail logs, or other log storage. **ECS:** Customers are	**All In-Scope Services:** Alibaba Cloud is responsible for audit trails management for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
10.5.1 Limit viewing of audit trails to those with a job-related need.	**Shared**			
10.5.2 Protect audit trail files from unauthorized modifications.	**Shared**			
10.5.3 Promptly back up audit trail files to a centralized log server or media	**Shared**			

that is difficult to alter.		responsible to log and monitor their systems and ECS server instances in alignment with PCI DSS requirements. **OSS, ActionTrail and Log Service:** Customers are responsible for setting permissions and access controls for audit logs in OSS, ActionTrail and Log Service. **OSS and Log Service:** OSS and Log Servicers provide log management function to the customers. Customers are responsible for backing up all audit trail files to OSS and or Log Service if customers use these services as PCI DSS compliance solution.		
10.5.4 Write logs for external-facing technologies onto a secure, centralized, internal log server or media device.	**Shared**			
10.5.5 Use file-integrity monitoring or change-detection software on logs to ensure that existing log data cannot be changed without generating alerts (although new data being added should not cause an alert).	**Shared**			
10.6 Review logs and security events for all system components to identify anomalies or suspicious activity. Note: Log harvesting, parsing, and alerting tools may be used to meet this Requirement.				
10.6.1 Review the following at least daily: · All security events ● Logs of all system components that store, process, or transmit CHD and/or SAD ● Logs of all critical system components ● Logs of all servers and system components that perform security functions (for example, firewalls,	**Shared**	**All In-Scope Services:** Customers are responsible for review (automated or manual) of audit logs received via ActionTrail. **ECS:** Customers are responsible for logging and monitoring their systems and ECS server instances in alignment with PCI DSS requirements.	**All In-Scope Services:** Alibaba Cloud is responsible for managing/ reviewing logs and security events for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

intrusion-detection systems/intrusion-prevention systems (IDS/IPS), authentication servers, e-commerce redirection servers, etc.).		**ApsaraDB RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB, ApsaraDB for Memcache and OSS:** Customers are responsible for obtaining and monitoring access to cardholder data.		
10.6.2 Review logs of all other system components periodically based on the organization's policies and risk management strategy, as determined by the organization's annual risk assessment.	**Shared**			
10.6.3 Follow up exceptions and anomalies identified during the review process.	**Shared**			
10.7 Retain audit trail history for at least one year, with a minimum of three months immediately available for analysis (for example, online, archived, or restorable from backup).	**Shared**	**All In-Scope Services:** Customers are responsible for retention of audit logs received via ActionTrail. **ECS:** Customers are responsible for logging and monitoring their systems and ECS server instances in alignment with PCI requirements. **ApsaraDB RDS, ApsaraDB for MariaDB TX, ApsaraDB for Redis, ApsaraDB for MongoDB, ApsaraDB for Memcache and OSS:** Customers are responsible for obtaining and retaining access logs to cardholder data. **ActionTrail and Log Service:** Customers are	**All In-Scope Services:** Alibaba Cloud is responsible for obtaining and retaining audit trail for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

		responsible for retaining access logs to cardholder data and configuring ActionTrail and Log Service retention cycle, if the service is used.		
10.8 Additional requirement for service providers only: Implement a process for the timely detection and reporting of failures of critical security control systems, including but not limited to failure of: ● *Firewalls* ● *IDS/IPS* ● *FIM* ● *Anti-virus* ● *Physical access controls* ● *Logical access controls* ● *Audit logging mechanisms* ● *Segmentation controls (if used)*	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring a process is implemented for timely response to any critical security control failures.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring a process is implemented for timely response to any critical security control failures for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

10.8.1 Additional requirement for service providers only: Respond to failures of any critical security controls in a timely manner. Processes for responding to failures in security controls must include: ● *Restoring security functions · Identifying and documenting the duration (date and time start to end) of the security failure* ● *Identifying and documenting cause(s) of failure, including root cause, and documenting remediation required to address root cause* ● *Identifying and addressing any security issues that arose during the failure* ● *Performing a risk assessment to determine whether further actions are required as a result of the security failure* ● *Implementing controls to prevent cause of failure from reoccurring* ● *Resuming monitoring of security controls*	**Shared**			
10.9 Ensure that security policies and operational procedures for monitoring all access to network resources and cardholder data are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.5.2 Regularly test security systems and processes.

Vulnerabilities are being discovered continually by malicious individuals and researchers, and being introduced by new software. System components, processes, and custom software should be tested frequently to ensure security controls continue to reflect a changing environment.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
11.1 Implement processes to test for the presence of wireless access points (802.11), and detect and identify all authorized and unauthorized wireless access points on a quarterly basis. Note: Methods that may be used in the process include but are not limited to wireless network scans, physical/logical inspections of system components and infrastructure, network access control (NAC), or wireless IDS/IPS. Whichever methods are used, they must be sufficient to detect and identify both authorized and unauthorized devices.	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the processes to conduct rogue wireless access point detection for Alibaba Cloud data centers.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
11.1.1 Maintain an inventory of authorized wireless access points including a documented business justification.	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the processes to conduct rogue wireless access point detection for Alibaba Cloud data centers.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
11.1.2 Implement incident response procedures in the event unauthorized wireless access points are detected.	**Alibaba Cloud**	N/A	**All In-Scope Services:** Alibaba Cloud maintains the response procedures in the event unauthorized wireless	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for

			access points are detected for Alibaba Cloud data centers.	Alibaba Cloud Security Services issued by atsec on July 17, 2019.
11.2 Run internal and external network vulnerability scans at least quarterly and after any significant change in the network (such as new system component installations, changes in network topology, firewall rule modifications, product upgrades). Note: Multiple scan reports can be combined for the quarterly scan process to show that all systems were scanned and all applicable vulnerabilities have been addressed. Additional documentation may be required to verify non-remediated vulnerabilities are in the process of being addressed. For initial PCI DSS compliance, it is not required that four quarters of passing scans be completed if the assessor verifies 1) the most recent scan result was a passing scan, 2) the entity has documented policies and procedures requiring quarterly scanning, and 3) vulnerabilities noted in the scan results have been corrected as shown in a re-scan(s). For subsequent years after the initial PCI DSS review, four quarters of passing scans must have occurred.				
11.2.1 Perform quarterly internal vulnerability scans. Address vulnerabilities and perform rescans to verify all “high risk” vulnerabilities are resolved in accordance with the entity’s vulnerability ranking (per Requirement 6.1). Scans must be performed by qualified personnel.	**Shared**	**ECS:** Customers are responsible for external ASV scan and internal vulnerability scan for their ECS server instances and applications. Scans should include	**All In-Scope Services:** Alibaba Cloud manages vulnerability scan for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

11.2.2 Perform quarterly external vulnerability scans, via an Approved Scanning Vendor (ASV) approved by the Payment Card Industry Security Standards Council (PCI SSC). Perform rescans as needed, until passing scans are achieved. Note: Quarterly external vulnerability scans must be performed by an Approved Scanning Vendor (ASV), approved by the Payment Card Industry Security Standards Council (PCI SSC). Refer to the ASV Program Guide published on the PCI SSC website for scan customer responsibilities, scan preparation, etc.	**Shared**	customer IP addresses and not Alibaba Cloud endpoints. Alibaba Cloud endpoints are tested as part of Alibaba Cloud vulnerability scans.		
11.2.3 Perform internal and external scans, and rescans as needed, after any significant change. Scans must be performed by qualified personnel.	**Shared**			

11.3 Implement a methodology for penetration testing that includes the following: ● Is based on industry-accepted penetration testing approaches (for example, NIST SP800-115) ● Includes coverage for the entire CDE perimeter and critical systems ● Includes testing from both inside and outside the network ● Includes testing to validate any segmentation and scope-reduction controls ● Defines application-layer penetration tests to include, at a minimum, the vulnerabilities listed in Requirement 6.5 ● Defines network-layer penetration tests to include components that support network functions as well as operating systems ● Includes review and consideration of threats and vulnerabilities experienced in the last 12 months ● Specifies retention of penetration testing results and remediation activities results.	**Shared**	**ECS:** Customers are responsible for external and internal Penetration Testing for their ECS server instances and applications. Penetration Testing should include customer IP addresses and not Alibaba Cloud endpoints. Alibaba Cloud endpoints are tested as part of Alibaba Cloud Penetration Testing.	**All In-Scope Services:** Alibaba Cloud manages Penetration Testing for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
11.3.1 Perform *external* penetration testing at least annually and after any significant infrastructure or application upgrade or modification (such as an operating system upgrade, a sub-network added to the environment, or a web server added to the environment).	**Shared**			

11.3.2 Perform *internal* penetration testing at least annually and after any significant infrastructure or application upgrade or modification (such as an operating system upgrade, a sub-network added to the environment, or a web server added to the environment).	**Shared**			
11.3.3 Exploitable vulnerabilities found during penetration testing are corrected and testing is repeated to verify the corrections.	**Shared**			
11.3.4 If segmentation is used to isolate the CDE from other networks, perform penetration tests at least annually and after any changes to segmentation controls/methods to verify that the segmentation methods are operational and effective, and isolate all out-of-scope systems from systems in the CDE.	**Shared**	**ECS:** Customers are responsible for external and internal Penetration Testing on segmentation controls at least every six months and after any changes to segmentation controls/methods for their ECS server instances and applications. Penetration Testing should include customer IP addresses and not Alibaba Cloud endpoints. Alibaba Cloud endpoints are tested as part of Alibaba Cloud Penetration Testing.	**All In-Scope Services:** Alibaba Cloud manages Penetration Testing for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
11.3.4.1 Additional requirement for service providers only: If segmentation is used, confirm PCI DSS scope by performing penetration testing on segmentation controls at least every six months and after any changes to segmentation controls/methods.	**Shared**			
11.4 Use intrusion-detection and/or intrusion-prevention techniques to detect and/or prevent intrusions into the network. Monitor all traffic at the perimeter of the cardholder data environment as well as at critical points in the cardholder data environment, and alert personnel to suspected compromises. Keep all intrusion-detection and	**Shared**	**ECS:** Customers are responsible for implementing IDS or HIDS functionality for network segments they implement and manage. **Server Guard:** Customers are responsible for implementing and	**All In-Scope Services:** Alibaba Cloud implements and monitors IDS/IPS on networks that implement Alibaba Cloud services.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

prevention engines, baselines, and signatures up to date.		managing the Server Guard agent on customer-managed OS (including but not limited to ECS instance) if the service is used.		
11.5 Deploy a change-detection mechanism (for example, file-integrity monitoring tools) to alert personnel to unauthorized modification (including changes, additions, and deletions) of critical system files, configuration files, or content files; and configure the software to perform critical file comparisons at least weekly. (Continued on next page) Note: For change-detection purposes, critical files are usually those that do not regularly change, but the modification of which could indicate a system compromise or risk of compromise. Change-detection mechanisms such as file-integrity monitoring products usually come pre-configured with critical files for the related operating system. Other critical files, such as those for custom applications, must be evaluated and defined by the entity (that is, the merchant or service provider).	**Shared**	**ECS:** Customers are responsible for file integrity monitoring for their ECS server instances and applications.	**All In-Scope Services:** Alibaba Cloud manages file integrity monitoring for the Alibaba Cloud Management Environment and Alibaba Cloud service infrastructure.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
11.5.1 Implement a process to respond to any alerts generated by the change- detection solution.	**Shared**			
11.6 Ensure that security policies and operational procedures for security monitoring and testing are documented, in use, and known to all affected parties.	**Shared**	**All In-Scope Services:** Customers are responsible for ensuring that their policies and procedures are documented and known to all affected parties.	**All In-Scope Services:** Alibaba Cloud is responsible for ensuring that its policies and procedures are documented and known to all affected parties.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.6 Maintain an Information Security Policy

4.6.1 Maintain a policy that addresses information security for all personnel.

A strong security policy sets the security tone for the whole entity and informs personnel what is expected of them. All personnel should be aware of the sensitivity of data and their responsibilities for protecting it. For the purposes of Requirement 12, “personnel” refers to full-time and part-time employees, temporary employees, contractors and consultants who are “resident” on the entity’s site or otherwise have access to the cardholder data environment.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
12.1 Establish, publish, maintain, and disseminate a security policy.	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.1.1 Review the security policy at least annually and update the policy when the environment changes.	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.2 Implement a risk-assessment process that: ● Is performed at least annually and upon significant changes to the environment (for example, acquisition, merger, relocation, etc.), ● Identifies critical assets, threats,	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A

and vulnerabilities, and ● Results in a formal, documented analysis of risk. Examples of risk-assessment methodologies include but are not limited to OCTAVE, ISO 27005 and NIST SP 800-30.				
12.3 Develop usage policies for critical technologies and define proper use of these technologies. Note: Examples of critical technologies include, but are not limited to, remote access and wireless technologies, laptops, tablets, removable electronic media, e-mail usage and Internet usage. Ensure these usage policies require the following:	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.3.1 Explicit approval by authorized parties	**Customer**			
12.3.2 Authentication for use of the technology	**Customer**			
12.3.3 A list of all such devices and personnel with access	**Customer**			
12.3.4 A method to accurately and readily determine owner, contact information, and purpose (for example, labeling, coding, and/or inventorying of devices)	**Customer**			
12.3.5 Acceptable uses of the technology	**Customer**			
12.3.6 Acceptable network locations for the technologies	**Customer**			
12.3.7 List of company-approved	**Customer**			

products				
12.3.8 Automatic disconnect of sessions for remote-access technologies after a specific period of inactivity	**Customer**			
12.3.9 Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use	**Customer**			
12.3.10 For personnel accessing cardholder data via remote-access technologies, prohibit the copying, moving, and storage of cardholder data onto local hard drives and removable electronic media, unless explicitly authorized for a defined business need. Where there is an authorized business need, the usage policies must require the data be protected in accordance with all applicable PCI DSS Requirements.	**Customer**			
12.4 Ensure that the security policy and procedures clearly define information security responsibilities for all personnel.	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.4.1 Additional requirement for service providers only: Executive management shall establish responsibility for the protection of cardholder data and a PCI DSS compliance program to include: ● *Overall accountability for maintaining PCI DSS compliance* ● *Defining a charter for a PCI DSS compliance program and communication to executive*	**Customer**			

management				
12.5 Assign to an individual or team the following information security management responsibilities:	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.5.1 Establish, document, and distribute security policies and procedures.	**Customer**			
12.5.2 Monitor and analyze security alerts and information, and distribute to appropriate personnel.	**Customer**			
12.5.3 Establish, document, and distribute security incident response and escalation procedures to ensure timely and effective handling of all situations.	**Customer**			
12.5.4 Administer user accounts, including additions, deletions, and modifications.	**Customer**			
12.5.5 Monitor and control all access to data.	**Customer**			
12.6 Implement a formal security awareness program to make all personnel aware of the cardholder data security policy and procedures.	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.6.1 Educate personnel upon hire and at least annually. *Note: Methods can vary depending on the role of the personnel and their level of access to the cardholder data.*	**Customer**			
12.6.2 Require personnel to acknowledge at least annually that they have read and understood the security policy and procedures.	**Customer**			
12.7 Screen potential personnel prior	**Customer**	**All In-Scope Services:**	N/A	N/A

to hire to minimize the risk of attacks from internal sources. (Examples of background checks include previous employment history, criminal record, credit history, and reference checks.) Note: For those potential personnel to be hired for certain positions such as store cashiers who only have access to one card number at a time when facilitating a transaction, this requirement is a recommendation only.		Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.		
12.8 Maintain and implement policies and procedures to manage service providers with whom cardholder data is shared, or that could affect the security of cardholder data, as follows:	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.8.1 Maintain a list of service providers including a description of the service provided.	**Customer**			
12.8.2 Maintain a written agreement that includes an acknowledgement that the service providers are responsible for the security of cardholder data the service providers possess or otherwise store, process or transmit on behalf of the customer, or to the extent that they could impact the security of the customer's cardholder data environment. Note: The exact wording of an acknowledgement will depend on the agreement between the two parties, the details of the service being provided, and the responsibilities assigned to each party. The acknowledgement does not have to include the exact wording provided in this requirement.	**Customer**			

12.8.3 Ensure there is an established process for engaging service providers including proper due diligence prior to engagement.	**Customer**			
12.8.4 Maintain a program to monitor service providers' PCI DSS compliance status at least annually.	**Customer**			
12.8.5 Maintain information about which PCI DSS requirements are managed by each service provider, and which are managed by the entity.	**Customer**			
12.9 Additional requirement for service providers only: Service providers acknowledge in writing to customers that they are responsible for the security of cardholder data the service provider possesses or otherwise stores, processes, or transmits on behalf of the customer, or to the extent that they could impact the security of the customer's cardholder data environment. Note: The exact wording of an acknowledgement will depend on the agreement between the two parties, the details of the service being provided, and the responsibilities assigned to each party. The acknowledgement does not have to include the exact wording provided in this requirement.	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.10 Implement an incident response plan. Be prepared to respond immediately to a system breach.	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and	N/A	N/A

12.10.1 Create the incident response plan to be implemented in the event of system breach. Ensure the plan addresses the following, at a minimum: ● Roles, responsibilities, and communication and contact strategies in the event of a compromise including notification of the payment brands, at a minimum ● Specific incident response procedures ● Business recovery and continuity procedures ● Data backup processes ● Analysis of legal requirements for reporting compromises ● Coverage and responses of all critical system components ● Reference or inclusion of incident response procedures from the payment brands.	**Customer**	processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.		
12.10.2 Review and test the plan, including all elements listed in Requirement 12.10.1, at least annually.	**Customer**			
12.10.3 Designate specific personnel to be available on a 24/7 basis to respond to alerts.	**Customer**			
12.10.4 Provide appropriate training to staff with security breach response responsibilities.	**Customer**			
12.10.5 Include alerts from security monitoring systems, including but not limited to intrusion-detection, intrusion-prevention, firewalls, and file-	**Customer**			

integrity monitoring systems.				
12.10.6 Develop a process to modify and evolve the incident response plan according to lessons learned and to incorporate industry developments.	**Customer**			
12.11 Additional requirement for service providers only: Perform reviews at least quarterly to confirm personnel are following security policies and operational procedures. Reviews must cover the following processes: ● *Daily log reviews* ● *Firewall rule-set reviews* ● *Applying configuration standards to new systems* ● *Responding to security alerts* ● *Change management processes*	**Customer**	**All In-Scope Services:** Customers are responsible to maintain policies and processes applicable to their cardholder data environment to maintain compliance with the PCI DSS.	N/A	N/A
12.11.1 Additional requirement for service providers only: Maintain documentation of quarterly review process to include: ● Documenting results of the reviews ● Review and sign-off of results by personnel assigned responsibility for the PCI DSS compliance program	**Customer**			

4.7 Additional PCI DSS Requirements

4.7.1 Additional PCI DSS Requirements for Shared Hosting Providers

As referenced in Requirement 12.8 and 12.9, all service providers with access to cardholder data (including shared hosting providers) must adhere to the PCI DSS. In addition, Requirement 2.6 states that shared hosting providers must protect each entity's hosted environment and data. Therefore, shared hosting providers must additionally comply with the requirements in this Appendix.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
A1 Protect each entity's (that is, merchant, service provider, or other entity) hosted environment and data, per A1.1 through A1.4: A hosting provider must fulfill these requirements as well as all other relevant sections of the PCI DSS. Note: Even though a hosting provider may meet these requirements, the compliance of the entity that uses the hosting provider is not guaranteed. Each entity must comply with the PCI DSS and validate compliance as applicable.	**Shared**	**All In-Scope Services:** Alibaba Cloud customer maintains responsibility for access management for their environments deployed using Alibaba Cloud. **ECS:** The Secondary Shared-Hosting Provider is responsible to protect entities' hosted environments and ECS server instances.	**All In-Scope Services:** Alibaba Cloud maintains responsibility for customer server instance segregation architecture	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.
A1.1 Ensure that each entity only runs processes that have access to that entity's cardholder data environment.	**Shared**			
A1.2 Restrict each entity's access and privileges to its own cardholder data environment only.	**Shared**			
A1.3 Ensure logging and audit trails are enabled and unique to each entity's cardholder data environment and consistent with PCI DSS	**Shared**			

Requirement 10.				
A1.4 Enable processes to provide for timely forensic investigation in the event of a compromise to any hosted merchant or service provider.	**Shared**	**ECS:** The Secondary Shared-Hosting Provider is responsible to protect entities' hosted environments and ECS server instances.	**All In-Scope Services:** Alibaba Cloud maintains responsibility for provide for timely forensic investigation in the event of a compromise to any hosted merchant or service provider.	Attestation of Compliance for Alibaba Cloud Public Cloud International Services issued by atsec on July 18, 2019. Attestation of Compliance for Alibaba Cloud Security Services issued by atsec on July 17, 2019.

4.7.2 Additional PCI DSS Requirements for Entities using SSL/Early TLS for Card-Present POS POI Terminal Connections

Entities using SSL and early TLS for POS POI terminal connections must work toward upgrading to a strong cryptographic protocol as soon as possible. Additionally, SSL and/or early TLS must not be introduced into environments where those protocols don’t already exist. At the time of publication, the known vulnerabilities are difficult to exploit in POS POI payment terminals. However, new vulnerabilities could emerge at any time, and it is up to the organization to remain up to date with vulnerability trends and determine whether or not they are susceptible to any known exploits.

The PCI DSS requirements directly affected are:

Requirement 2.2.3	Implement additional security features for any required services, protocols, or daemons that are considered to be insecure.
Requirement 2.3	Encrypt all non-console administrative access using strong cryptography.
Requirement 4.1	Use strong cryptography and security protocols to safeguard sensitive cardholder data during transmission over open, public networks.

SSL and early TLS must not be used as a security control to meet these requirements, except in the case of POS POI terminal connections as detailed in this appendix. To support entities working to migrate away from SSL/early TLS on POS POI terminals, the following provisions are included:

New POS POI terminal implementations must not use SSL or early TLS as a security control.

All POS POI terminal service providers must provide a secure service offering.

Service providers supporting existing POS POI terminal implementations that use SSL and/or early TLS must have a formal Risk

Mitigation and Migration Plan in place.

POS POI terminals in card-present environments that can be verified as not being susceptible to any known exploits for SSL and early TLS, **and the SSL/TLS termination points to which they connect,** may continue using SSL/early TLS as a security control.

This Appendix only applies to entities using SSL/early TLS as a security control to protect POS POI terminals, including service providers who provide connections into POS POI terminals.

PCI DSS Requirements	Responsibility	Scope of Customer PCI DSS Responsibility	Scope of Alibaba Cloud PCI DSS Responsibility	Evidence of Alibaba Cloud Demonstrating Its PCI DSS Compliance
A2.1 Where POS POI terminals (at the merchant or payment acceptance location) use SSL and/or early TLS, the entity must confirm the devices are not susceptible to any known exploits for those protocols. Note: This requirement is intended to apply to the entity with the POS POI terminal, such as a merchant. This requirement is not intended for service providers who serve as the termination or connection point to those POS POI terminals. Requirements A2.2 and A2.3 apply to POS POI service providers.	**Customer**	**All In-Scope Services:** Customers are responsible for using TLS 1.1 protocol or higher. If early versions of TLS 1.1 or SSL protocol are in place in the cardholder data environment, Customers are responsible for developing a compensating control to mitigate the security risk.	N/A	N/A
A2.2 *Requirement for Service Providers Only:* All service providers with existing connection points to POS POI terminals referred to in A2.1 that use SSL and/or early TLS must have a formal Risk Mitigation and Migration Plan in place.	**Customer**	**All In-Scope Services:** Customers are responsible for using TLS 1.1 protocol or higher. If early versions of TLS 1.1 or SSL protocol are in place in the cardholder data environment, Customers are responsible for developing a compensating control to mitigate the security risk.	N/A	N/A

A2.3 *Requirement for Service Providers Only:* All service providers must provide a secure service offering.	**Customer**	**All In-Scope Services:** Customers are responsible for using TLS 1.1 protocol or higher. If early versions of TLS 1.1 or SSL protocol are in place in the cardholder data environment, Customers are responsible for developing a compensating control to mitigate the security risk.	N/A	N/A

5 Customer PCI DSS Compliance Implementation Considerations

As Alibaba Cloud customers leverage Alibaba Cloud to implement a compliant cardholder environment, there are a number of considerations for Alibaba Cloud customers, as a service provider or merchant, when implementing a cardholder environment. The information below provides some considerations and should be read in combination with the chapter 4 “PCI DSS Requirements and Responsiblity Management Matrix Of Alibaba Cloud“.

- **Choose Service Locations**

  Alibaba Cloud's data centers are deployed across multiple regions worldwide, with each region supporting multiple zones. Customer businesses can be deployed across regions and zones to implement a high availability architecture. The PCI DSS validated data centers should be considered when customers implementing its PCI DSS compliance.

- **ECS Operating System Hardened**

  Alibaba Cloud does provide images that can be used for deployment of host operating systems, Alibaba Cloud customers need to develop and implement system configuration and hardening standards to align with all applicable PCI DSS 2.2, 2.2.1-2.2.5, 2.3, 8.1.6-8.1.8, 8.2.1, 8.2.3-8.2.5 requirements for operating systems. Alibaba Cloud customers own and manage their own instance operating system and the images provided are not intended to represent a PCI compliant platform.

- **ECS Image Hardened**

  An image is an execution environment template for ECS virtual machine instances. It generally includes an operating system and preinstalled software. Alibaba Cloud ECS tenants can use an image to create an ECS instance or make changes to the system disk of an ECS instance. The security hardening of Alibaba Cloud public image (supports various Linux/Windows release versions) contains three parts: image security configuration, image vulnerability repair, and default security software in an image. Alibaba Cloud monitors the vulnerabilities in Alibaba Cloud public image operating systems and third-party software in real time to ensure that all high-risk vulnerabilities in Alibaba Cloud public images are repaired in a timely manner. Alibaba Cloud public images are configured with security best practices for the virtual machine by default. Besides, all Alibaba Cloud public images includes Alibaba Cloud security software, such as Server Guard, by default to guarantee the security of instances upon boot up. However the tenants need to development and implement system configuration and hardening standards for ECS image to align with all applicable PCI DSS 2.2, 2.2.1-2.2.5, 2.3, 8.1.6-8.1.8, 8.2.1, 8.2.3-8.2.5 requirements.

- **VPC**

  Customers have full control of the VPC instances provided by Alibaba Cloud. With Virtual Private Cloud (VPC), customers can build an isolated network environment and customize IP address ranges, network segments, routing tables, and gateway. In addition, user can use connection methods like physical connection and VPN to connect VPCs with traditional IDCs, and thus build a hybrid cloud service. Customers should to align with all applicable PCI DSS 1.2, 1.2.1-1.2.3, 1.3, 1.3.1-1.3.7 requirements when managing these instances and performing the necessary security configurations. configure firewalls (security groups) for network access control enforcement.

- **Security group**

  Security group offers the capability of distributed virtual firewall. A security group is a logical group that consists of instances with the same security requirements and mutual trust in the same region. Security groups are used to set network access control for one or more ECS server instances. It is an important network security isolation tool and is used to divide network security domains on the cloud. If Security group is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the security group in a manner that maintains compliance with PCI DSS 1.2, 1.2.1-1.2.3, 1.3, 1.3.1-1.3.7 requirements.

- **VPN Gateway**

  VPN Gateway (Virtual Private Network Gateway) is an Internet-based service that establishes a secure and reliable connection among on-premise data centers, office networks, and Alibaba Cloud Virtual Private Clouds (VPC) over encrypted channels. If VPN is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the VPN service in a manner that maintains compliance with PCI DSS 8.3.2 requirements.

- **SLB**

  Alibaba Cloud SLB is a ready-to-use service that seamlessly integrates with ECS. It is a load balancing service that distributes varying traffic levels among multiple backend ECS server instances without manual intervention. SLB ensures high availability by eliminating single point of failure, and protects against SYN flood and DDoS attacks. SLB provides a certificate management system where user certificates and keys are managed and stored. Private keys uploaded to the certificate management system will be stored encrypted. If SLB is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the SLB service in a manner that maintains compliance with PCI DSS 4.1 requirement.

- **RAM**

  RAM service is provided for user identity management and resource access control. RAM enables an Alibaba Cloud account to have multiple independent subusers. It also supports such features as multi-factor authentication, strong password policies, separation of console users from API users, custom fine-grained authorization policies, grouped authorization, temporary authorization token and account temporary suspension. If RAM is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the RAM service in a manner that maintains compliance with PCI DSS 8.1.6-8.1.8, 8.2.1, 8.2.3-8.2.5, 8.3.1 requirements.

- **KMS**

  Alibaba Cloud customers retain the responsibility for transport and storage encryption of cardholder data for their environment. If KMS is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the KMS service in a manner that maintains compliance with PCI DSS 3.5, 3.5.1-3.5.4, 3.6, 3.6.1-3.6.8 requirements.

- **ActionTrail**

  Alibaba Cloud provides the ActionTrail service, which enables a unified log management for cloud resources. The ActionTrail service records user logon and resource access operations under each Alibaba Cloud account. Such record includes the user name (i.e. operator), operation time, source IP address, resource object, operation name, and operation status. With all operation records saved by ActionTrail, customers can perform security analysis, intrusion detection, resource tracking, and compliance audit. If ActionTrail is used as PCI DSS

compliance solution by customers, it is the customers' responsibility to utilize the ActionTrail service in a manner that maintains compliance with PCI DSS 10.7 requirement.

- **WAF**

  Based on the big data analyzing capabilities of the cloud security, WAF filters out massive numbers of malicious accesses by defending against SQL injection, XSS, common web server plug-in vulnerabilities, trojan uploads, unauthorized access to resources, and other common OWASP attacks to prevent the leakage of website assets and data and safeguard website security and availability. If WAF is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the WAF service in a manner that maintains compliance with PCI DSS 6.6 requirement.

- **Server Guard**

  Alibaba Cloud users can install a lightweight software called Server Guard on their virtual machine instance, which can work together with the cloud security center for intrusion detection. The intrusion detection for the virtual machine includes remote logon alarm, identification of brute force attack behaviors, webshell detection and removal, and virtual machine anomaly detection. If Server Guard is used as PCI DSS compliance solution by customers, it is the customers' responsibility to utilize the Server Guard service in a manner that maintains compliance with PCI DSS 11.4 requirement.

- **TDS**

  Alibaba Cloud users can install a lightweight software called Server Guard on the virtual machine, which can work together with the cloud security center for vulnerability management. The vulnerability management for the virtual machine incorporates multiple scanning engines (network and local scanning, and vulnerability verification) to thoroughly detect all vulnerabilities in the system at a given time. Features like remote logon alert and one-click webshell removal are provided for a complete vulnerability management experience.

6 References

- Payment Card Industry (PCI) Data Security Standard, version 3.2.1 (May 2018)
  https://www.pcisecuritystandards.org/documents/PCI_DSS_v3-2-1.pdf
- PCI SSC Cloud Computing Guidelines, version 3.0 (April 2018)
  https://www.pcisecuritystandards.org/pdfs/PCI_SSC_Cloud_Guidelines_v3.pdf
- Glossary of Terms, Abbreviations, and Acronyms, version 3.2 (April 2016)
  https://www.pcisecuritystandards.org/documents/PCI_DSS_Glossary_v3-2.pdf
- Alibaba Cloud Security Whitepaper, version 1.0 (April 2018)
  https://files.alicdn.com/tpsservice/8943876c3b1dd53c97a323659e4f679f.pdf