Adobe Creative Cloud for enterprise security overview

Executive Summary

At Adobe, we take the security of your digital assets seriously. From our rigorous integration of security into our internal software development process and tools to our cross-functional incident response teams, we strive to be proactive and nimble. What's more, our collaborative work with partners, researchers, and other industry organizations helps us understand the latest threats and security best practices, as well as continually build security into the products and services we offer.

We built Creative Cloud for enterprise with security considerations at its core. From desktop and mobile apps to cloud services, assets are protected, managed and monitored by state of the art solutions. Adobe utilizes industry standard software security methodologies for both management and development of Creative Cloud for enterprise.

Adobe services that touch customer content have completed certifications for SOC 2, ISO27001, FedRAMP Tailored, and PCI (where appropriate). Please see the Current List of Certifications, Standards, and Regulations for a detailed list of all compliance certifications and standards as well as government regulations currently supported by Adobe products and solutions. For information on GDPR, please see our GDPR Readiness page.

Adobe apps and services are hosted through Amazon Web Services (AWS) in a multi-region, multi-datacenter configuration to provide data security, backup and recovery if needed.

This whitepaper describes our proactive approach as well as the procedures and the security architecture implemented by Adobe.

Creative Cloud for enterprise overview

Creative Cloud for enterprise is a modern creative platform for businesses that want to design stand-out experiences across devices and customer touchpoints. With an entire collection of desktop apps, mobile apps, built-in templates, and cloud services, Creative Cloud for enterprise unlocks the content velocity required for today's digital transformation.

Desktop Applications

Creative Cloud for enterprise desktop apps, like Adobe Photoshop and Illustrator, run on the end-user workstation. They may either be packaged for deployment by IT and deployed via standard methods such as Microsoft SCCM/JAMF Casper Suite or utilized in a self-service scenario where end-users download the apps from Adobe directly. Each user is assigned a license via the Admin Console based on their identity (such as an LDAP or Microsoft Active Directory ID), and each user is assigned application and service entitlements via the dashboard as well. When a user launches an app such as Photoshop, the app pings the Admin Console to determine if that user is entitled to use that application. Data transmissions are encrypted and user information is handled using industry standards and best practices for security and privacy.

Mobile Apps

The mobile apps, such as Adobe Photoshop Sketch CC and Adobe Comp CC, run on an end-user's mobile device and they may be managed by a Mobile Device Management (MDM) solution such as AirWatch. Content created by the mobile applications lives both on the mobile device, as well as in the cloud in encrypted storage (see Creative Services below for more details). Data transmissions are encrypted and access to the mobile services is determined by user identity as configured in the Admin Console.

Admin Console

The Admin Console is used to configure license and service entitlements. The Admin Console can tie into your SAML2.0 compliant enterprise identity management system for authentication and provides a set of APIs for automated authorization. IT can setup product license groups to either mirror your enterprise directory groupings or they can be separate, tied in specifically to your creative workgroups. If you are using the cloud services as described below, the Admin Console is also where you can control your dedicated encryption key and revoke all content access, if required. Communication with the Admin Console is encrypted using AES 128bit GCM for symmetric key cryptographic block ciphers over TLS 1.2.

Administrator access is limited to assigned users, setup and controlled by the customer.

Cloud Services

The cloud services include numerous productivity features that help creative users be more efficient. These include services that enable designers to access files, collaborate on projects, and access fonts and stock images so they can create their best work. Cloud services are entitled using the Admin Console, and access to each service is based on every users' unique identification, so only users entitled to a service may access it. Cloud services run on a multi-tenant infrastructure built on Amazon's AWS. Data transmissions are encrypted and user generated content is encrypted at rest, and, as noted below, may be additionally encrypted with a dedicated encryption key.

Creative Cloud for enterprise identity systems

Entitlement and Identity Management

IT administrators entitle end user access to the Creative Cloud desktop applications such as Adobe Photoshop and Adobe Illustrator as well as entitling the use of cloud services by utilizing named user licensing in the Adobe Admin Console.

Three types of named user licensing are available:

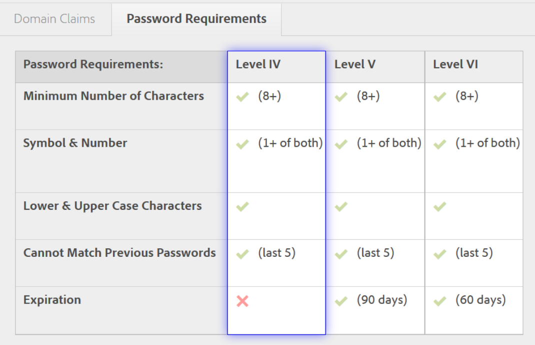
- **Adobe ID** is for Adobe-hosted, user-managed accounts that are created, owned and controlled by individual users. Adobe ID accounts only have access to Creative Cloud for enterprise resources if an IT administrator enables access.
- **Adobe Enterprise ID** is an Adobe-hosted, enterprise-managed option for accounts that are created and controlled by IT administrators from the customer enterprise organization. The organization owns and manages the user accounts and all associated assets.
- **Adobe Federated ID** is an enterprise-managed account where all identity profiles are provided by the customer's Single Sign-On (SSO) identity management system and are created, owned, controlled by IT as well as all associated assets. Adobe will integrate with most any SAML2.0 compliant identity provider.

Application and service entitlement is accomplished through the Adobe Admin Console.

Most enterprise organizations use Enterprise or Federated IDs for their employees, contractors and freelancers, provided the email address is within the company domain, because it lets them maintain control of both the entitlements and the user generated content stored on behalf of that ID. You can learn more about each identity type at https://helpx.adobe.com/enterprise/help/identity.html.

Password Lockout Procedures

IT can enforce password policies for invited Adobe IDs with access to enterprise resources, and Enterprise IDs, with three different password policies, shown here:



Password Requirements:	Level IV	Level V	Level VI
Minimum Number of Characters	✓ (8+)	✓ (8+)	✓ (8+)
Symbol & Number	✓ (1+ of both)	✓ (1+ of both)	✓ (1+ of both)
Lower & Upper Case Characters	✓	✓	✓
Cannot Match Previous Passwords	✓ (last 5)	✓ (last 5)	✓ (last 5)
Expiration	✗	✓ (90 days)	✓ (60 days)

Adobe IDs and Enterprise IDs both leverage the SHA-256 hash algorithm in combination with password salts and a large number of hash iterations. Adobe continually monitors Adobe-hosted accounts for unusual or anomalous account activity and evaluates this information to help quickly mitigate threats to their security. For Federated ID accounts, Adobe does not manage the users' passwords.

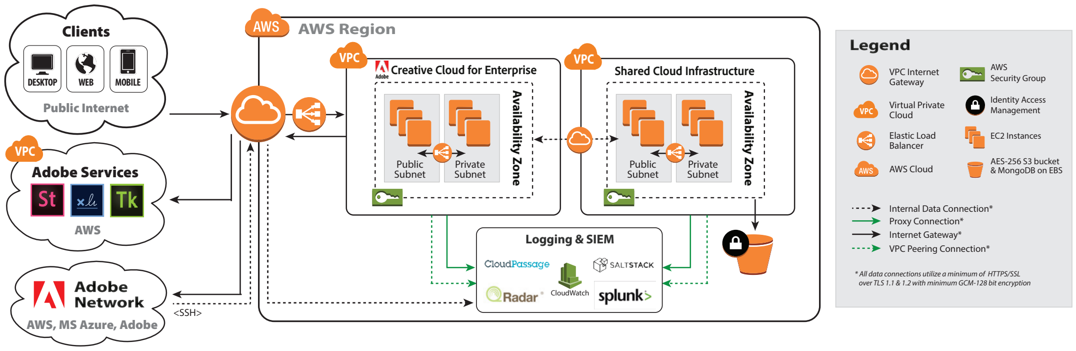
Account management

Named user accounts can be managed through the Adobe Admin Console, which is an intuitive dashboard for IT staff to manage their organization's Adobe entitlements, controlling which users and groups have access to certain Creative Cloud apps and services. The Adobe Admin Console also provides user management and entitlement access to Adobe Document Cloud, Adobe Marketing Cloud, and Print & Publishing applications. IT staff can also utilize the Admin Console to open support cases with Adobe Customer Care, schedule Expert Services sessions and resolve issues quickly.

IT can create, manage, and delete Enterprise ID and Federated ID accounts through the Adobe Admin Console. Cloud storage for these accounts is allocated as individual storage; hence, IT does not have direct access to any files in the user's Creative Cloud storage. However, IT can assume ownership for the employee's account and can revoke access. Deleting an Enterprise ID or Federated ID with existing shared services storage renders any data in cloud storage inaccessible to the end user and that user's data will be deleted after 90 days.

IT may also allocate storage to Adobe ID accounts via the Adobe Admin Console. IT cannot control Adobe ID accounts, but they can delete them from their enterprise, removing the granted enterprise storage quota and application and service access from the end user accounts, with the data also being deleted after 90 days.

Creative Cloud for enterprise architecture



Adobe Creative Cloud for enterprise is a combination of desktop apps, mobile apps, and cloud services. Creative Cloud for enterprise users who are provisioned via named user deployment will access the cloud services from one or more of three endpoints:

- Desktop apps such as Adobe Photoshop and the Creative Cloud desktop application
- A web browser
- Mobile apps such as Adobe Capture CC, Adobe Photoshop Sketch and Adobe Lightroom Mobile

For a description of the tools and services available, please see: http://www.adobe.com/creativecloud/business/enterprise.html.

From the endpoint, an end user will validate their identity using one of the methods of named user entitlements as described above and access their content through Creative Cloud for enterprise.

The services available are dependent on which endpoint the customer is using to access Adobe Creative Cloud. For example, the mobile apps can access the Creative Cloud to validate the user, to synchronize settings, and to share content such as mobile creations. Similarly, the Creative Cloud desktop application allows user to download and update their creative desktop applications, such as Photoshop, download fonts through Adobe Typekit, and upload or download files to their local system from the Creative Cloud storage.

Regardless of the customer endpoint, all Creative Cloud access is controlled through a public set of services accessed via HTTPS/TLS. Content is encrypted in-transit with AES 128-bit GCM symmetric key cryptographic block ciphers and at rest with AES 256-bit symmetric security keys utilizing FIPS 140-2 approved cryptographic algorithms consistent with NIST 800-57 recommendations. Once a user has validated themselves to Adobe Creative Cloud for enterprise, they will access the services and apps to which their IT administrators have entitled them through the Adobe Admin Console. They can then perform whichever actions are allowed by their endpoint for which they have been entitled. For example, a user in Photoshop will be able to collaborate using Creative Cloud Libraries and share colors, graphics and type styles with other members of their team.

Creative Cloud for enterprise content storage

Creative Cloud for enterprise leverages multi-tenant storage. Customer content is processed by an Amazon Elastic Compute Cloud (EC2) instance and stored on a combination of Amazon Simple Storage Services (S3) buckets and through a MongoDB instance on an Amazon Elastic Block Store (EBS).

The content itself is stored in S3 buckets and the metadata about the content is stored in EBS via MongoDB, all protected by Identity and Access Management (IAM) roles within that AWS Region.

The content and assets stored in S3 are encrypted with AES 256-bit symmetric security keys that are unique to each customer and each customer's claimed domain. The dedicated keys are managed by the Amazon Key Management Service (KMS) which provides additional layers of control and security for key management and Adobe will automatically rotate the key on an annual basis. If necessary, IT administrators can revoke their key via the Admin Console, which will render all data encrypted with that key inaccessible to the end users. Please see Dedicated Encryption Key below for more details.

Metadata and support assets which are stored in EBS have AES 256-bit encryption utilizing Federal Information Processing Standards (FIPS) 140-2 approved cryptographic algorithms consistent with National Institute of Standards and Technology (NIST) 800-57 recommendations.

Data is redundantly stored in multiple data centers and on multiple devices in each data center. All network traffic undergoes systematic data verification and checksum calculations to prevent corruption and ensure integrity. Finally, stored content is synchronously and automatically replicated to other data center facilities within that customer's region so that data integrity will be maintained even with the loss of data in two locations.

For more information on the underlying Amazon services, please see:

- MongoDB: http://www.mongodb.org
- Amazon S3 service: https://aws.amazon.com/s3/faqs
- Amazon KMS service: http://aws.amazon.com/kms/faqs/
- Amazon EC2 service: http://aws.amazon.com/ec2/

Dedicated Encryption Key

Content stored in the Creative Cloud for enterprise is encrypted as noted above. IT administrators can add an additional layer of control and security by having Adobe generate a dedicated encryption key for some or all of the domains in your organization. Content is then encrypted using that dedicated encryption key, and, if required, you can revoke the encryption key from the Admin Console. Revoking the key will render all content encrypted with that key inaccessible to all end users, and will prevent both content upload and download until you re-enable the encryption key.

For more information on managing encryption using a dedicated key, please see:

- https://helpx.adobe.com/enterprise/help/encryption.html
- https://helpx.adobe.com/enterprise/help/encryption-faq.html

Sharing and Collaboration

All Creative Cloud for enterprise content stored in the cloud is automatically labelled "Private," which means the content is only visible to the end user who uploaded it. An end user must take explicit actions to share that content, or it will remain private. Creative Cloud sharing has two options: Collaboration and Send Link.

Collaboration

For Creative Cloud Collaboration, shared content retains a "Private" label and only invited, named recipients can view or edit the content. If collaborated content is changed, all of the collaborators will receive the changes. The content in the cloud will physically remain in the data center of the owner, unless explicitly moved.

An end user can only be invited to collaborate on a CC Folder or CC Library. Individual pieces of content within that CC Folder or CC Library will be accessible by the invited collaborator, but CC Collaboration is at the folder or "group" level. In the Summer of 2018, XD (Adobe Experience Design) Prototypes and Design Specs will be enabled for CC Collaboration as well.

Sharing of an individual file or mobile creation requires the end user to perform a Send Link.

Send Link

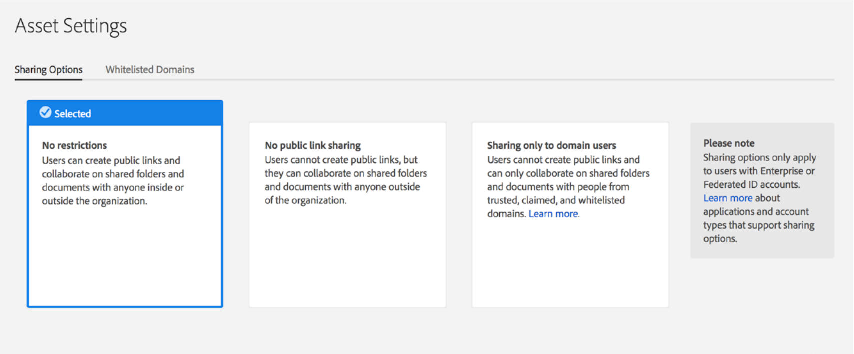
Creative Cloud sharing also gives the user the ability to perform a "Send Link" on content. Unlike CC Collaboration, sending a link creates a public link and anyone with that link address can access the content. Linked content can be shared with the option to "Allow Download" or "Allow Save" which, if enabled, will allow the recipient to download the content either to their desktop or to their own Creative Cloud storage. In both of these cases, the connection to the original content is broken, and the recipient is now considered to be the owner of the content, with that content residing in their assigned data center.

A CC Library has an "Allow Follow" option when sending a link, which gives recipients a read-only view of the CC Library and the ability to receive any updates made by the owner. Unless downloaded as noted above, a "followed" CC Library will remain in the data center of the owner.

The ability to perform a Send Link on content can be controlled with Asset Settings.

Asset Settings and Sharing Restrictions

Content stored in the Creative Cloud for enterprise can also have sharing restrictions enabled through the Adobe Admin Console's Asset Settings feature. This allows enterprise IT to turn off public link sharing as well as giving them the option to force CC Collaboration only within the enterprise claimed domain and any other whitelisted domains. This would mean that designers could only share content to other users within their organization, and external sharing would be disabled completely.



Asset Settings

No restrictions
Users can create public links and collaborate on shared folders and documents with anyone inside or outside the organization.

No public link sharing
Users cannot create public links, but they can collaborate on shared folders and documents with anyone outside of the organization.

Sharing only to domain users
Users cannot create public links and can only collaborate on shared folders and documents with people from trusted, claimed, and whitelisted domains. Learn more.

Please note
Sharing options only apply to users with Enterprise or Federated ID accounts. Learn more about applications and account types that support sharing options.

Content Logs

IT Administrators can download content logs directly from the Admin Console to view how their users are interacting with company-owned assets stored in Creative Cloud or Document Cloud. Content logs give organizations added visibility into company resources stored in Adobe's cloud storage solutions.

Content logs contain:

- Content events such as create, read, update and delete
- Collaboration events such as sending invites, accepting invites, and collaboration role changes
- Sharing events like creating and removing public links
- Timestamps marking event actions, content creation time and last modification time
- User data such as user name, user email and IP Address
- Content data such as content type, name, collaboration permissions, and password protection flags

For more information on how to create content log reports using the Admin Console, and full details of the actions and data collected, please see: https://helpx.adobe.com/enterprise/using/content-logs.html.

A maximum of 90 days of content logs will be downloadable at a time. The report will remain downloadable for seven days before being automatically removed from the Admin Console.

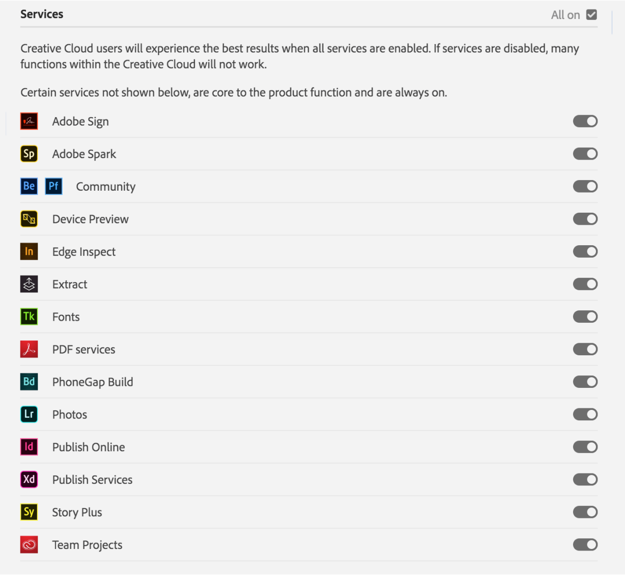
Creative Cloud services types

Creative Cloud services include SaaS-based services, some of which can store user generated content and may be utilized by all Creative Cloud for enterprise services and endpoints if so entitled.

End user access and entitlement to these services can be managed via the Product Profile by an IT administrator in the Adobe Admin Console.

A Product Profile is a configurable list of Creative Cloud Services and entitlement quota that an administrator creates and assigns to end users.

For more information on the configurable Creative Cloud services please see https://helpx.adobe.com/enterprise/using/optional-services.html.



Services All on ☑

Creative Cloud users will experience the best results when all services are enabled. If services are disabled, many functions within the Creative Cloud will not work.

Certain services not shown below, are core to the product function and are always on.

- Adobe Sign
- Adobe Spark
- Community
- Device Preview
- Edge Inspect
- Extract
- Fonts
- PDF services
- PhoneGap Build
- Photos
- Publish Online
- Publish Services
- Story Plus
- Team Projects

Amazon Web Services

As previously covered, components of Creative Cloud for enterprise are hosted on AWS, including Amazon EC2 and Amazon S3, in the United States, the European Union (EU), and Asia Pacific. Amazon EC2 is a web service that provides automatically scalable compute capacity in the cloud, making web-scale computing easier. Amazon S3 is a highly reliable data storage infrastructure for storing and retrieving any amount of data.

The AWS platform provides services in accordance with industry-standard practices and undergoes regular industry-recognized certifications and audits. You can find more detailed information about AWS and Amazon's security controls on the AWS security site.

Operational Responsibilities of AWS and Adobe

AWS operates, manages, and controls the components from the hypervisor virtualization layer down to the physical security of the facilities in which Adobe Creative Cloud for enterprise operates. In turn, Adobe assumes responsibility and management of the guest operating system (including updates and security patches) and application software, as well as the configuration of the AWS-provided security group firewall.

AWS also operates the cloud infrastructure used by Adobe to provision a variety of basic computing resources, including processing and storage. The AWS infrastructure includes facilities, network, and hardware, as well as the operational software (e.g., host OS, virtualization software, etc.) that supports the provisioning and use of these resources. Amazon designs and manages AWS according to industry-standard practices as well as a variety of security compliance standards.

Secure Management

Adobe uses Secure Shell (SSH) and Secure Sockets Layer (SSL) for management connections to manage the AWS infrastructure.

Geographic Location of Customer Data on AWS Network

The following information is from the AWS: Overview of Security Processes White paper. For more detailed information about AWS security, please consult the AWS white paper.

Identity data is stored in multi-region, load-balanced, Amazon Web Services (AWS) data centers located in US-East (Virginia), US-West (Oregon) and EU-West (Ireland). Content is backed up within each data center, in other data centers within the region, and in cross-region data centers for load balancing and redundancy. We comply with applicable laws regarding cross-border data transfers, as outlined in greater detail here.

User Generated Content (UGC) uploaded to Creative Cloud for enterprise is generally stored in the AWS regional data center that corresponds to the country code associated with a specific user, regardless of identity type:

- UGC for users with a North American, Central American or South American country code is stored in the AWS US-East 1 (Virginia) data center
- UGC for users with a European or African country code is stored in the AWS EU – West 1 (Dublin, Ireland) data center
- UGC for users with an Asia-Pacific or Middle-Eastern country code is stored in the AWS – Asia Pacific Northeast 1 (Tokyo) data center

Adobe currently stores all Adobe Creative Cloud for enterprise content in Amazon S3 and metadata in a MongoDB database on Amazon EBS, both of which provide a storage infrastructure with high durability. To help enhance durability, Amazon S3 PUT and COPY operations synchronously store customer data across multiple facilities and redundantly store objects on multiple devices across multiple facilities in an Amazon S3 region. In addition, Amazon S3 calculates checksums on all network traffic to detect corruption of data packets when storing or retrieving data. Metadata is replicated by taking snapshots of EBS volumes and stored similar to S3.

Data replication for Amazon S3 data objects occurs within the regional cluster where the data is stored and is not replicated to data center clusters in other regions.

Isolation of Customer Data/Segregation of Customers

AWS uses strong tenant isolation security and control capabilities. As a virtualized, multi-tenant environment, AWS implements security management processes and other security controls designed to isolate each customer from other AWS customers. Adobe uses the AWS Identity and Access Management (IAM) to further restrict access to compute and storage instances.

Secure Network Architecture

AWS employs network devices, including firewall and other boundary devices, to monitor and control communications at the external boundary of the network and at key internal boundaries within the network. These boundary devices employ rule sets, access control lists (ACL), and configurations to enforce the flow of information to specific information system services. ACLs, or traffic flow policies, exist on each managed interface to manage and enforce the flow of traffic. Amazon Information Security approves all ACL policies and automatically pushes them to each managed interface using AWS's ACL-Manage tool, helping to ensure these managed interfaces enforce the most up-to-date ACLs.

Network Monitoring and Protection

AWS uses a variety of automated monitoring systems to provide a high level of service performance and availability. Monitoring tools help detect unusual or unauthorized activities and conditions at ingress and egress communication points. The AWS network provides significant protection against traditional network security issues:

- Distributed Denial of Service (DDoS) attacks
- Man in the Middle (MITM) attacks
- IP Spoofing
- Port Scanning
- Packet sniffing by other tenants

You can find more information about Network Monitoring and Protection in the AWS: Overview of Security Processes white paper on the Amazon website.

Intrusion Detection

Adobe actively monitors Adobe Creative Cloud using industry-standard Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS).

Logging

Adobe conducts server-side logging of Adobe Creative Cloud customer activity to diagnose service outages, specific customer problems, and reported bugs. The logs only store Adobe IDs to help diagnose specific customer issues and do not contain username/password combinations. Only authorized Adobe technical support personnel, key engineers, and select developers can access the logs to diagnose specific issues that may arise.

Service Monitoring

AWS monitors electrical, mechanical, and life support systems and equipment to help with the immediate identification of service issues. In order to maintain the continued operability of equipment, AWS performs ongoing preventative maintenance.

Data Storage and Backup

Adobe stores all Adobe Creative Cloud data in Amazon S3, which provides a storage infrastructure with high durability. To help provide durability, Amazon S3 PUT and COPY operations synchronously store customer data across multiple facilities and redundantly store objects on multiple devices across multiple facilities in an Amazon S3 region. In addition, Amazon S3 calculates checksums on all network traffic to detect corruption of data packets when storing or retrieving data. For more detailed information about AWS security, please consult the AWS: Overview of Security Processes white paper.

Change Management

AWS authorizes, logs, tests, approves, and documents routine, emergency, and configuration changes to existing AWS infrastructure in accordance with industry norms for similar systems. Amazon schedules updates to AWS to minimize any customer impact. AWS communicates with customers, either via email, or through the AWS Service Health Dashboard when service use is likely to be adversely affected. Adobe also maintains a Status Health Dashboard for Adobe Creative Cloud.

Patch Management

AWS maintains responsibility for patching systems that support the delivery of AWS services, such as the hypervisor and networking services. Adobe is responsible for patching its guest operating systems (OS), software, and applications running in AWS. When patches are required, Adobe supplies a new, pre-hardened instance of the OS and application rather than an actual patch.

AWS Physical and Environmental Controls

AWS physical and environmental controls are specifically outlined in a SOC 1, Type 2 report. The following section outlines some of the security measures and controls in place at AWS data centers around the world. For more detailed information about AWS security, please consult the AWS: Overview of Security Processes white paper or the Amazon security website.

Physical Facility Security

AWS data centers utilize industry standard architectural and engineering approaches. AWS data centers are housed in nondescript facilities and Amazon controls physical access both at the perimeter and at building ingress points using professional security staff, video surveillance, intrusion detection systems, and other electronic means. Authorized staff must pass two-factor authentication a minimum of two times to access data center floors. All visitors and contractors are required to present identification and are signed in and continually escorted by authorized staff.

AWS only provides data center access and information to employees and contractors who have a legitimate business need for such privileges. When an employee no longer has a business need for these privileges, his or her access is immediately revoked, even if they continue to be an employee of Amazon or Amazon Web Services. All physical access to data centers by AWS employees is logged and audited routinely.

Fire Suppression

AWS installs automatic fire detection and suppression equipment in all AWS data centers. The fire detection system utilizes smoke detection sensors in all data center environments, mechanical and electrical infrastructure spaces, chiller rooms and generator equipment rooms. These areas are protected by either wet-pipe, double-interlocked pre-action, or gaseous sprinkler systems.

Controlled Environment

AWS employs a climate control system to maintain a constant operating temperature for servers and other hardware, preventing overheating and reducing the possibility of service outages. AWS data centers maintain atmospheric conditions at optimal levels. AWS personnel and systems monitor and control both temperature and humidity at appropriate levels.

Backup Power

AWS data center electrical power systems are designed to be fully redundant and maintainable without impact to operations, 24 hours a day, seven days a week. Uninterruptible Power Supply (UPS) units provide back-up power in the event of an electrical failure for critical and essential loads in the facility. Data centers use generators to provide back-up power for the entire facility.

Video Surveillance

Professional security staff strictly controls physical access both at the perimeter and at building ingress points for AWS data centers using video surveillance, intrusion detection systems, and other electronic means.

Disaster Recovery

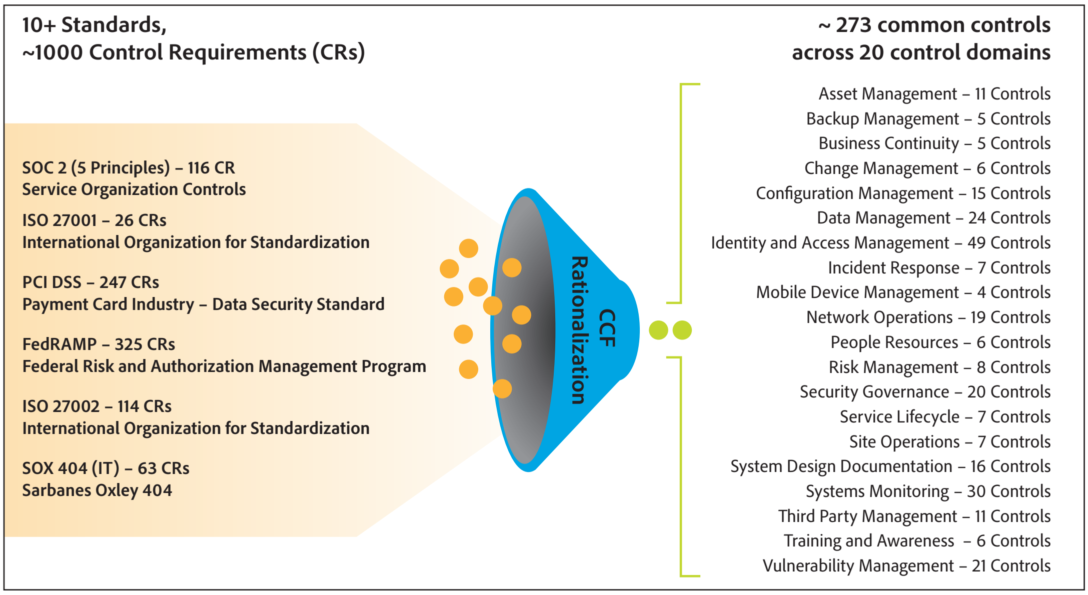
AWS data centers include a high level of availability and tolerate system or hardware failures with minimal impact. Built in clusters in various global regions, all data centers remain online 24/7/365 to serve customers; no data center is "cold." In case of failure, automated processes move customer data traffic away from the affected area.

Core applications are deployed in an N+1 configuration, so that in the event of a data center failure, there is sufficient capacity to enable traffic to be load-balanced to the remaining sites. You can find more information about AWS disaster recovery protocols on the Amazon Security website.

Adobe Common Controls Framework

To protect from the software layer down, Adobe uses the Adobe Secure Product Lifecycle, which is described in a following section. To protect from the physical layer up, Adobe implements a foundational framework of security processes and controls to protect the company's infrastructure, applications, and services and help Adobe comply with a number of industry accepted best practices, standards, and certifications.

In creating the Adobe Common Controls Framework (CCF), Adobe analyzed the criteria for the most common security certifications and found a number of overlaps. After analyzing more than 1000 requirements from relevant cloud security frameworks and standards, Adobe rationalized these down to approximately 200 Adobe-specific controls. The CCF control owners know exactly what is required to address the expectations of Adobe stakeholders and customers when it comes to implementing controls.


10+ Standards,
~1000 Control Requirements (CRs)
~ 273 common controls
across 20 control domains
SOC 2 (5 Principles) – 116 CR
Service Organization Controls
ISO 27001 – 26 CRs
International Organization for Standardization
PCI DSS – 247 CRs
Payment Card Industry – Data Security Standard
FedRAMP – 325 CRs
Federal Risk and Authorization Management Program
ISO 27002 – 114 CRs
International Organization for Standardization
SOX 404 (IT) – 63 CRs
Sarbanes Oxley 404
CCF
Rationalization
Asset Management – 11 Controls
Backup Management – 5 Controls
Business Continuity – 5 Controls
Change Management – 6 Controls
Configuration Management – 15 Controls
Data Management – 24 Controls
Identity and Access Management – 49 Controls
Incident Response – 7 Controls
Mobile Device Management – 4 Controls
Network Operations – 19 Controls
People Resources – 6 Controls
Risk Management – 8 Controls
Security Governance – 20 Controls
Service Lifecycle – 7 Controls
Site Operations – 7 Controls
System Design Documentation – 16 Controls
Systems Monitoring – 30 Controls
Third Party Management – 11 Controls
Training and Awareness – 6 Controls
Vulnerability Management – 21 Controls

The Adobe Common Controls Framework (CCF)

Compliance

AWS maintains their own compliance and assertions with an ISO 27001, SOC 1, SOC 2, PCI DSS and other industry security frameworks.

All Adobe services are governed by a comprehensive set of documented security processes and have been subject to numerous security audits to maintain and improve quality. Adobe services are under continuing self review to ISO 27001, SOC 2, FedRAMP-Tailored, and PCI DSS standards.

Adobe Creative Cloud for enterprise meets or can be configured to meet compliance requirements for many industry and regulatory standards. Customers maintain control over their documents, data, and workflows, and can choose how to best comply with local or regional regulations, such as the General Data Protection Regulation (GDPR) in the EU. For more information on Adobe privacy policies, please see our Privacy website.

ISO 27001

The ISO 27001 standard is published by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). It contains requirements for information security management systems (ISMS) that can be audited by an independent and accredited certification authority. Creative Cloud for enterprise is ISO 27001: 2013 certified.

SOC

The Service Organization Controls (SOC) is a series of IT controls for security, availability, processing integrity, confidentiality, and privacy (Type 2). Adobe Creative Cloud for enterprise is SOC 2–Type 2 (Security & Availability) certified.

FedRAMP

The U.S. Federal Risk and Authorization Management Program (FedRAMP) provides a standardized approach for security assessment, authorization, and continuous monitoring of cloud products and services used by government agencies. FedRAMP Tailored is a baseline for cloud service providers with Low-Impact Software-as-a-Service (LI-SaaS) Systems. Adobe Creative Cloud for enterprise is FedRAMP Tailored certified.

GLBA

The U.S. Gramm-Leach-Bliley Act (GLBA) provides regulations for financial institutions that help ensure the privacy of personal customer information. Being GLBA –ready means that Creative Cloud for enterprise can be configured to be used in a way that allows financial services institutions to comply with the GLBA Act requirements for using service providers.

FERPA

The U.S. Family Educational Rights and Privacy Act (FERPA) is designed to preserve the confidentiality of U.S. Student education records and directory information. Under FERPA guidelines, Adobe Creative Cloud for enterprise can contractually agree to act as a "school official" when it comes to handling regulated student data and therefore to enable our education customers to comply with FERPA requirements.

*An Adobe service that is GLBA-ready, FERPA-ready, FDA 21 CFR Part 11 compliant, or HIPAA compliant means that the service can be used in a way that enables the customer to help meet its legal obligations related to the use of service providers. Ultimately, the customer is responsible for ensuring compliance with legal obligations, that the Adobe service meets its compliance needs, and that the customer secures the service appropriately.

Please visit http://www.adobe.com/security/resources.html to view a list of security white papers including the Adobe Cloud Services Compliance Overview whitepaper for more information on Adobe's overall security and compliance strategy.

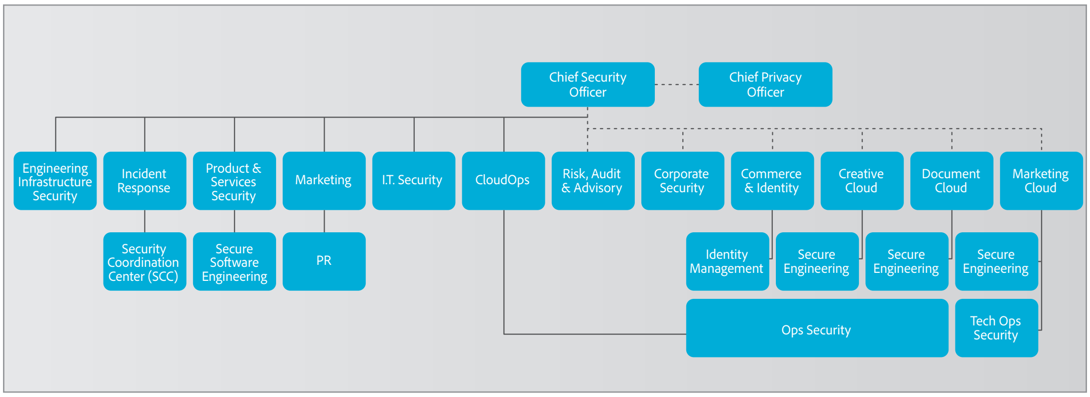
Customer data confidentiality

Adobe always treats customer data as confidential. Adobe does not access, use, or share the information collected from a customer except as set forth in the Adobe General Terms of Use and in the Adobe Privacy Policy. For more information on Adobe's privacy practices, please visit the Adobe Privacy Center.

Adobe Security Organization

As part of our commitment to the security of our products and services, Adobe coordinates all security efforts under the Chief Security Officer (CSO). The office of the CSO coordinates all product and service security initiatives and the implementation of the Adobe Secure Product Lifecycle (SPLC).

The CSO also manages the Adobe Secure Software Engineering Team (ASSET), a dedicated, central team of security specialists who serve as consultants to key Adobe product and operations teams, including the Creative Cloud teams. ASSET researchers work with individual Adobe product and operations teams to strive to achieve the right level of security for products and services and advise these teams on security practices for clear and repeatable processes for development, deployment, operations, and incident response.



Adobe security organization

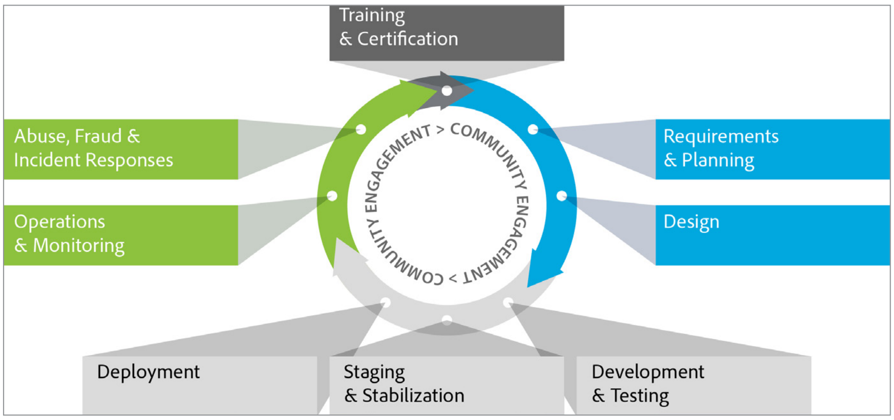
Adobe secure product development

As with other key Adobe product and service organizations, the Creative Cloud organization employs the SPLC process. A rigorous set of several hundred specific security activities spanning software development practices, processes, and tools, the Adobe SPLC is integrated into multiple stages of the product lifecycle, from design and development to quality assurance, testing, and deployment. ASSET security researchers provide specific SPLC guidance for each key product or service based on an assessment of potential security issues. Complemented by continuous community engagement, the Adobe SPLC evolves to stay current as changes occur in technology, security practices, and the threat landscape.

Adobe Secure Product Lifecycle

The Adobe SPLC activities include some or all of the following recommended practices, processes, and tools, depending on the specific Creative Cloud service:

- Security training and certification for product teams
- Product health, risk, and threat landscape analysis
- Secure coding guidelines, rules, and analysis
- Service roadmaps, security tools, and testing methods that guide the Creative Cloud security team to help address the Open Web Application Security Project (OWASP) top 10 most critical web application security flaws and CWE/SANS top 25 most dangerous software errors
- Security architecture review and penetration testing
- Source code reviews to help eliminate known flaws that could lead to vulnerabilities
- User-generated content validation
- Static and dynamic code analysis
- Application and network scanning
- Full readiness review, response plans, and release of developer education materials



Adobe Secure Product Lifecycle (SPLC)

Adobe security training

Adobe Software Security Certification Program

As part of the Adobe SPLC, Adobe conducts ongoing security training within development teams to enhance security knowledge throughout the company and improve the overall security of our products and services. Employees participating in the Adobe Software Security Certification Program attain different certification levels by completing security projects.

The program has four levels, each designated by a colored "belt": white, green, brown, and black. The white and green levels are achieved by completing computer-based training. The higher brown and black belt levels require completion of months- or year-long hands-on security projects. Employees attaining brown and black belts become security champions and experts within their product teams. Adobe updates training on a regular basis to reflect new threats and mitigations, as well as new controls and software languages.

Black	The highest level of hands-on security expertise within Adobe
Brown	Focused on the development of security components in Adobe product code (e.g. sandboxing)
Green	Builds on basic security topics through real-world case studies
White	Introduces basic security concepts

Adobe Secure Software Engineering Certification Levels

Various teams within the Creative Cloud organization participate in additional security training and workshops to increase the awareness of how security affects their specific roles within the organization and the company as a whole.

Adobe risk and vulnerability management

Penetration testing

Adobe approves and engages with leading third-party security firms to perform penetration testing that can uncover potential security vulnerabilities and improve the overall security of Adobe products and services. Upon receipt of the report provided by the third party, Adobe documents these vulnerabilities, evaluates severity and priority, and then creates a mitigation strategy or remediation plan.

Internally, the Adobe Creative Cloud security team performs a risk assessment of the Creative Cloud prior to every release. Conducted by highly trained security staff trusted with securing the network topology and infrastructure; the security reviews look for insecure network setup issues across firewalls, load balancers, and server hardware and also application level vulnerabilities. The security touchpoints include exercises like threat modeling coupled with vulnerability scanning, static and dynamic analysis of the application. The Creative Cloud security team partners with the technical operations and development leads to help ensure all high risk vulnerabilities are mitigated prior to each release.

Penetrations tests are conducted at least annually or after every major release. Vulnerability scans are performed monthly while web and database scans are performed quarterly.

Incident response

New vulnerabilities and threats evolve each day and Adobe strives to respond to mitigate newly discovered threats. In addition to subscribing to industry-wide vulnerability announcement lists, including US-CERT, Bugtraq, and SANS, Adobe also subscribes to the latest security alert lists issued by major security vendors.

When a significant announced vulnerability puts Creative Cloud at risk, the Adobe PSIRT (Product Security Incident Response Team) communicates the vulnerability to the appropriate teams within the Creative Cloud organization to coordinate the mitigation effort.

For Adobe cloud-based services, including Creative Cloud, Adobe centralizes incident response, decision-making, and external monitoring in our Security Coordination Center (SCC), providing cross-functional consistency and fast resolution of issues.

When an incident occurs with an Adobe product or service, the SCC works with the involved Adobe product incident response and development teams to help identify, mitigate, and resolve the issue using the following proven process:

- Assess the status of the vulnerability
- Mitigate risk in production services
- Quarantine, investigate, and destroy compromised nodes (cloud-based services only)
- Develop a fix for the vulnerability
- Deploy the fix to contain the problem
- Monitor activity and confirm resolution

Forensic analysis

For incident investigations, the Creative Cloud team adheres to the Adobe forensic analysis process that includes complete image capture or memory dump of an impacted machine(s), evidence safe-holding, and chain-of-custody recording.

Adobe corporate locations

Adobe maintains offices around the world and implements the following processes and procedures company-wide to protect the company against security threats.

Physical security

Every Adobe corporate office location employs on-site guards to protect the premises 24x7. Adobe employees carry a key card ID badge for building access. Visitors enter through the front entrance, sign in and out with the receptionist, display a temporary visitor ID badge, and are accompanied by an employee. Adobe keeps all server equipment, development machines, phone systems, file and mail servers, and other sensitive systems locked at all times in environmentally controlled server rooms accessible only by appropriate, authorized staff members.

Virus protection

Adobe scans all inbound and outbound corporate email for known malware threats.

Anti-malware protection mechanisms are implemented for all systems and employee assets (e.g., laptops) commonly affected by malware (e.g., Windows servers but not Linux servers). Anti-malware protection requires the following:

- Scanning signatures are updated daily
- Scan engine version is updated updated to stay current with vendor releases
- Full system scans are run weekly
- Event logs and alerts are generated
- Issues identified from scanning results are available to authorized parties or groups
- Real time scanning is enabled
- Antivirus mechanisms cannot be disabled

Adobe employees

Employee access to customer data

Adobe maintains segmented development and production environments for Creative Cloud, using technical controls to limit network and application-level access to live production systems. Employees have specific authorizations to access development and production systems, and employees with no legitimate business purpose are restricted from accessing these systems. Access is given to employees using least privilege and access rights are reviewed quarterly.

Background checks

Adobe obtains background check reports for employment purposes. The specific nature and scope of the report that Adobe typically seeks includes inquiries regarding educational background; work history; court records, including criminal conviction records; and references obtained from professional and personal associates, each as permitted by applicable law. These background check requirements apply to regular U.S. new hire employees, including those who will be administering systems or have access to customer information. New U.S. temporary agency workers are subject to background check requirements through the applicable temporary agency, in compliance with Adobe's background screen guidelines. Outside the U.S., Adobe conducts background checks on certain new employees in accordance with Adobe's background check policy and applicable local laws.

Employee termination

When an employee leaves Adobe, the employee's manager submits an exiting worker form. Once approved, Adobe People Resources initiates an email workflow to inform relevant stakeholders to take specific actions leading up to the employee's last day. In the event that Adobe terminates an employee, Adobe People Resources sends a similar email notification to relevant stakeholders, including the specific date and time of the employment termination. Adobe Corporate Security then schedules the following actions to help ensure that upon conclusion of the employee's final day of employment, he or she can no longer access Adobe confidential files or offices:

- Email access removal
- Remote VPN access removal
- Office and datacenter badge invalidation
- Network Access Termination

Upon request, managers may ask building security to escort the terminated employee from the Adobe office or building.

Conclusion

At Adobe, we take the security of your digital experience seriously. The proactive approach to security and procedures described in this paper help protect the security of your Creative Cloud data. If you have additional security questions beyond what is covered here, please contact your account representative, or visit the Adobe Trust Center website.

Adobe

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