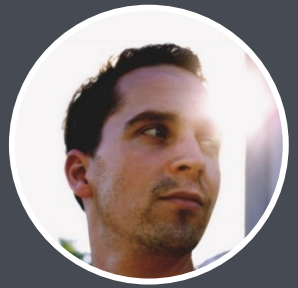
jamf NATION Roadshow

Jamf Nation Roadshow

# Security & Business Intelligence 101

Zentral Pro Services GmbH & Co. KG

# About Me



## Henry Stamerjohann

Client Platform Engineer

Zentral Pro Services GmbH & Co. KG

# Zentral Pro Services

Jamf Integrator & Professional Services

Apple Platform Engineering (Consultancy)

Research & Development Partner (B2B, Enterprise)

www.zentral.pro

jamf INTEGRATOR zentral

# What do you use ?

Jamf Pro Cloud

Jamf Dashboard

Jamf Connect

Jamf API

# Proposition - next steps

1. Inventory
2. Endpoint security
3. Identity

# 1. Inventory

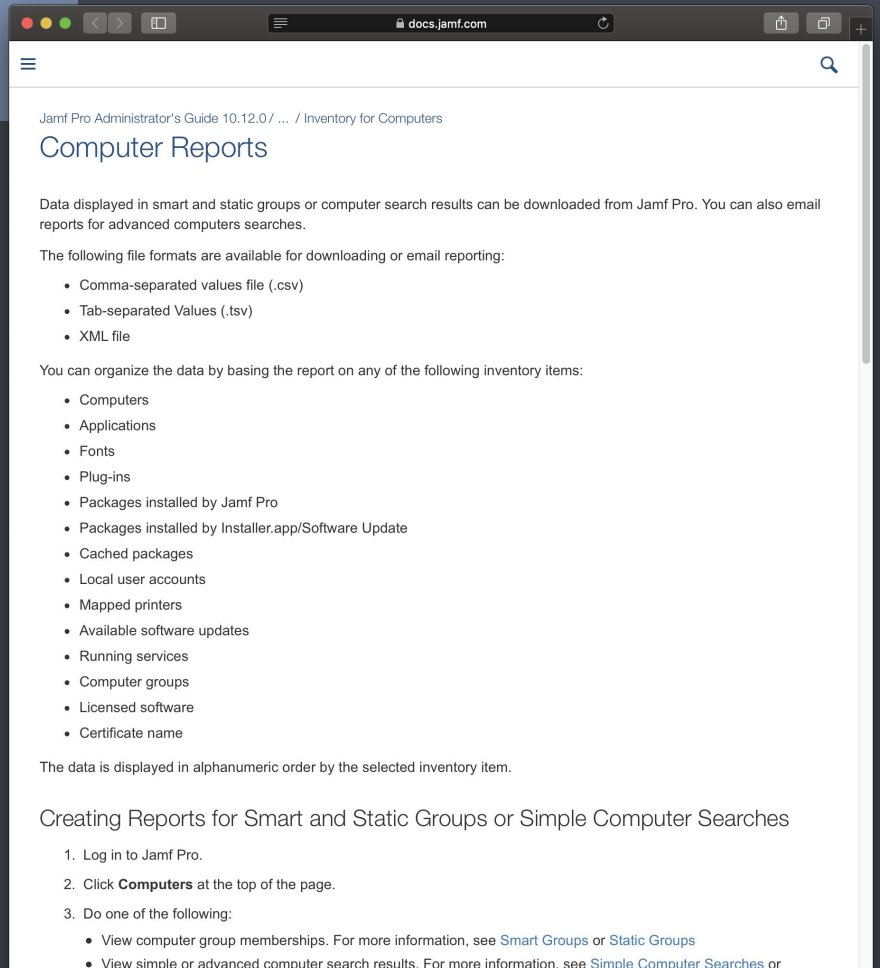
# Jamf Pro Inventory

Current state

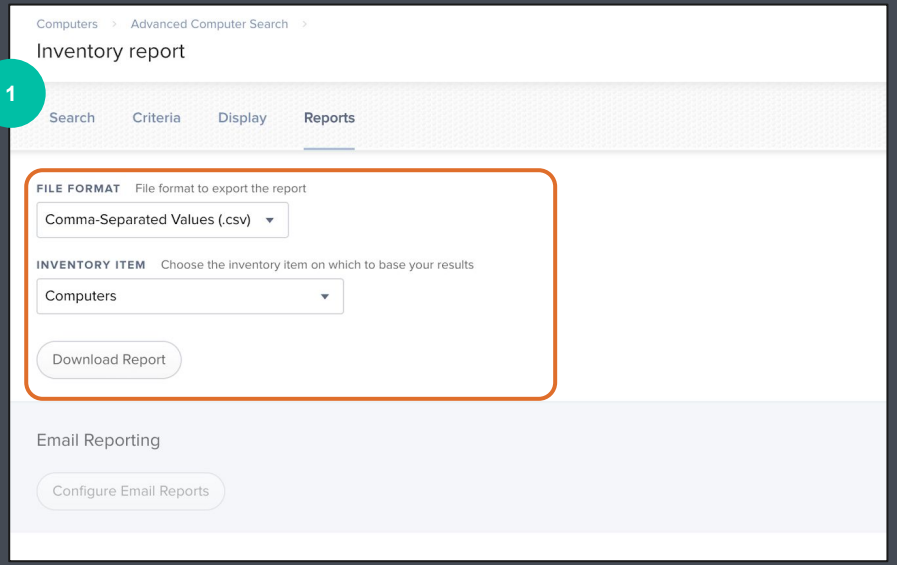
Search, Smart Groups

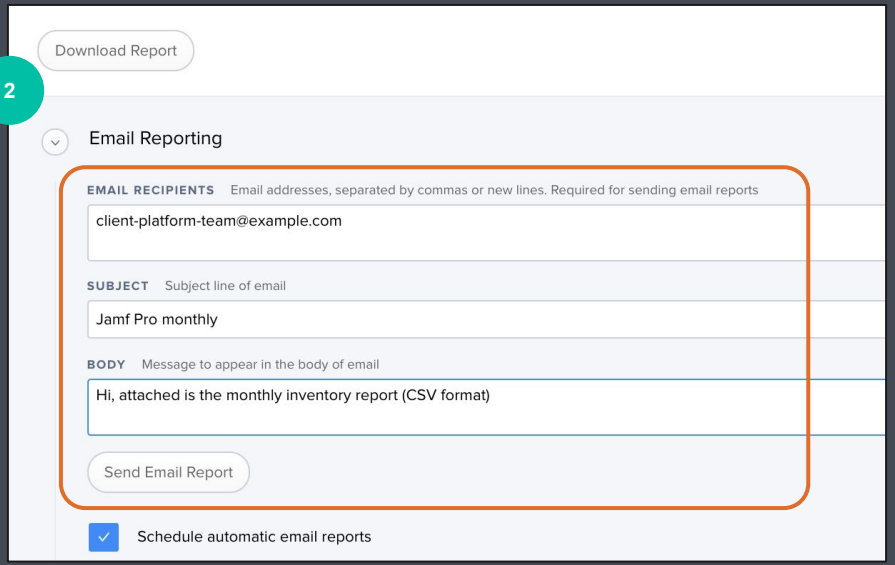
History (Jamf & MDM Events)

Reporting

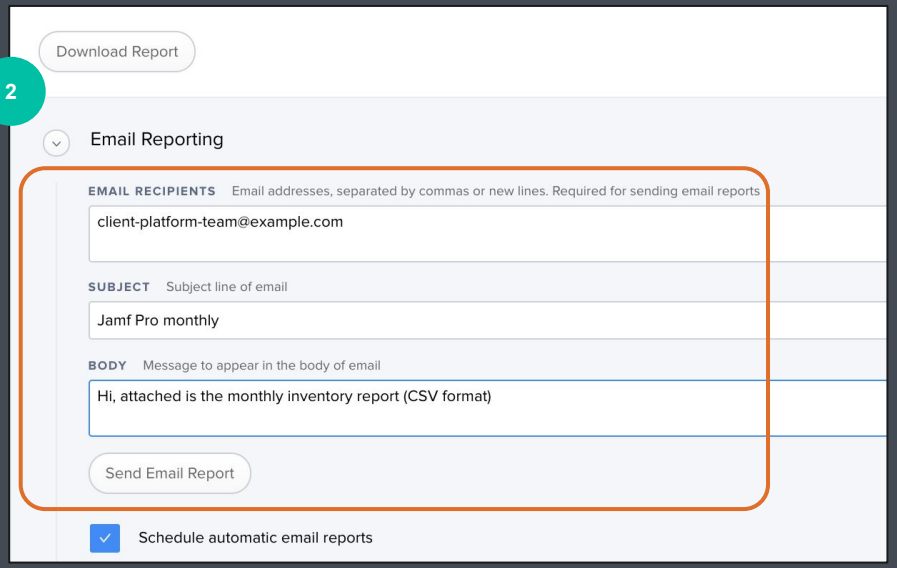


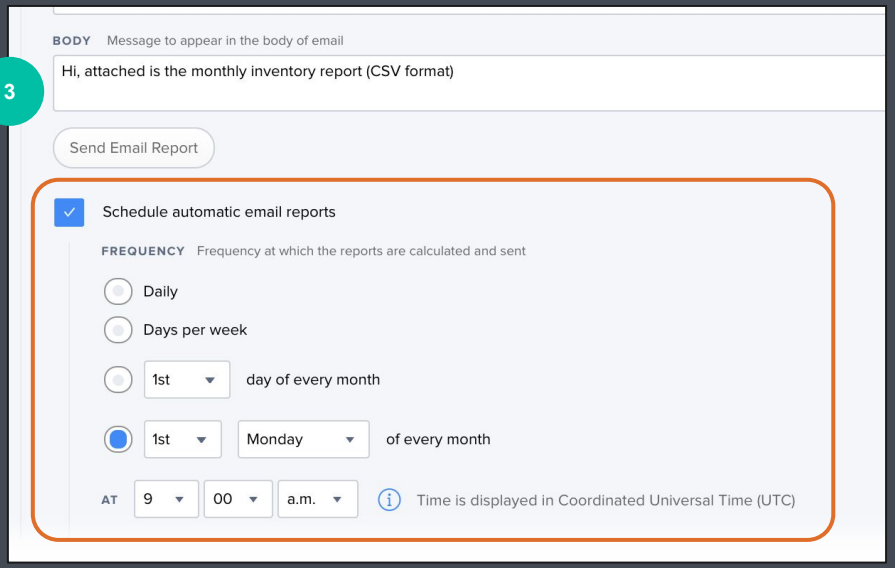
# Jamf Reports



# Jamf Reports



# Report processing

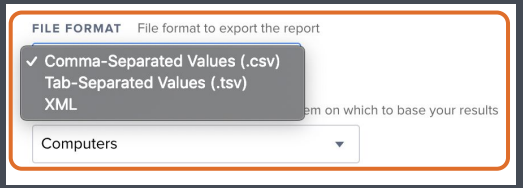
Display (Inventory overview)

Share (Stakeholder)

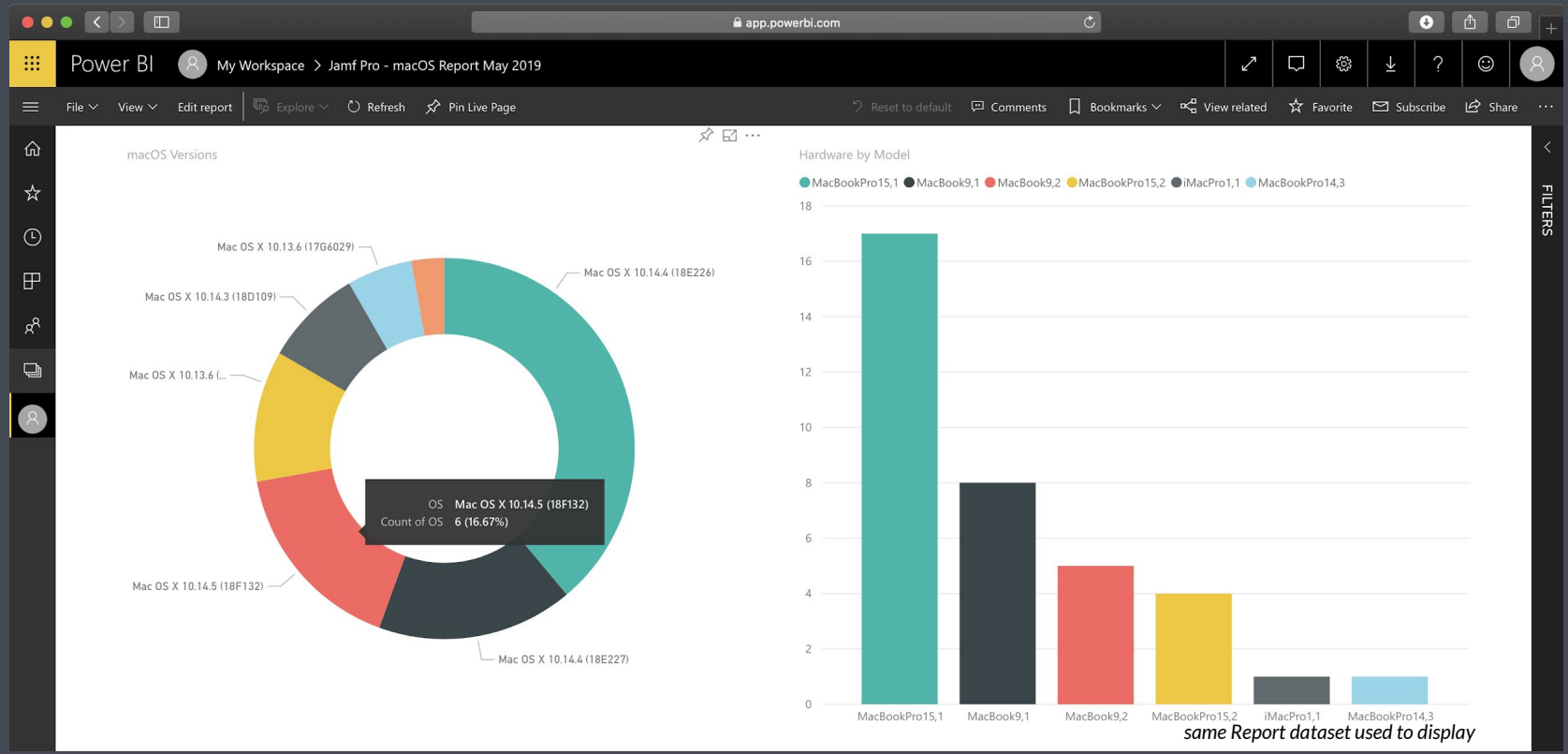
Visualize

Extended analyzation

(Cloud services)

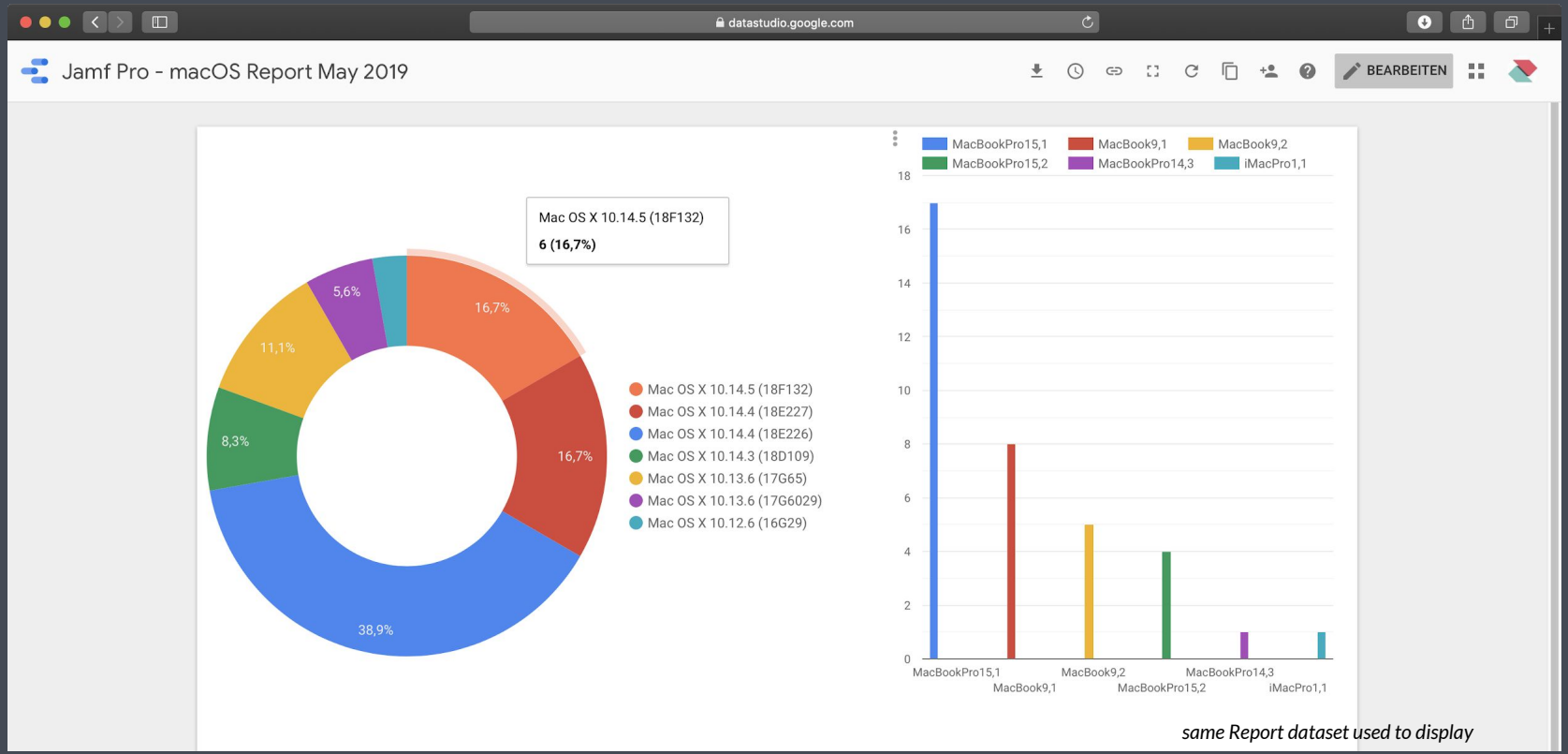



# Microsoft Azure / Power BI



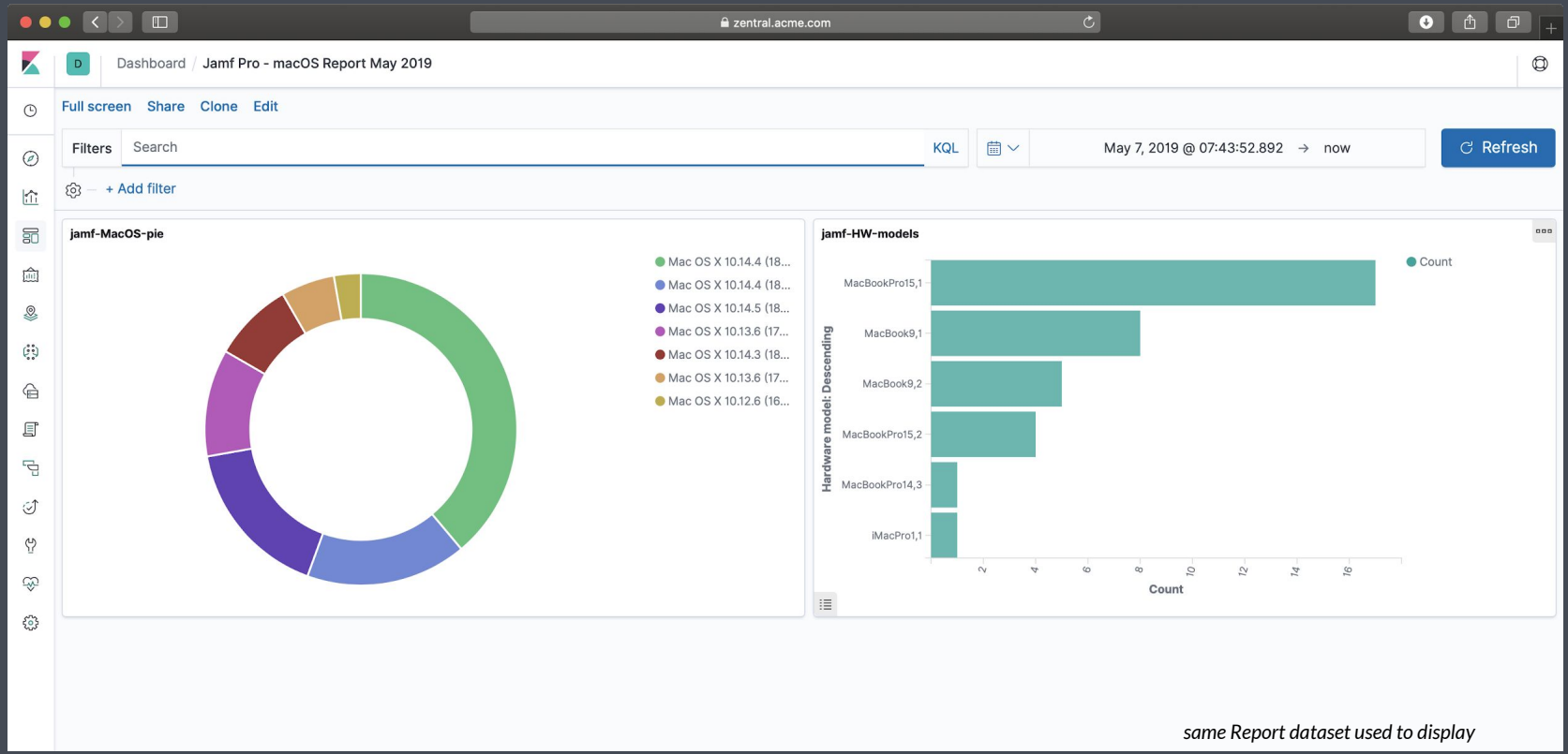

*same Report dataset used to display*

# Google Data Studio




*same Report dataset used to display*

# Elastic Stack Kibana (CSV import)




*same Report dataset used to display*

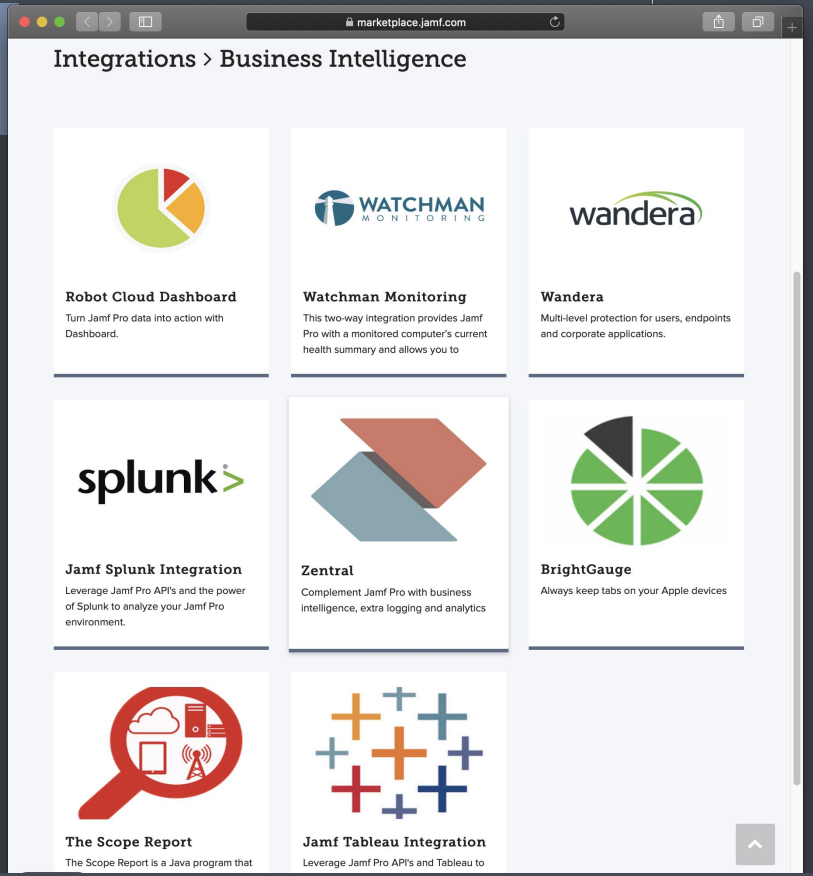
# Jamf Pro API & Webhooks

Query (REST API)

Jamf Events (Webhooks)

Filter

Analyse




https://marketplace.jamf.com

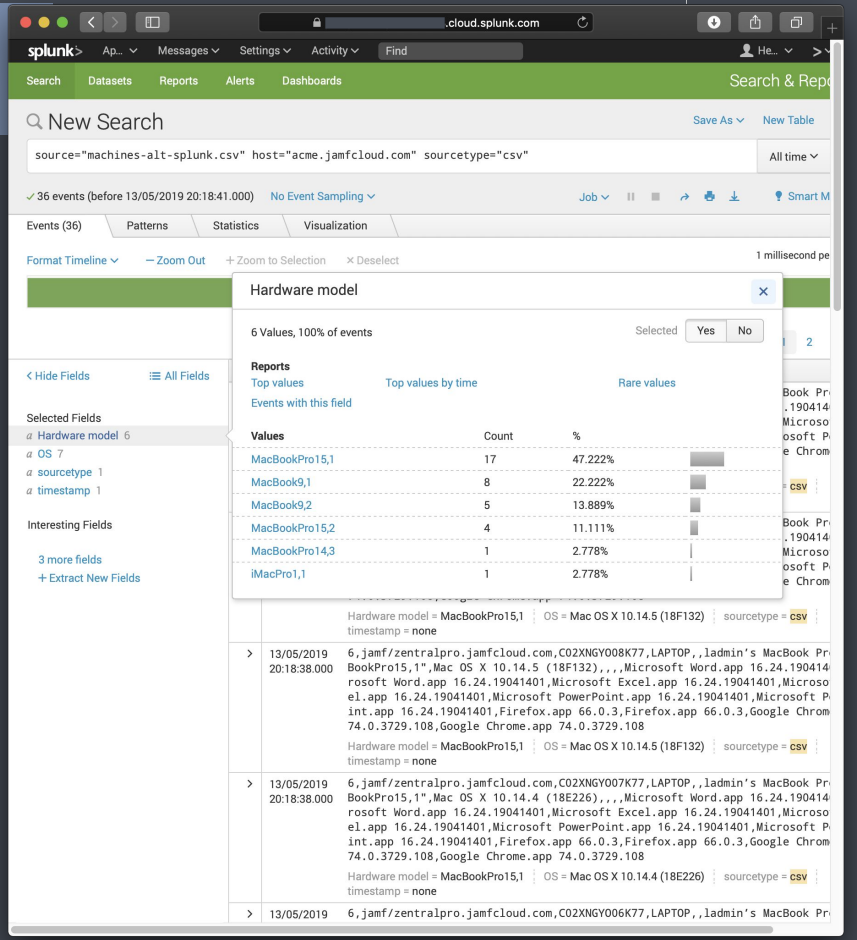
# Data Warehouse (History)

Data processing

Event-store

Examine

Historical analysis

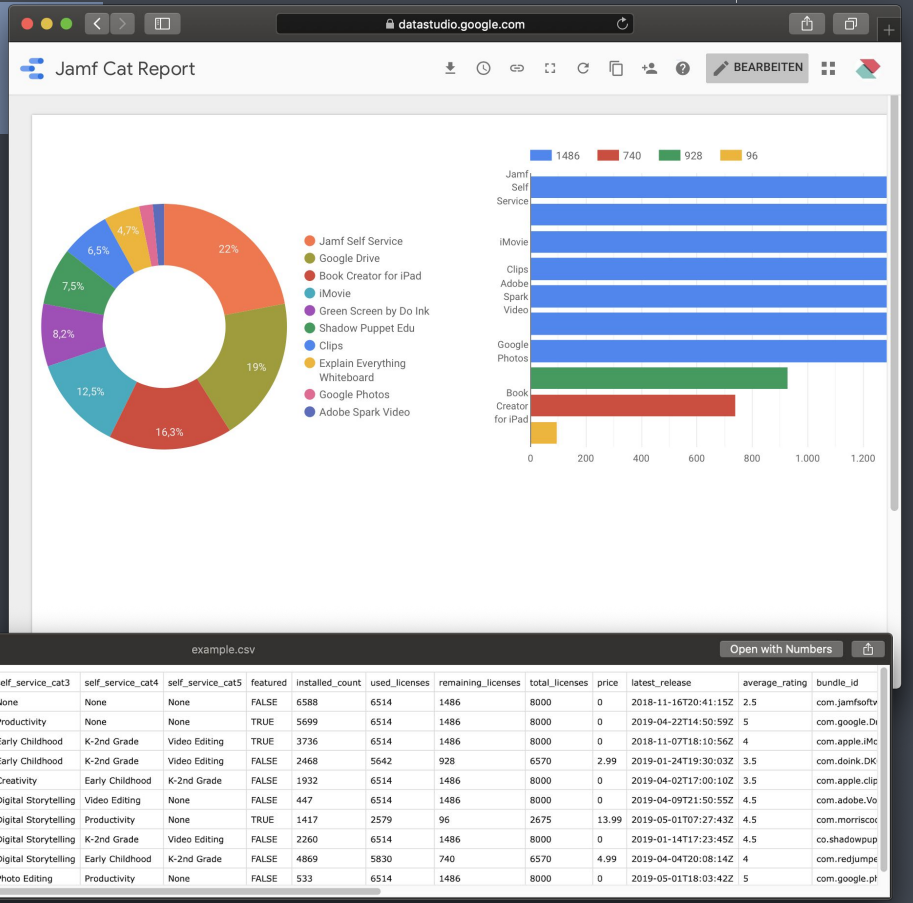


# Example #1 (Cat Report for iOS)

## Cat-Report (iOS catalog info)

## Python tool

github.com/nstrauss/jamf-cat-report




| id | name | main_category | self_service_cat1 | self_service_cat2 | self_service_cat3 | self_service_cat4 | self_service_cat5 | featured | installed_count | used_licenses | remaining_licenses | total_licenses | price | latest_release | average_rating | bundle_id |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 786 | Jamf Self Service | Productivity | Productivity | Utilities | None | None | None | FALSE | 6588 | 6514 | 1486 | 8000 | 0 | 2018-11-16T20:41:15Z | 2.5 | com.jamfsoftw |
| 580 | Google Drive | Productivity | 3rd-5th Grade | 6th-8th Grade | Productivity | None | None | TRUE | 5699 | 6514 | 1486 | 8000 | 0 | 2019-04-22T14:50:59Z | 5 | com.google.D |
| 953 | iMovie | Video Editing | 3rd-5th Grade | 6th-8th Grade | Early Childhood | K-2nd Grade | Video Editing | TRUE | 3736 | 6514 | 1486 | 8000 | 0 | 2018-11-07T18:10:56Z | 4 | com.apple.iMc |
| 955 | Green Screen by Do Ink | Video Editing | 3rd-5th Grade | 6th-8th Grade | Early Childhood | K-2nd Grade | Video Editing | FALSE | 2468 | 5642 | 928 | 6570 | 2.99 | 2019-01-24T19:30:03Z | 3.5 | com.doink.DK |
| 1387 | Clips | Video Editing | 3rd-5th Grade | 6th-8th Grade | Creativity | Early Childhood | K-2nd Grade | FALSE | 1932 | 6514 | 1486 | 8000 | 0 | 2019-04-02T17:00:10Z | 3.5 | com.apple.clip |
| 523 | Adobe Spark Video | Video Editing | 3rd-5th Grade | 6th-8th Grade | Digital Storytelling | Video Editing | None | FALSE | 447 | 6514 | 1486 | 8000 | 0 | 2019-04-09T21:50:55Z | 4.5 | com.adobe.Vo |
| 1016 | Explain Everything Whiteboard | Digital Storytelling | 3rd-5th Grade | 6th-8th Grade | Digital Storytelling | Productivity | None | TRUE | 1417 | 2579 | 96 | 2675 | 13.99 | 2019-05-01T07:27:43Z | 4.5 | com.morriscoc |
| 1007 | Shadow Puppet Edu | Digital Storytelling | 3rd-5th Grade | 6th-8th Grade | Digital Storytelling | K-2nd Grade | Video Editing | FALSE | 2260 | 6514 | 1486 | 8000 | 0 | 2019-01-14T17:23:45Z | 4.5 | co.shadowpup |
| 1169 | Book Creator for iPad | Digital Storytelling | 3rd-5th Grade | 6th-8th Grade | Digital Storytelling | Early Childhood | K-2nd Grade | FALSE | 4869 | 5830 | 740 | 6570 | 4.99 | 2019-04-04T20:08:14Z | 4 | com.redjumpe |
| 513 | Google Photos | Photo Editing | 3rd-5th Grade | 6th-8th Grade | Photo Editing | Productivity | None | FALSE | 533 | 6514 | 1486 | 8000 | 0 | 2019-05-01T18:03:42Z | 5 | com.google.ph |

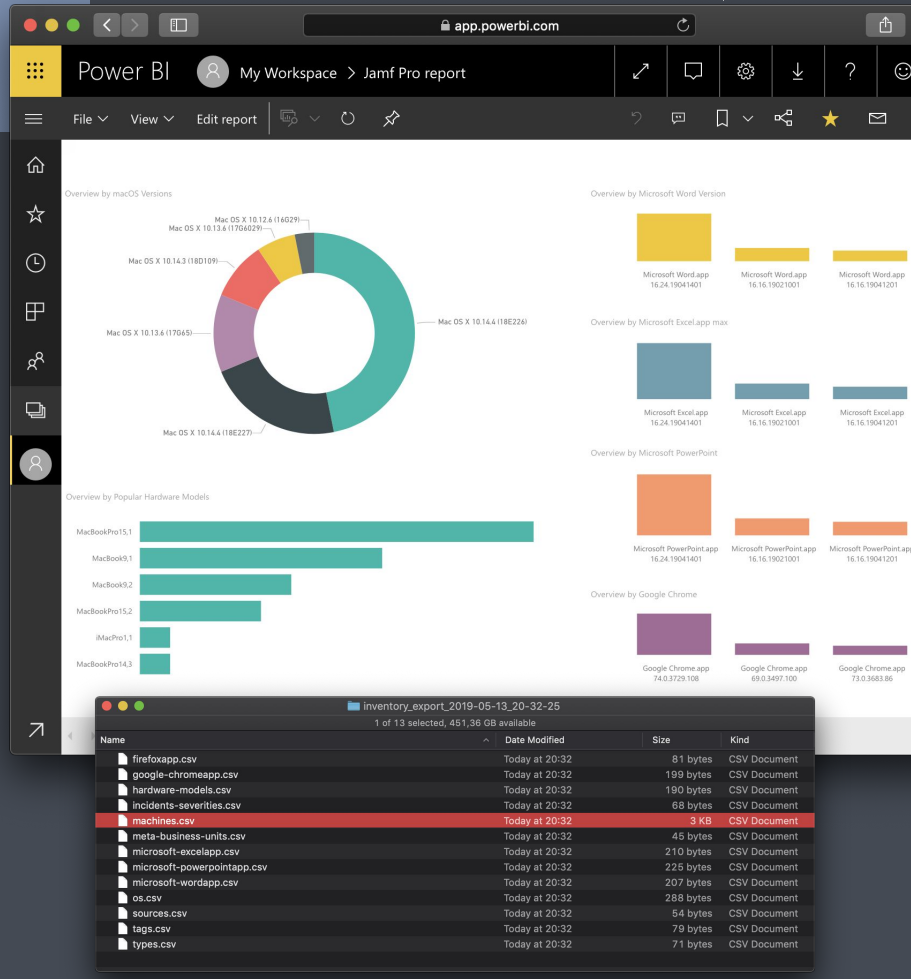
# Example #2 (Zentral drilldown)

Report Builder(advanced)

Web Service / API

CSV or XLSX

github.com/zentralopensource/zentral



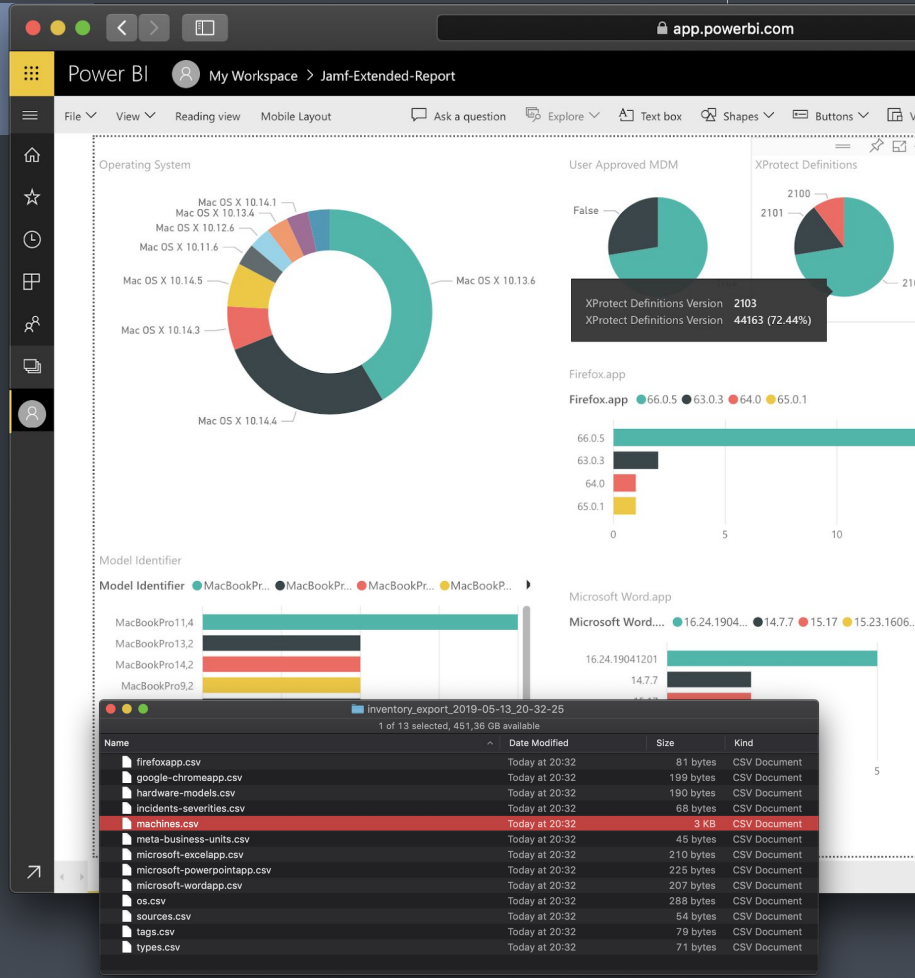
# Example #2 (Zentral drilldown)

Report Builder(advanced)

Web Service / API

CSV or XLSX

github.com/zentralopensource/zentral



# **Summary** (Inventory overview)

Use automatic reports

Visualize inventory

Jamf Marketplace

Cloud services for sharing

# 2. Endpoint security

# **Apple** (macOS Security)

FileVault, Gatekeeper, Xprotect, MRT

T2 Chip (SEP), System Integrity Protection (SIP)

MDM Kext Approval (UAKEL) / Whitelisting (MDM)

New in Mojave (10.14):

Privacy Preferences Policy Control (PPPC)

& Transparency Consent and Control (TCC)

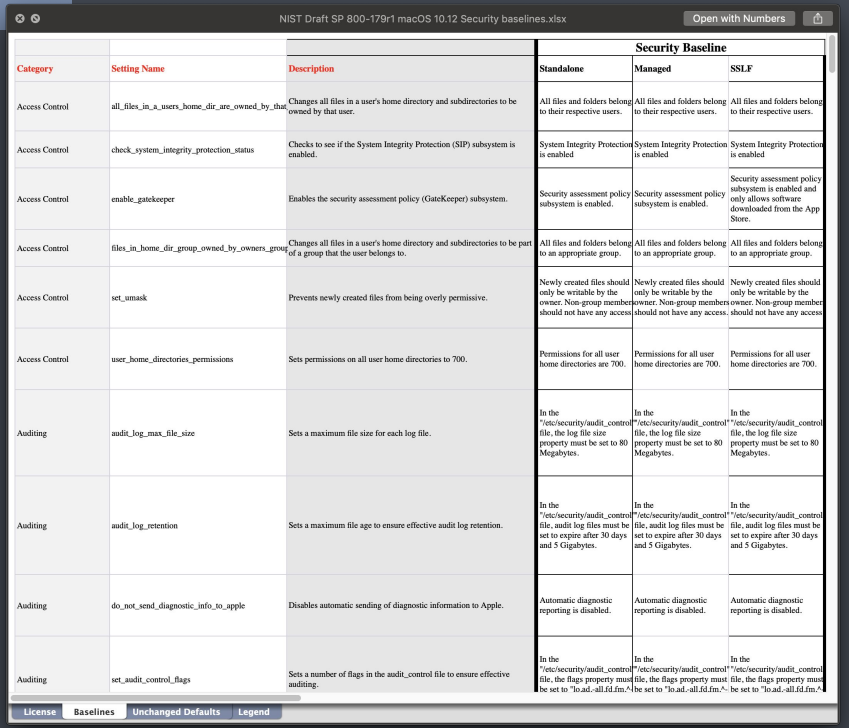
# macOS hardening (guides)

CIS (Apple OS Benchmark)

NIST (SP 800-179)

Community resources

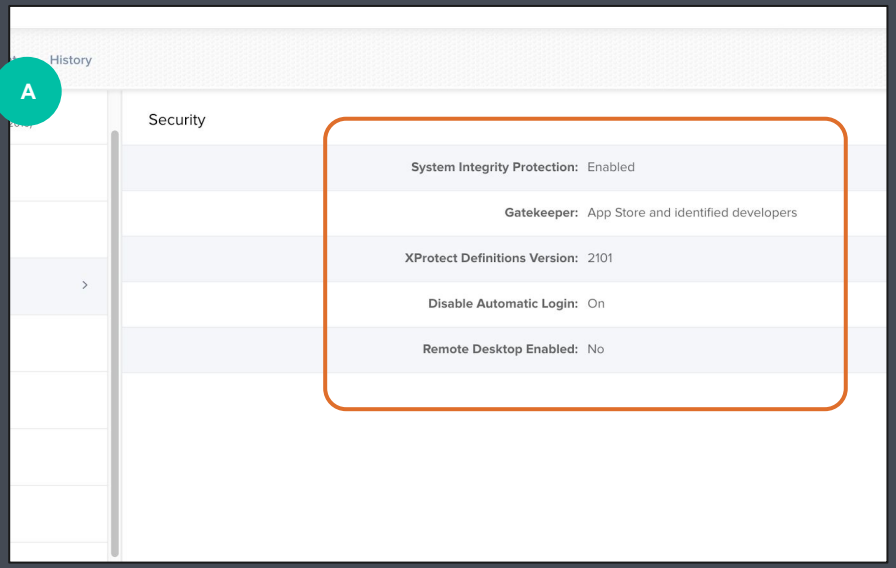
(github.com/drduh)



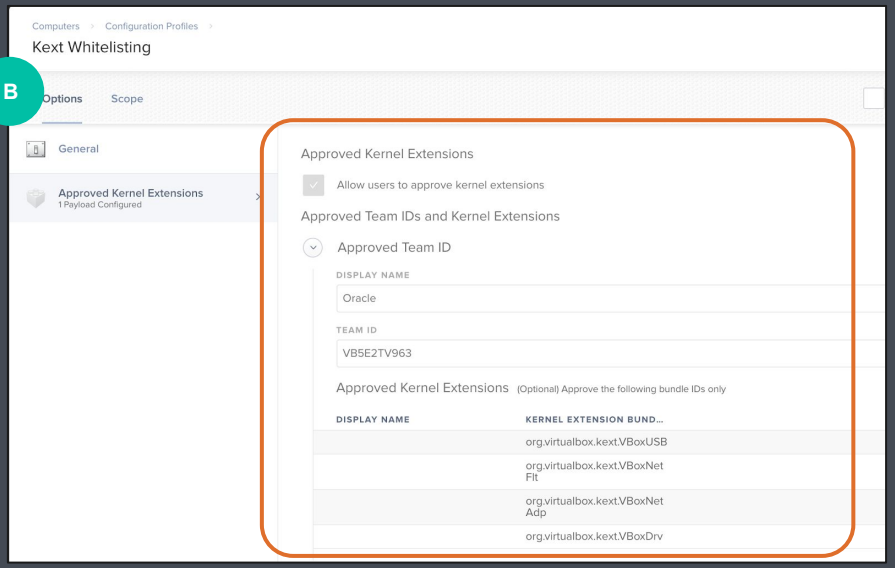

| | | | Security Baseline | | |
|---|---|---|---|---|---|
| Category | Setting Name | Description | Standalone | Managed | SSLF |
| Access Control | all_files_in_a_users_home_dir_are_owned_by_that | Changes all files in a user's home directory and subdirectories to be owned by that user. | All files and folders belong to their respective users. | All files and folders belong to their respective users. | All files and folders belong to their respective users. |
| Access Control | check_system_integrity_protection_status | Checks to see if the System Integrity Protection (SIP) subsystem is enabled. | System Integrity Protection is enabled | System Integrity Protection is enabled | System Integrity Protection is enabled |
| Access Control | enable_gatekeeper | Enables the security assessment policy (GateKeeper) subsystem. | Security assessment policy subsystem is enabled. | Security assessment policy subsystem is enabled. | Security assessment policy subsystem is enabled and only allows software downloaded from the App Store. |
| Access Control | files_in_home_dir_group_owned_by_owners_group | Changes all files in a user's home directory and subdirectories to be part of a group that the user belongs to. | All files and folders belong to an appropriate group. | All files and folders belong to an appropriate group. | All files and folders belong to an appropriate group. |
| Access Control | set_umask | Prevents newly created files from being overly permissive. | Newly created files should only be writable by the owner. Non-group members should not have any access | Newly created files should only be writable by the owner. Non-group members should not have any access. | Newly created files should only be writable by the owner. Non-group members should not have any access |
| Access Control | user_home_directories_permissions | Sets permissions on all user home directories to 700. | Permissions for all user home directories are 700. | Permissions for all user home directories are 700. | Permissions for all user home directories are 700. |
| Auditing | audit_log_max_file_size | Sets a maximum file size for each log file. | In the "/etc/security/audit_control" file, the log file size property must be set to 80 Megabytes. | In the "/etc/security/audit_control" file, the log file size property must be set to 80 Megabytes. | In the "/etc/security/audit_control" file, the log file size property must be set to 80 Megabytes. |
| Auditing | audit_log_retention | Sets a maximum file age to ensure effective audit log retention. | In the "/etc/security/audit_control" file, audit log files must be set to expire after 30 days and 5 Gigabytes. | In the "/etc/security/audit_control" file, audit log files must be set to expire after 30 days and 5 Gigabytes. | In the "/etc/security/audit_control" file, audit log files must be set to expire after 30 days and 5 Gigabytes. |
| Auditing | do_not_send_diagnostic_info_to_apple | Disables automatic sending of diagnostic information to Apple. | Automatic diagnostic reporting is disabled. | Automatic diagnostic reporting is disabled. | Automatic diagnostic reporting is disabled. |
| Auditing | set_audit_control_flags | Sets a number of flags in the audit_control file to ensure effective auditing. | In the "/etc/security/audit_control" file, the flags property must be set to "lo,ad,-all,fd,fm,^ | In the "/etc/security/audit_control" file, the flags property must be set to "lo,ad,-all,fd,fm,^ | In the "/etc/security/audit_control" file, the flags property must be set to "lo,ad,-all,fd,fm,^ |

# Jamf Pro (macOS Security)

A




B



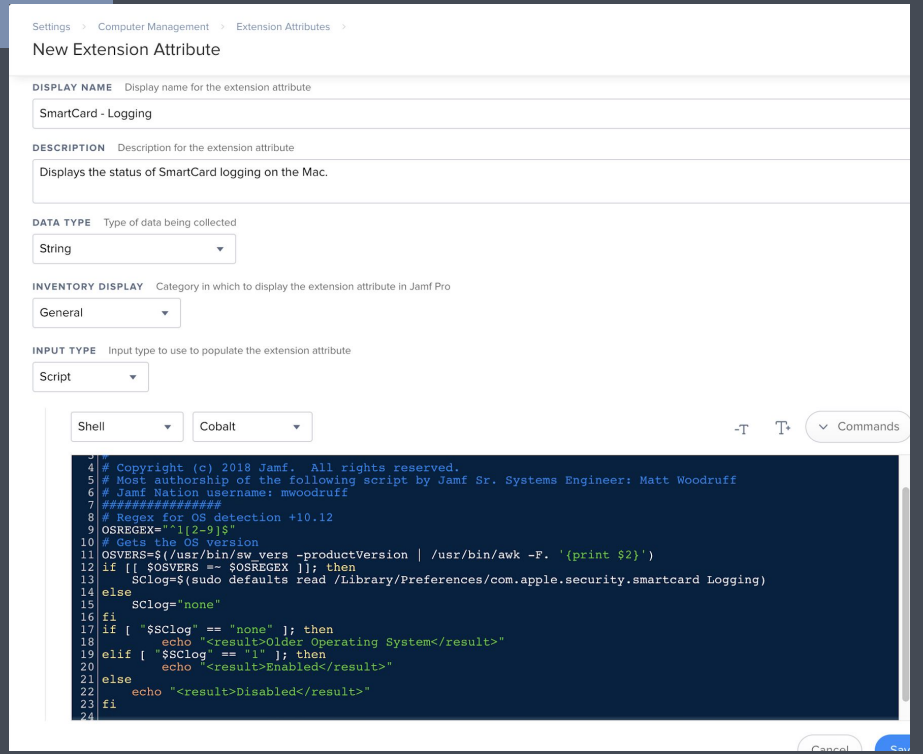
# Extension Attributes

Extended collection

Change control (Script)

Smart groups

Extra source for report



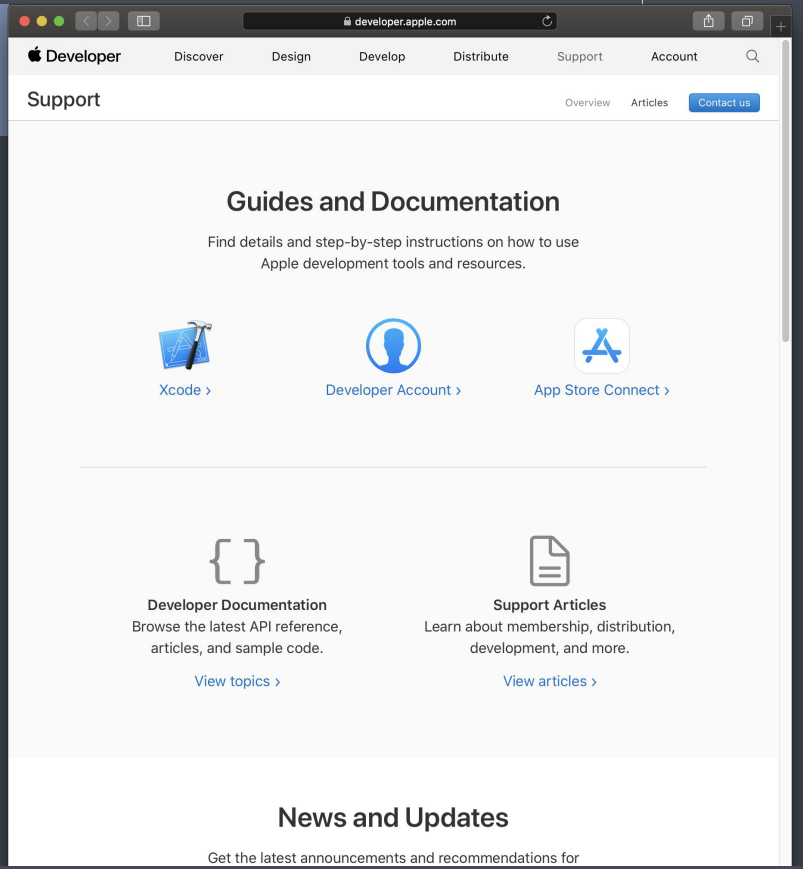
# Apple Developer / Notarization

Apple Developer Account

Code Signing

`xcrun` tool

Notarize & Stapling



# Notarization

## Trusted Developer ID-signed software

```
# notarize, upload App to Apple Notarization Service
xcrun altool --notarize-app --primary-bundle-id "com.example.application.name" --username "adc_appleid_here" --password "<adc_appleid_password_here>" --file "/path/to/Application Name Here.zip"

# next step attach or staple the notarization to the App
xcrun stapler staple "/path/to/Application Name Here.app"
```

# Client logs

## Log stream

```
# log sudo failed attempts, send to syslog server


log stream --style syslog --predicate 'process == "sudo" and eventMessage
contains "incorrect password"' | openssl s_client -host <hostname> -port 514
```

Caveats: UDP (!), doesn't scale, etc...

# Security agents

Modern AV tools (Commercial, Cloud backends)

*open source projects (agents):*

Osquery (Change detection)

Google Santa (Binary Black/Whitelisting)

Xnumon (auditd wrapper)

# Security analytics

Elastic Stack, Splunk, LogRhythm (SaaS backends)

*open source projects (control servers):*

Kolide Fleet (Osquery)

Zentral Server (Elastic Stack, Osquery, Santa, etc.)

# **Summary** (endpoint security)

Update macOS, iOS & Apps consistently

Apple Developer Account (Team account for € 99/y)

Extend Jamf Pro (search JamfNation, GitHub, Marketplace)

Evaluate security tools & analytics*

* we do consult on those topics ;-)

# 3. Identity / Authentication

# **Identity Provider** (IdP)

Cloud Directory Service

Centralized access control (User / Group / Apps)

SAML / OpenID Connect (Web & Mobile Apps, Endpoints)

Optional: use conditional criteria

(Endpoint location, endpoint state)

# MFA (IdP enforcement)

- Mobile Apps
  - Push Notification (Mobile Apps)
  - TOTP (time based one time passcode)
- Security Token
  - FIDO2, U2F (YubiKey, etc.)

# **SSO** (Jamf Pro Server)

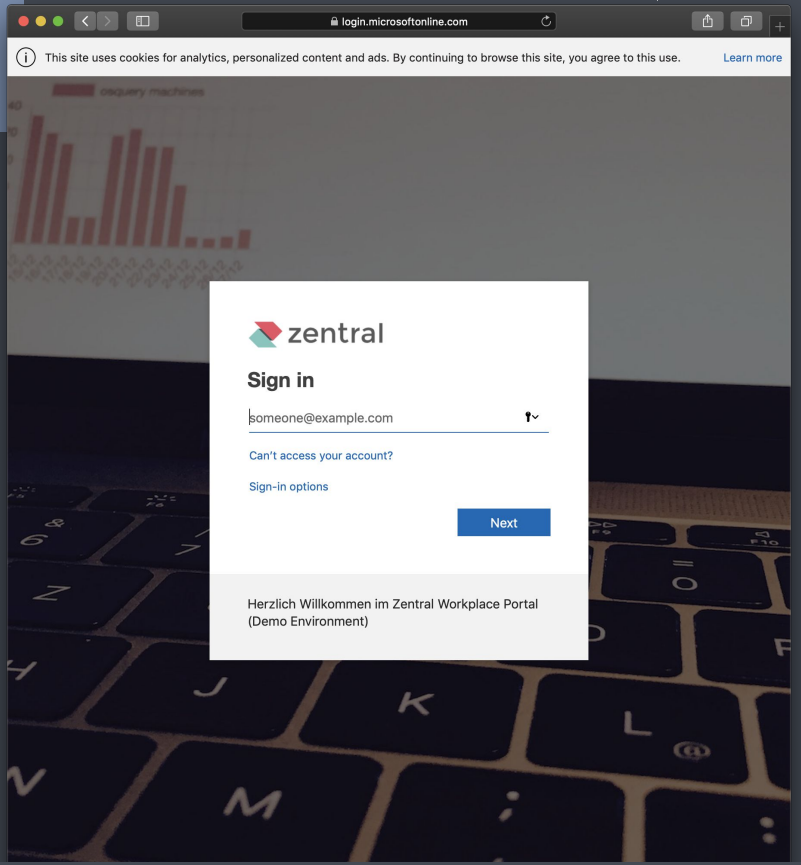
SAML Identity Provider

(AD FS, Azure, GSuite, Okta, …)

Admin group mapping

MFA options

Audit trail (login success/fail, …)



# **Jamf Connect** (Endpoint)

macOS Authentication

OpenID Identity Provider

Local user account

Password sync check

Apple Enrollment ready (DEP)

jamf | NATION Roadshow

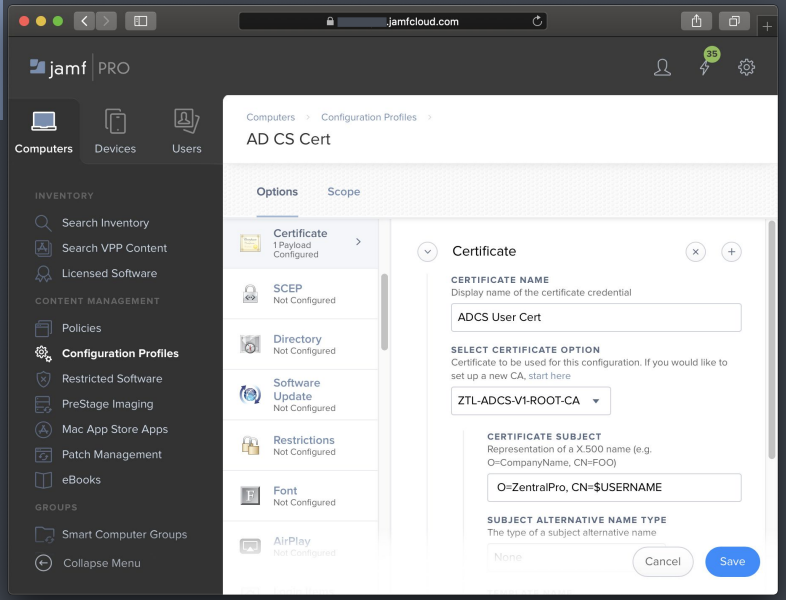
# Jamf AD CS Connector

AD certificates (without AD bind)

Jamf Pro as proxy

Complementary to JamfConnect

alternatives: SCEP / NDES setup



# Smart Cards

Identity Certificates (self-signed or PKI)

PIN Code (used as 2nd factor)

MFA locally, without IdP

Connect to user account

(direct or use Directory Service Attribute Matching)

MDM configurable

# **Summary** (Identity / Authentication)

Use central directory services (Identity Provider)

Use SSO with Jamf Pro (On premises, Cloud)

Jamf Connect for endpoints (macOS, xx)

Use MFA everywhere

# Info & links

## Links:

https://t1p.de/2twg

Zentral Pro Services GmbH & Co. KG