

# Introduction to Declarative MDM

**DDM**

**=**

**Declarative Device Management**

**MDM**

**=**

**Mobile Device Management**

**What is MDM?**

- **API for sending device management commands**
  - For iOS, usable on iOS 4.x and later.
  - For macOS, usable on 10.7.x and later.
  - For tvOS, usable on tvOS 10.x and later.
- **Not all MDM commands are backwards-compatible**





# Why use it?



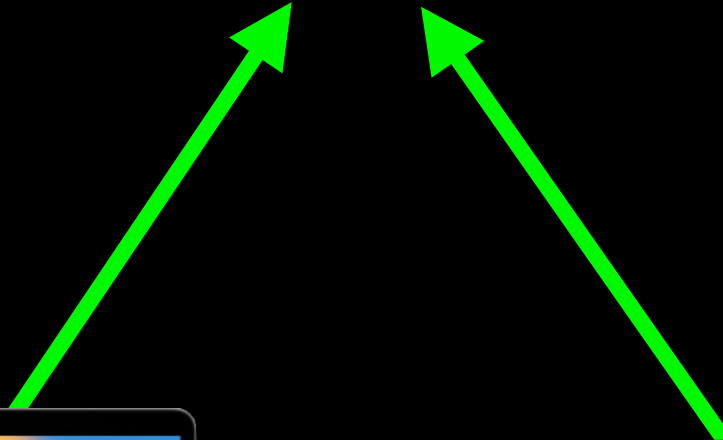
# How does MDM management work?

- **Apple's push notification services (APNS)**
- **Mobile device management (MDM) server**





<http://init-p01st.push.apple.com/bag>



[illegible]

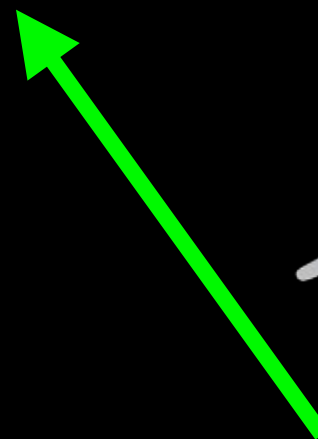
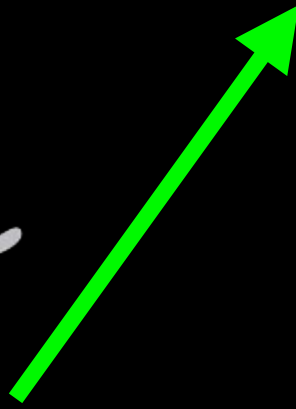




**APNS**

*hello*

*hello*





*hello* **APNS** *hello*









**APNS**





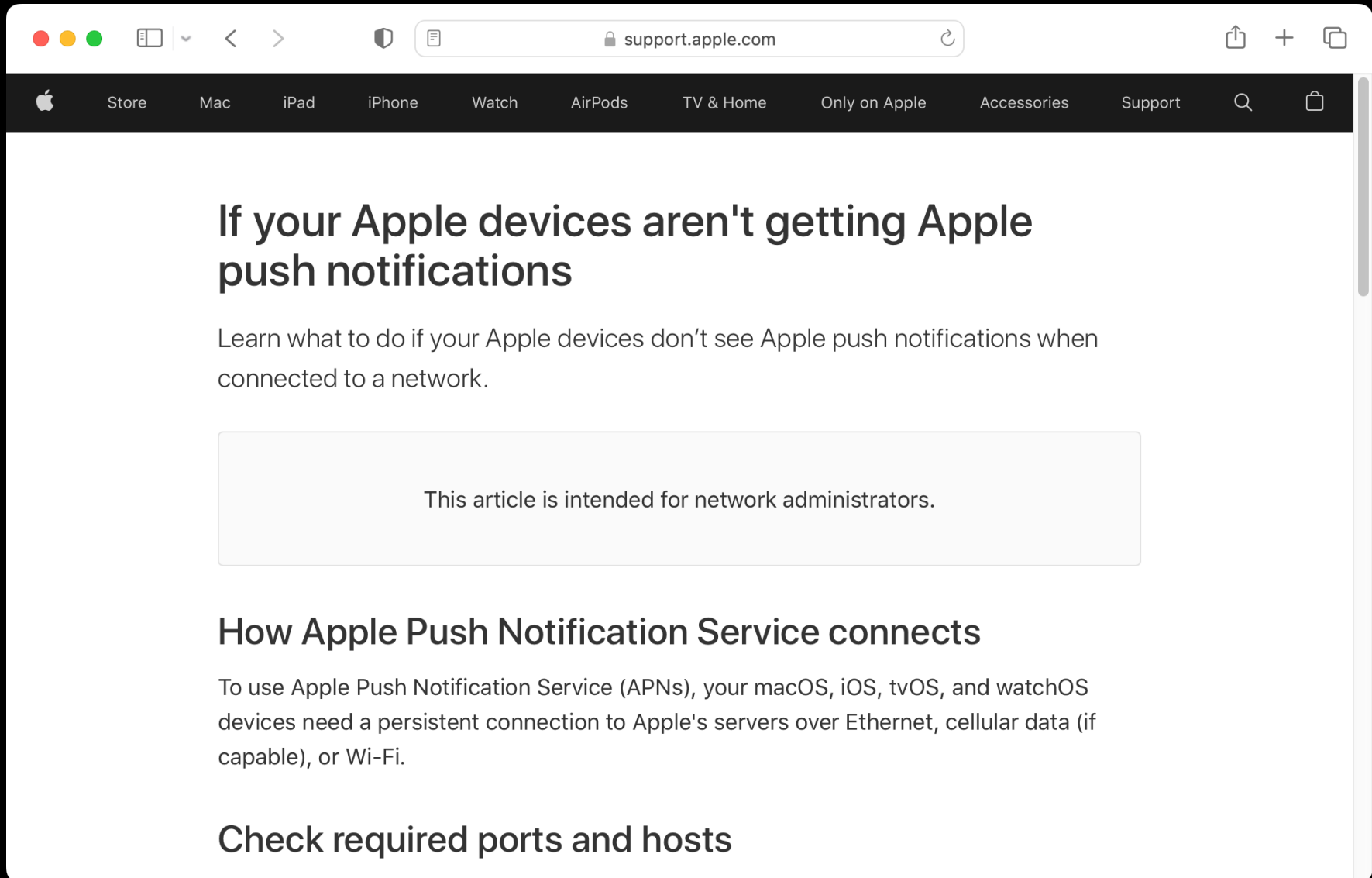
**APNS**



**APNS**







**<https://support.apple.com/HT203609>**



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## Check required ports and hosts

If you use a firewall or private [Access Point Name](#) for cellular data, your Apple devices must be able to connect to specific ports on specific hosts:

- TCP port 5223 to communicate with APNs.
- TCP port 443 or 2197 to send notifications to APNs.

TCP port 443 is used during device activation, and afterwards for fallback if devices can't reach APNs on port 5223. The connection on port 443 uses a proxy as long as the proxy allows the communication to pass through without decrypting.

The APNs servers use load balancing, so your devices don't always connect to the same public IP address for notifications. It's best to let your device access these ports on the entire 17.0.0.0/8 address block, which is assigned to Apple.

- **APNS never needs an inbound network connection on your network.**
- **Only outbound connections from your network to Apple's network (17.0.0.0 / 8) are needed for APNS.**
- **APNS never makes unsolicited connections.**
- **APNS uses TLS 1.2**
- **APNS authenticates all transactions with device tokens and payload tokens, and validates all SSL certificates.**



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If you can't allow access to the entire 17.0.0.0/8 address block, open access via the same ports to these network ranges on IPv4 or IPv6:

#### IPv4

- 17.249.0.0/16
- 17.252.0.0/16
- 17.57.144.0/22
- 17.188.128.0/18
- 17.188.20.0/23

#### IPv6

- 2620:149:a44::/48
- 2403:300:a42::/48
- 2403:300:a51::/48
- 2a01:b740:a42::/48



Push Diagnostics								
Status	Host	Port	Platform	IP Address	Reverse DNS	Category		
Pass	itunes.apple.com	443	iOS, tvOS, and macOS	23.55.204.23	a23-55-2...	App Store		
Pass	appldnld.apple.com	80	iOS only	17.253.21.202	usqas2-vi...	Software updates	...	
Pass	tbsec.apple.com	443	macOS only	17.171.47.75		Device setup	...	
Pass	ocsp.apple.com	80	iOS, tvOS, and macOS	17.253.21.205	usqas2-vi...	Certificate validation	...	
Pass	ocsp.entrust.net	80	iOS, tvOS, and macOS	23.13.165.231	a23-13-1...	Certificate validation	...	
Pass	skl.apple.com	443	macOS only	17.171.47.7	skl-mdn-...	Software updates	...	
Pass	captive.apple.com	80	iOS, tvOS, and macOS	17.253.21.206	usqas2-vi...	Device setup	...	
Pass	static.ips.apple.com	80	iOS, tvOS, and macOS	23.1.193.76	a23-1-19...	Device setup	...	
Pass	gg.apple.com	80	macOS only	17.171.47.69		Software updates	...	
Pass	vpp.itunes.apple.com	443	iOS, tvOS, and macOS	17.125.249.4		Device setup	...	
Pass	osrecovery.apple.com	443	macOS only	17.42.252.38		Software updates	...	
Pass	5-courier.sandbox.pus...	443	iOS, tvOS, and macOS	17.188.178.92		APNS	...	
Pass	updates-http.cdn-appl...	80	iOS, tvOS, and macOS	17.253.21.206	usqas2-vi...	Software updates	...	
Pass	5-courier.push.apple.c...	5223	APNS	17.57.144.55		APNS	-	
Pass	crl.entrust.net	80	iOS, tvOS, and macOS	23.62.230.72	a23-62-2...	Certificate validation	...	
Pass	5-courier.push.apple.c...	443	APNS	17.57.144.55		APNS	-	

Show Log

Cancel

<https://twocanoes.com/products/mac/push-diagnostics/>

# **A Push Odyssey: Journey to the Center of APNS:**

**<https://www.youtube.com/watch?v=Z-Lg9uBbmfk>**

# What's an MDM server?

- 1. HTTPS server**
- 2. Needs to be able to respond with both of the following:**
  - HTTP 200 OK**
  - A plist in XML format which contains a command.**

# Perpetual plist passing

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
  <dict>
    <key>Command</key>
    <dict>
      <key>Options</key>
      <dict></dict>
      <key>Queries</key>
      <array>
        <string>foo</string>
        <string>bar</string>
      </array>
      <key>RequestType</key>
      <string>DeviceInformation</string>
    </dict>
    <key>CommandUUID</key>
    <string>7564fecc-f1b5-4d2d-af17-986fdd68a252</string>
  </dict>
</plist>
```

# Perpetual plist passing

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
  <dict>
    <key>Command</key>
    <dict>
      <key>Payload</key>
      <data>Zm9vYmFyYmF6</data>
      <key>RequestType</key>
      <string>InstallProfile</string>
    </dict>
    <key>CommandUUID</key>
    <string>7e761ec5-9e20-42d1-9072-3d5a611e3ac5</string>
  </dict>
</plist>
```

# MDM Server Certificates

- APNS Vendor Certificate
- APNS Push Certificate

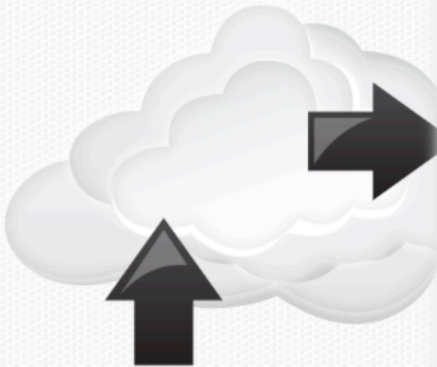


# **MDM Server Certificates**

- **APNS Vendor Certificate**
  - **Used to sign APNS push certificate's certificate requests (CSRs)**

## Push Certificates

### ● Choose Option



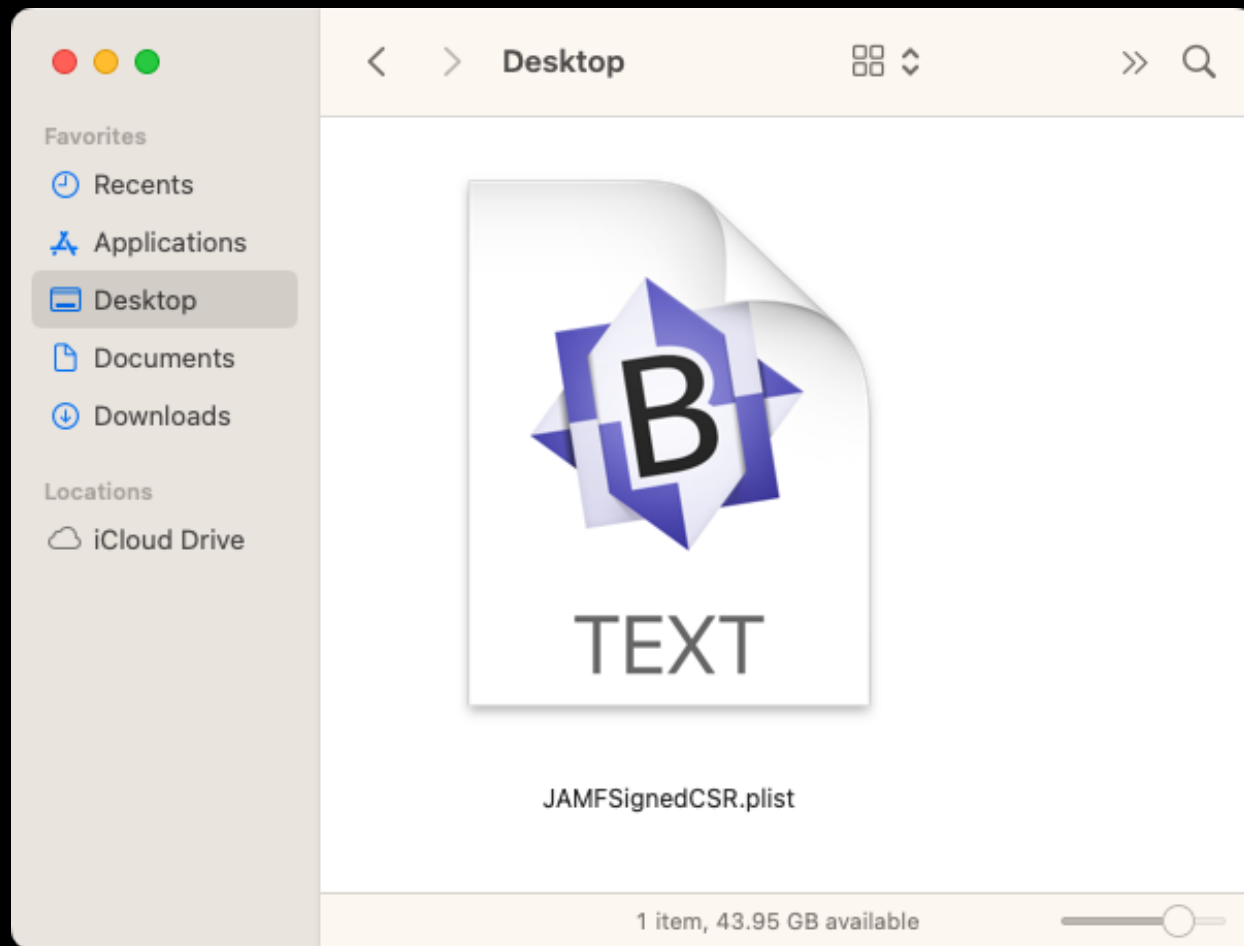
### Choose an Option

- ☒ Download signed CSR from Jamf Nation
- ☐ Download CSR and sign later using Jamf Nation
- ☐ Upload push certificate (.p12)
- ☐ Get proxy server token from Jamf Authorization Server

Cancel

Next





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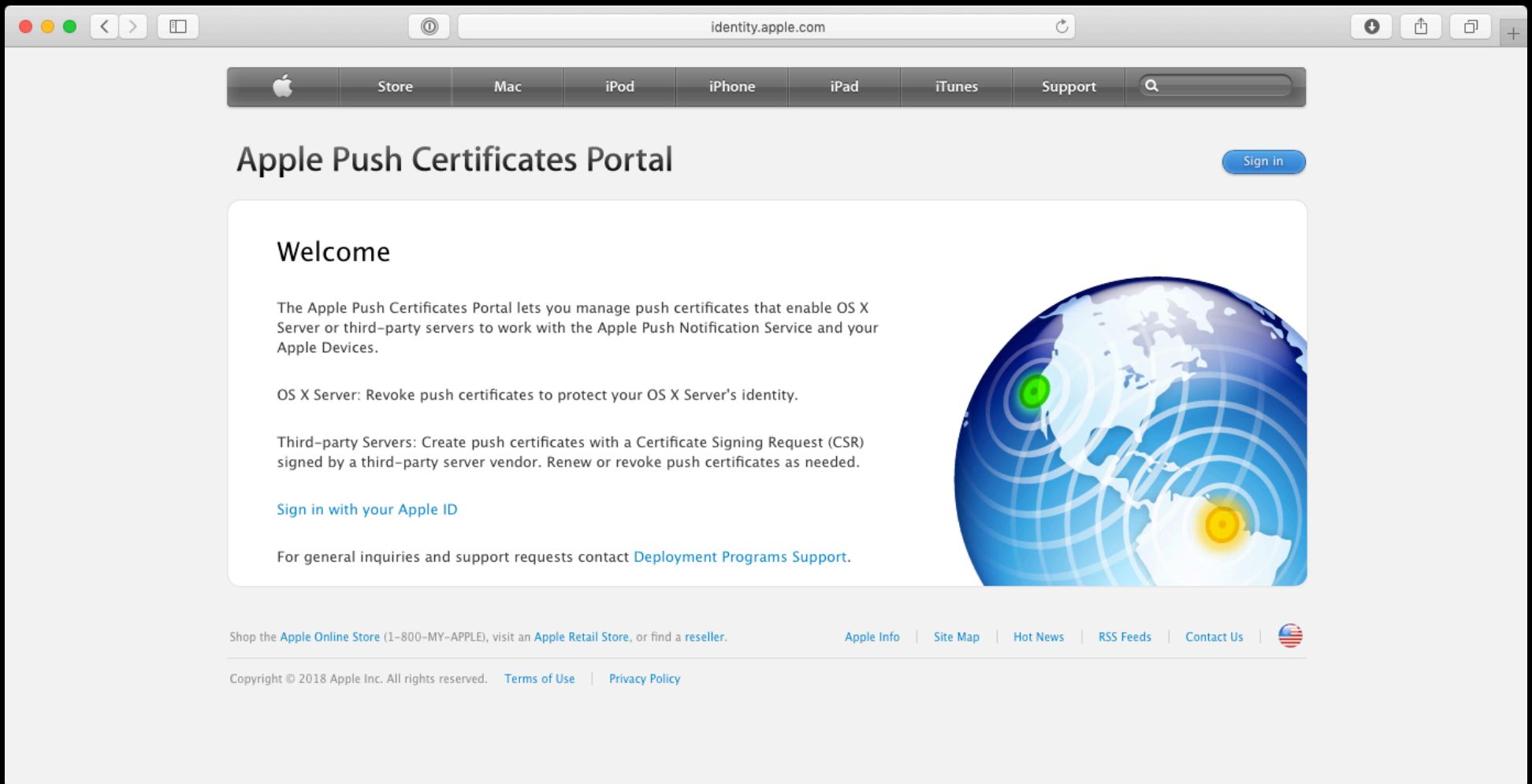
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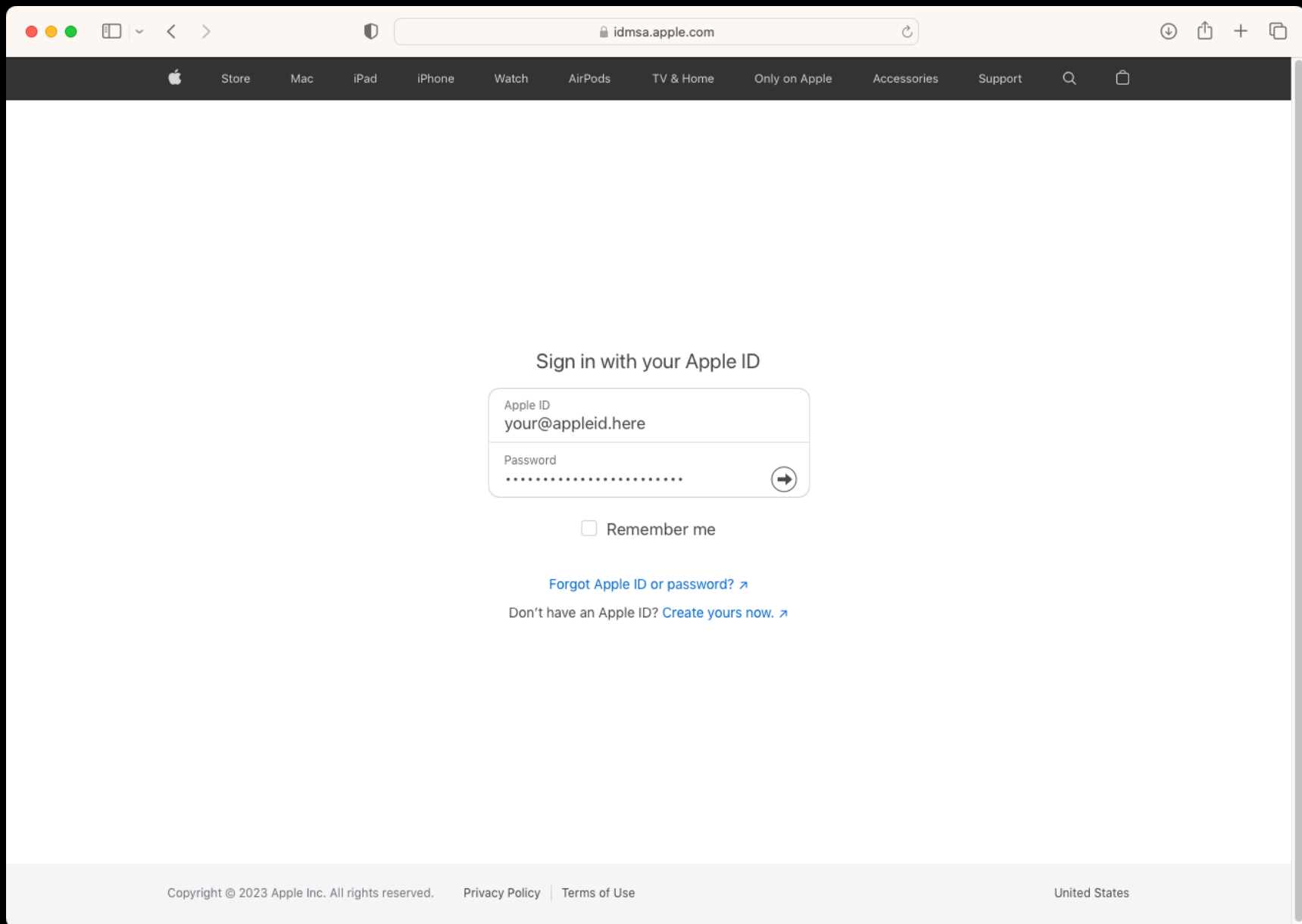
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# **MDM Server Certificates**

- **APNS Push Certificate**
  - **Used by MDM server to communicate with APNS**



<https://identity.apple.com>



<https://identity.apple.com>

# **APNS Apple ID Do's and Don'ts**

## **Do:**

- Have an Apple ID dedicated just to creating your APNS certificate.**
- Have multiple Apple IDs for your APNS certificates if you have more than one MDM server .**
- Have the Apple ID(s) documented.**

# **APNS Apple ID Do's and Don'ts**

## **Don't:**

- Use a personal Apple ID.**
- Use an Apple ID tied to your specific work email address.**
- Lose the password to your Apple ID(s).**

## Der Flounder

Seldom updated, occasionally insightful.

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[Home](#) > [Apple Push Notification Service](#), [Mac administration](#), [Mobile Device Management](#) > Migrating an APNS certificate from one Apple ID to another Apple ID

### Migrating an APNS certificate from one Apple ID to another Apple ID

April 11, 2023 [rtrouton](#)

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As part of a recent change, I needed to migrate an [APNS certificate](#) from being associated with one Apple ID to now being associated with another Apple ID. Apple has a KBase article available which provides contact information for this, which is available via the link below:

<https://support.apple.com/HT208643>

For those folks with AppleCare support plans, you can also submit a ticket to AppleCare. That's the route I took. Regardless of which support avenue you pursue, Apple will request the following information from you.

- APNS Certificate Subject DN
- APNS Certificate CN
- APNS Certificate Serial Number
- APNS Certificate Expiration Date
- The Apple ID you want to migrate from
- The Apple ID you want to migrate to

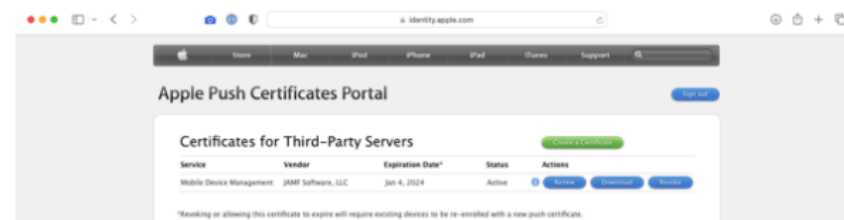
For more information, please see below the jump:

You can obtain the following information from the [Apple Push Certificates Portal](#):

- APNS Certificate Subject DN
- APNS Certificate CN
- APNS Certificate Serial Number
- APNS Certificate Expiration Date

To see how to do this, please use the following procedure:

1. Log into the [Apple Push Certificates Portal](#) using the Apple ID you want to migrate from.



[RSS feed](#)

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## Apple Push Certificates Portal

[Sign out](#)

## Certificates for Third-Party Servers

[Create a Certificate](#)

Service	Vendor	Expiration Date*	Status	Actions			
Mobile Device Management	Twocanoes Software, Inc	Aug 22, 2022	Expired		<button>Renew</button>	<button>Download</button>	<button>Revoke</button>
Mobile Device Management	JAMF Software, LLC	Dec 13, 2023	Active		<button>Renew</button>	<button>Download</button>	<button>Revoke</button>
Mobile Device Management	JAMF Software, LLC	Jan 4, 2024	Active		<button>Renew</button>	<button>Download</button>	<button>Revoke</button>
Mobile Device Management	JAMF Software, LLC	Jan 12, 2013	Revoked		<button>Renew</button>		
Mobile Device Management	JAMF Software, LLC	May 26, 2013	Revoked		<button>Renew</button>		
Mobile Device Management	JAMF Software, LLC	Dec 9, 2014	Revoked		<button>Renew</button>		
Mobile Device Management	JAMF Software, LLC	Sep 16, 2015	Revoked		<button>Renew</button>		
Mobile Device Management	JAMF Software, LLC	Aug 30, 2016	Revoked		<button>Renew</button>		

\*Revoking or allowing this certificate to expire will require existing devices to be re-enrolled with a new push certificate.

## About Apple Push Certificates Portal

Create and manage push certificates that enable your third-party server to work with the Apple Push Notification Service and your Apple devices.

[Learn more about Mobile Device Management](#)

To protect your server's identity, Apple Push Certificates Portal allows you to revoke push

# Apple Push Certificates Portal

Sign out

## Renew Push Certificate

Enter your Certificate Signing Request signed by your third-party server vendor to renew the following push certificate.

Service Mobile Device Management  
Vendor %20JAMF%20Software%2C%20LLC

Notes

Vendor-Signed Certificate Signing Request

Choose File JAMFSignedCSR.plist

Cancel

Upload



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# Apple Push Certificates Portal

Sign out

## Confirmation

You have successfully created a new push certificate with the following information:

Service Mobile Device Management  
Vendor JAMF Software, LLC  
Expiration Date Jun 15, 2024

Manage Certificates Download



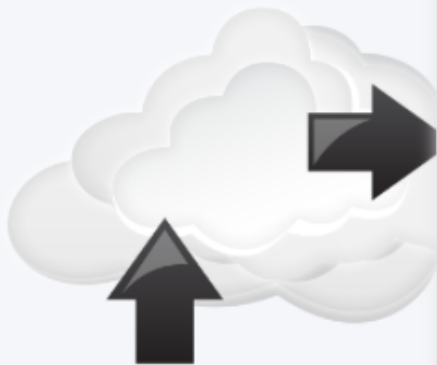
Shop the [Apple Online Store](#) (1-800-MY-APPLE), visit an [Apple Retail Store](#), or find a [reseller](#).

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## ← Push certificates

- Choose Option
- Download CSR
- Sign CSR
- Create Certificate
- Upload Certificate
- **Verify**
- Complete



### Verify Certificate



#### **WARNING**

Existing devices that are enrolled with Jamf Pro will no longer respond to push notifications.



Your new push notification certificate has a new "topic".

#### **Existing Topic:**

com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e

#### **New Topic:**

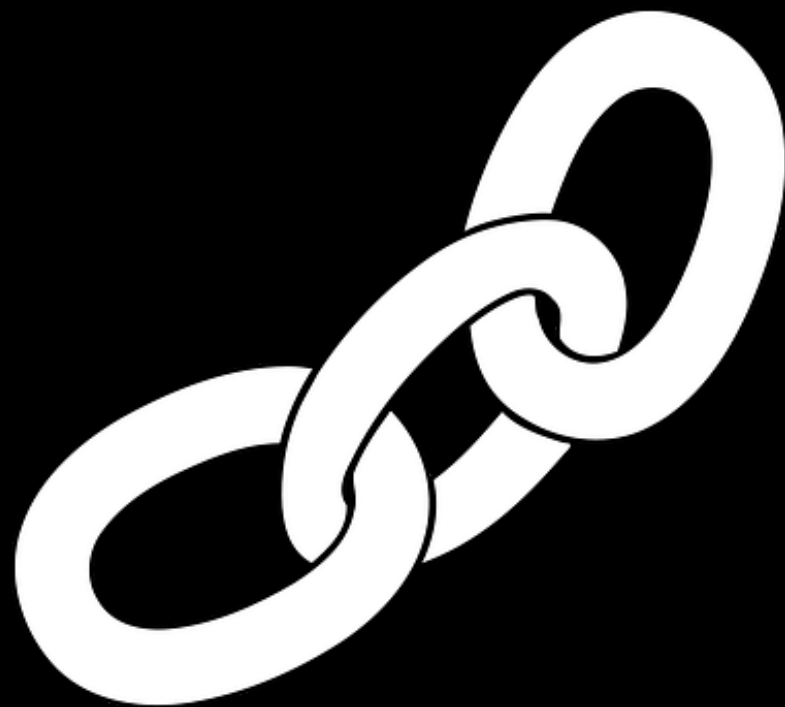
com.apple.mgmt.External.b014b722-0715-49ff-a347-f40ba327ee20

Click **Next** to overwrite your existing certificate.

Cancel

Previous

Next



# APNS push certificate



**APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e**

## Subject Name

User ID com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e  
Common Name APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e  
Country or Region US

## Issuer Name

Common Name Apple Application Integration 2 Certification Authority  
Organizational Unit Apple Certification Authority  
Organization Apple Inc.  
Country or Region US

Serial Number 6150069533494760542

Version 3

Signature Algorithm SHA-256 with RSA Encryption ( 1.2.840.113549.1.1.11 )  
Parameters None

Not Valid Before Friday, June 16, 2023 at 12:14:41 PM Eastern Daylight Time

Not Valid After Saturday, June 15, 2024 at 12:14:40 PM Eastern Daylight Time

## Public Key Info

Algorithm RSA Encryption ( 1.2.840.113549.1.1.1 )  
Parameters None  
Public Key 256 bytes : C5 A6 4C C3 D2 8D 9A C2 ...  
Exponent 65537  
Key Size 2,048 bits  
Key Usage Encrypt, Verify, Derive

Signature 256 bytes : 69 D5 39 7D FD 1A 18 6A ...

## Extension Key Usage ( 2.5.29.15 )

Critical NO  
Usage Digital Signature

## Extension Basic Constraints ( 2.5.29.19 )

Critical NO  
Certificate Authority NO

# APNS push certificate topic



**APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e**

---

## Subject Name

User ID com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e

Common Name APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e

Country or Region US

[Store](#)[Mac](#)[iPod](#)[iPhone](#)[iPad](#)[iTunes](#)[Support](#)

# Apple Push Certificates Portal

## Certificates for Third-Party

**Service****Vendor**

Mobile Device Management Twocanoes Software

Mobile Device Management JAMF Software, LLC

Mobile Device Management JAMF Software, LLC

Mobile Device Management JAMF Software, LLC

Mobile Device Management JAMF Software, LLC

Mobile Device Management JAMF Software, LLC

Mobile Device Management JAMF Software, LLC

Mobile Device Management JAMF Software, LLC

Jan 4, 2024

Active



Renew

Download

Revoke

Jan 12, 2013

Revoked



Renew

May 26, 2013

Revoked



Renew

Dec 9, 2014

Revoked



Renew

Sep 16, 2015

Revoked



Renew

Aug 30, 2016

Revoked



Renew

Serial Number : 759ea1d2c5d4fe34

Subject DN : C=US, CN=APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e,  
UID=com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e

Notes :

Cancel

Update Note





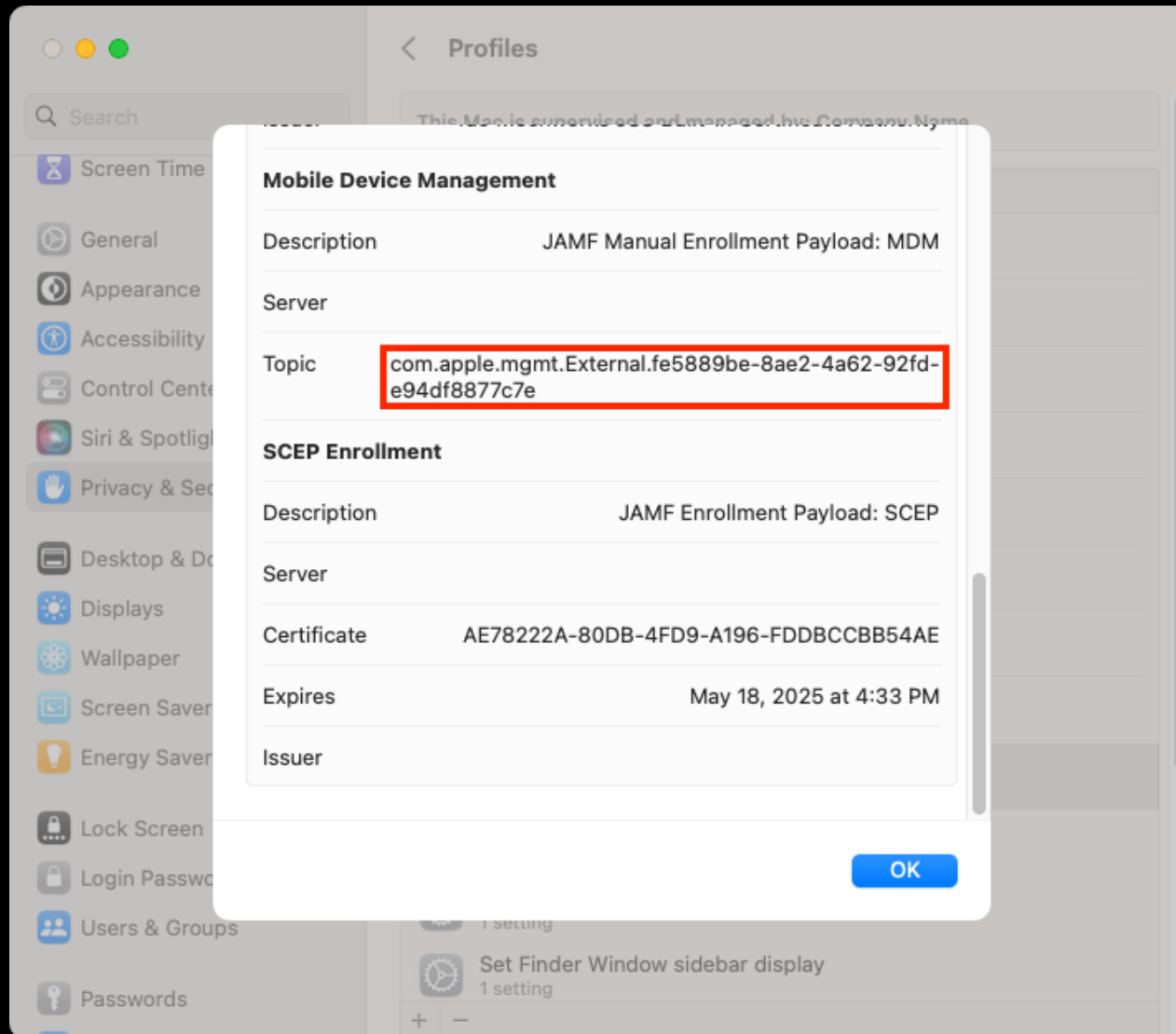
**APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e**

**Subject Name**

User ID **com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e**

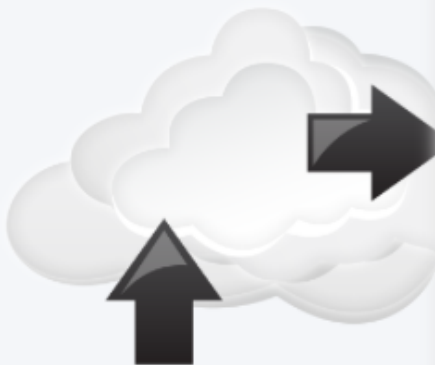
Common Name APSP:fe5889be-8ae2-4a62-92fd-e94df8877c7e

Country or Region US



← Push certificates

- Choose Option
- Download CSR
- Sign CSR
- Create Certificate
- Upload Certificate
- **Verify**
- Complete



### Verify Certificate



**WARNING**

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Your new push notification certificate has a new "topic".

**Existing Topic:**

com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e

**New Topic:**

com.apple.mgmt.External.b014b722-0715-49ff-a347-f40ba327ee20

Click **Next** to overwrite your existing certificate.

Cancel

Previous

Next



Settings : Global

← Push certificates

● Choose Option

● Download CSR

● Sign CSR

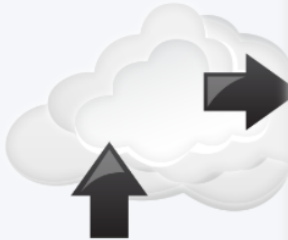
● Create Certificate

● Upload Certificate

● Complete

Complete

Your push certificate has been uploaded to Jamf Pro.



Done

Settings : Global

← Push certificates

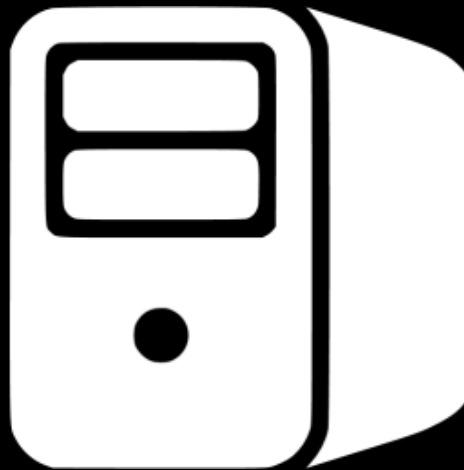
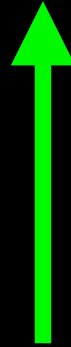
+ New

TYPE	IDENTIFIER	SERIAL	APPLE ID	EXPIRES
MDM Push Notification Certificate	com.apple.mgmt.External.fe5889be-8ae2-4a62-92fd-e94df8877c7e	6150069533494760542		06/15/2024



**APNS**

*hello*

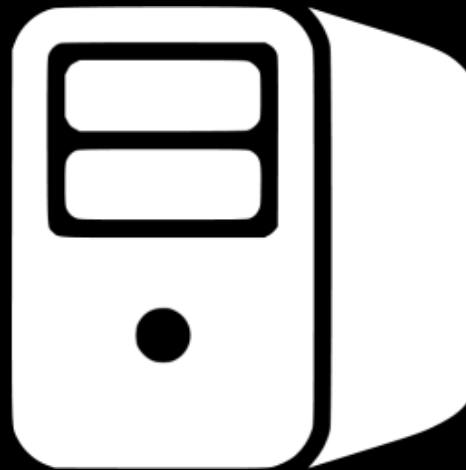


**MDM**

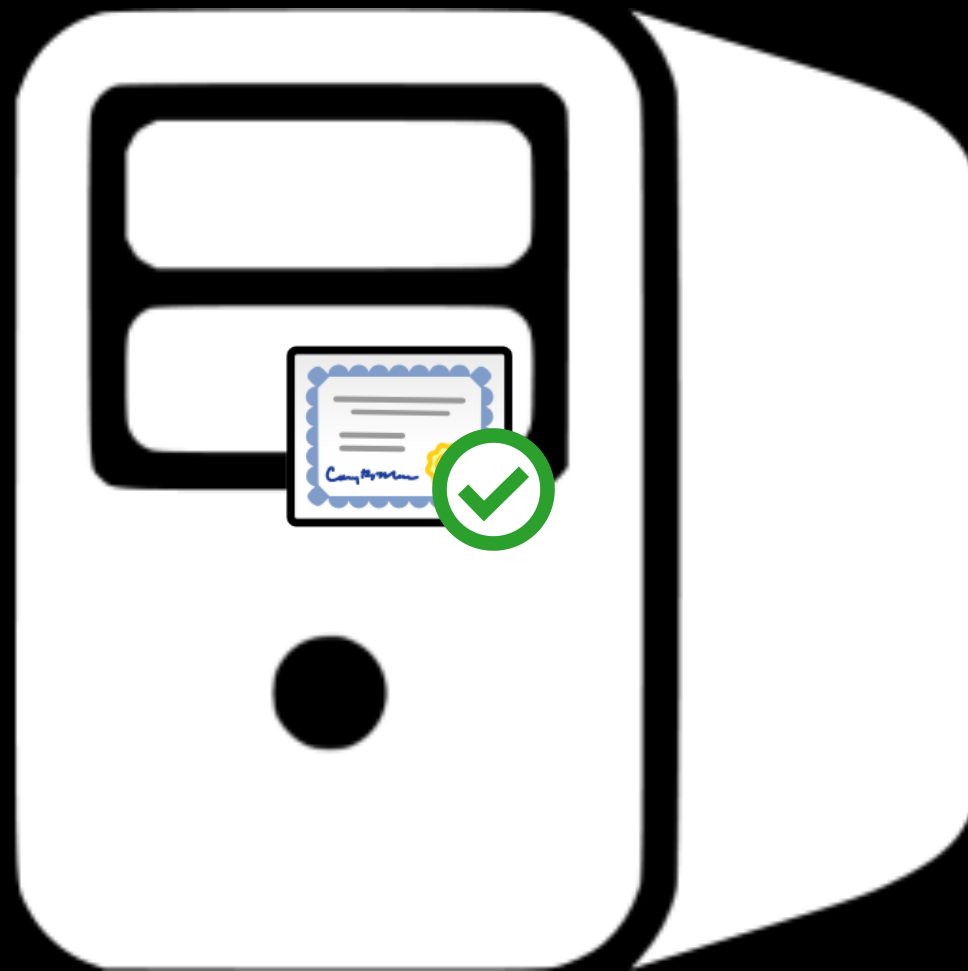


**APNS**

*hello*

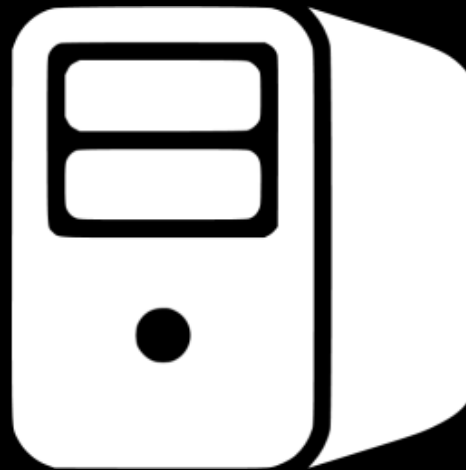


**MDM**





**APNS**



**MDM**

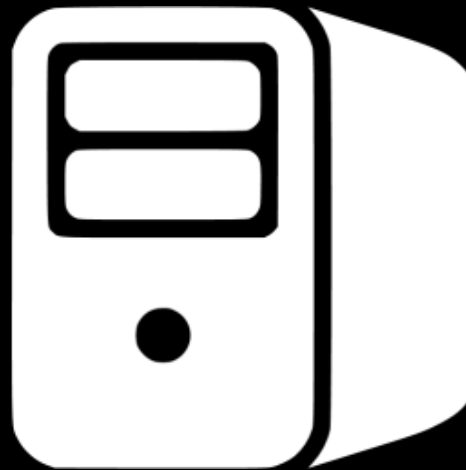
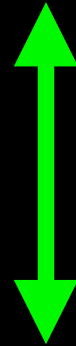




**APNS**



**APNS**



**MDM**

# APNS device token





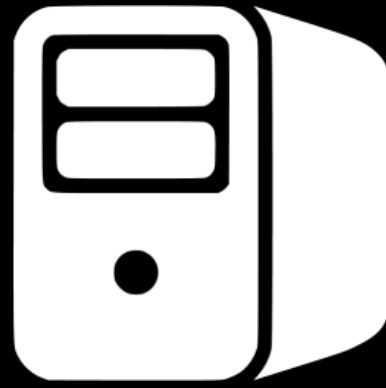
**APNS**



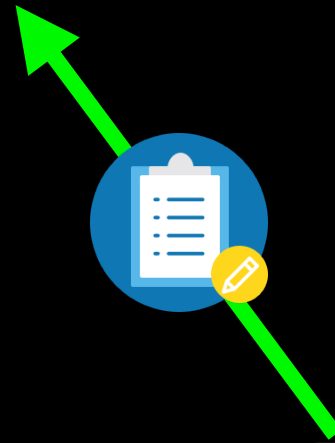


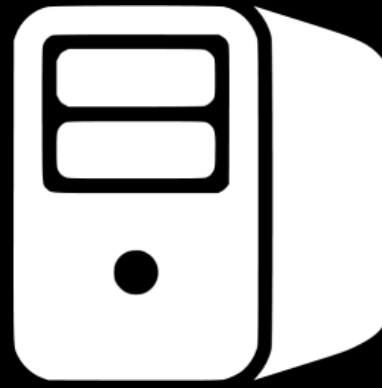






**MDM**

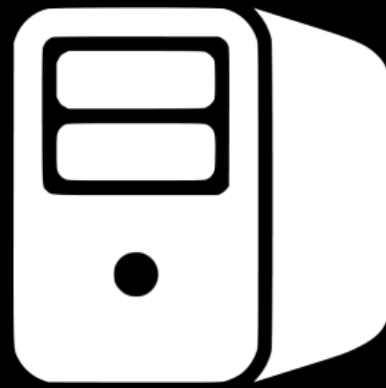




**MDM**







**MDM**





**APNS**

**Topic**

**Topic**



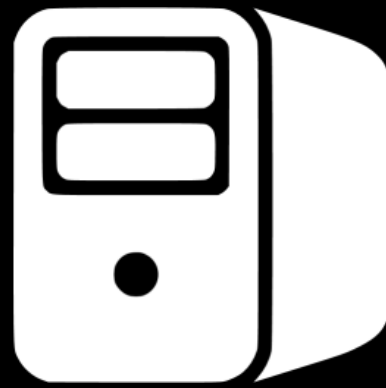


**APNS**



**APNS**



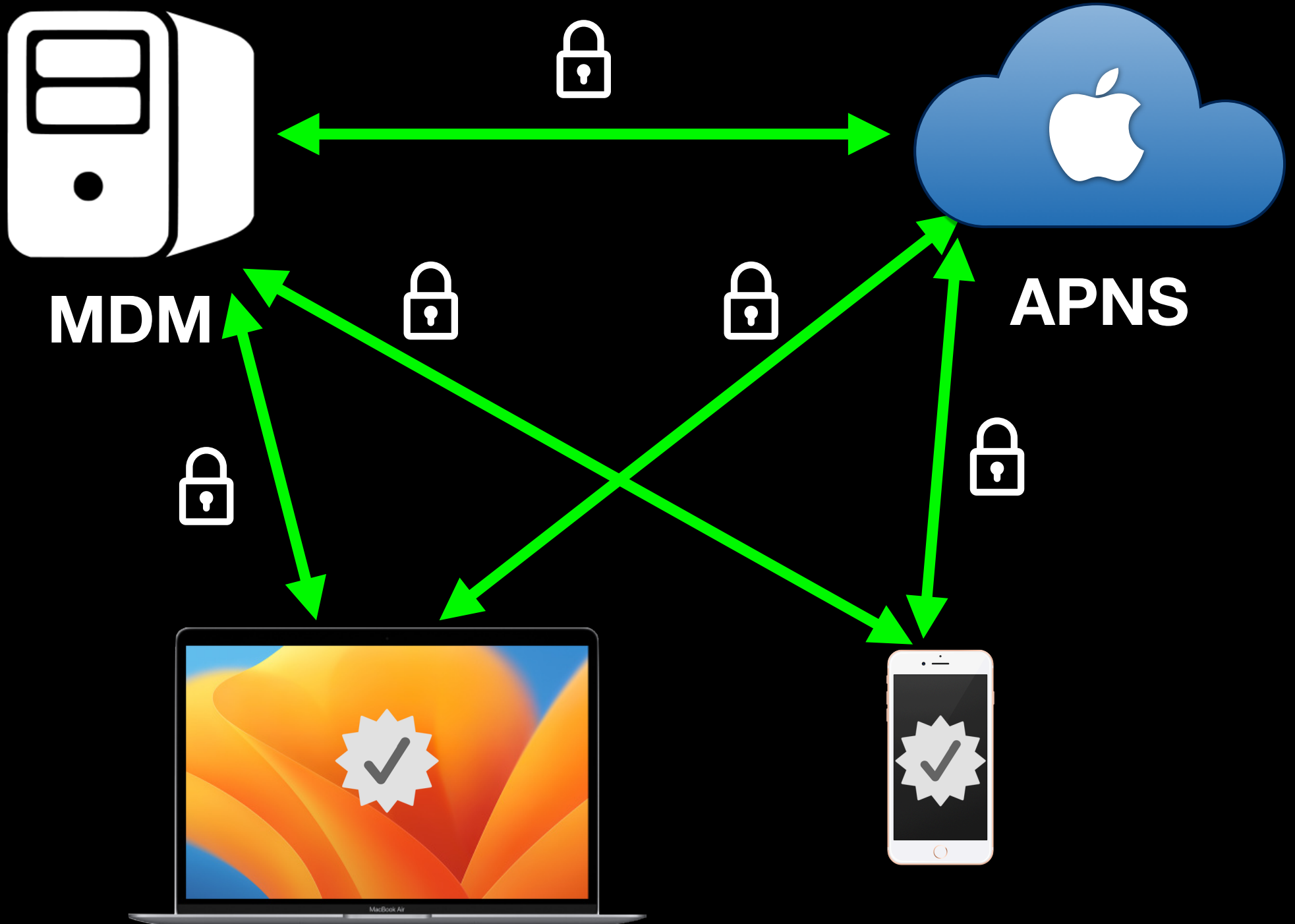


**MDM**



# PushMagic







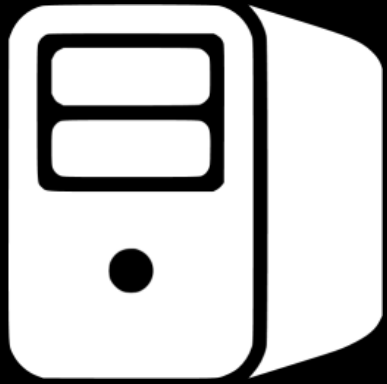
**MDM**



**APNS**



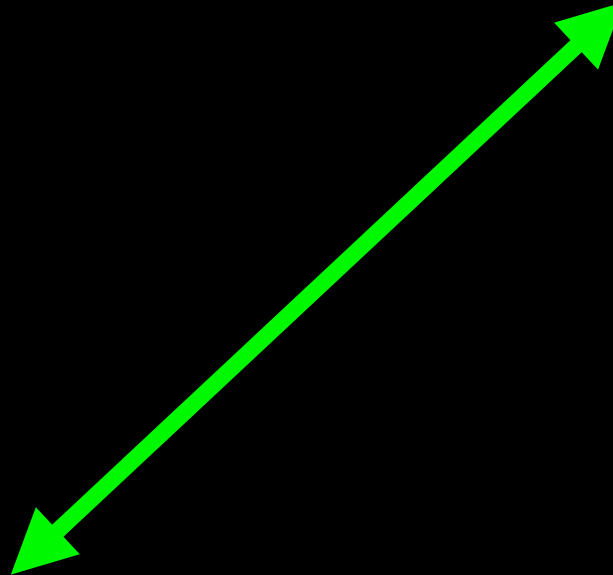


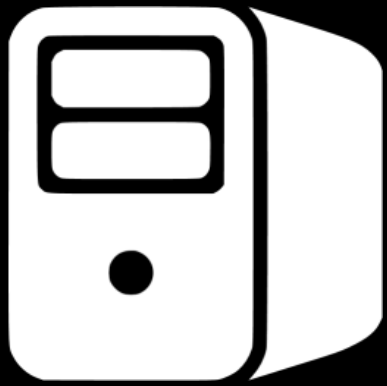


**MDM**



**APNS**

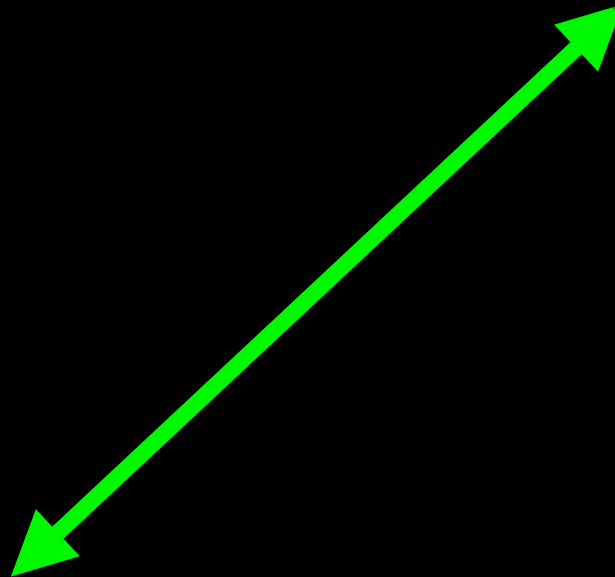




**MDM**



**APNS**





**MDM**



**APNS**





=

**"Hey you! Check in with your  
MDM server!"**



+

**Topic**

+



+



=





**What is DDM?**

**What it is:**

**New data management  
paradigm:**

- **Avoids common  
performance and scaling  
issues seen with MDM**



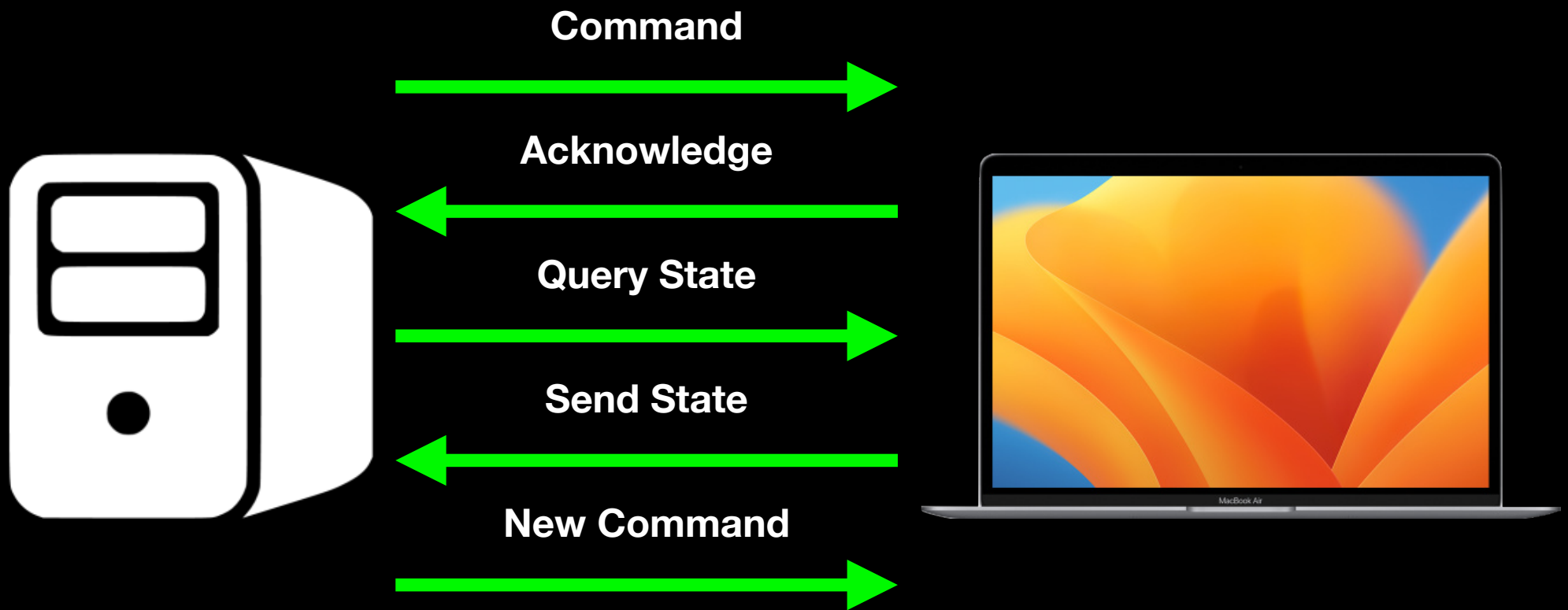
**What it is not:**

**New management protocol:**

- **DDM has been added to the existing MDM protocol to make DDM adoption easier.**

**Why use DDM?**

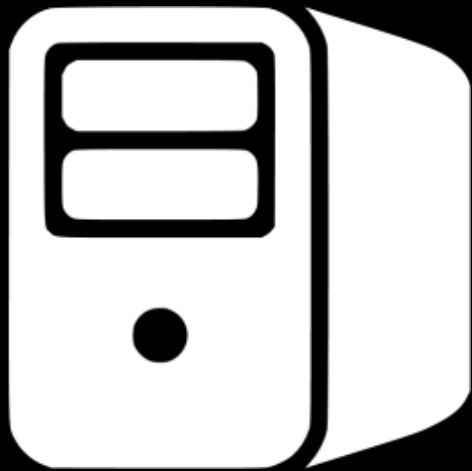
# MDM



# MDM

- **Each management workflow takes time and multiple round trips between the MDM server and the managed device**
- **Performance challenges grow larger as the number of devices being managed increases across the organization**

# DDM



**Here's the plan.  
You got this?**



**Thanks, I got this.  
Check in with you later.**



# DDM Data Model

- **Declarations**
- **Status Channel**
- **Extensibility**

# Declarations

```
{  
  "Type": "com.apple.configuration.passcode.settings",  
  "Identifier": "4AE28C9F-7082-4521-B435-2550E8B4D57A",  
  "Server Token": "EAB5142C-7E86-4C8E-B576-B7F94D0F6CEA",  
  "Payload": {stuff goes here}  
}
```

# Declarations

```
{  
  "Type": "com.apple.configuration.passcode.settings",  
  "Identifier": "4AE28C9F-7082-4521-B435-2550E8B4D57A",  
  "Server Token": "EAB5142C-7E86-4C8E-B576-B7F94D0F6CEA",  
  "Payload": {stuff goes here}  
}
```

**Type:** Identifies the type of policy



# Declarations

```
{  
  "Type": "com.apple.configuration.passcode.settings",  
  "Identifier": "4AE28C9F-7082-4521-B435-2550E8B4D57A",  
  "Server Token": "EAB5142C-7E86-4C8E-B576-B7F94D0F6CEA",  
  "Payload": {stuff goes here}  
}
```

**Identifier:** Unique identifier for  
declaration

# Declarations

```
{  
  "Type": "com.apple.configuration.passcode.settings",  
  "Identifier": "4AE28C9F-7082-4521-B435-2550E8B4D57A",  
  "Server Token": "EAB5142C-7E86-4C8E-B576-B7F94D0F6CEA",  
  "Payload": {stuff goes here}  
}
```

**ServerToken:** Unique version identifier, based on the Identifier value

# Declarations

```
{  
  "Type": "com.apple.configuration.passcode.settings",  
  "Identifier": "4AE28C9F-7082-4521-B435-2550E8B4D57A",  
  "Server Token": "EAB5142C-7E86-4C8E-B576-B7F94D0F6CEA",  
  "Payload": {stuff goes here}  
}
```

**Payload:** Settings for the policy

# Declarations

- **Type**: Identifies the type of policy
- **Identifier**: Unique identifier for declaration
- **ServerToken**: Unique version identifier, based on the Identifier value.
- **Payload**: The settings for the policy.

# Declaration Types

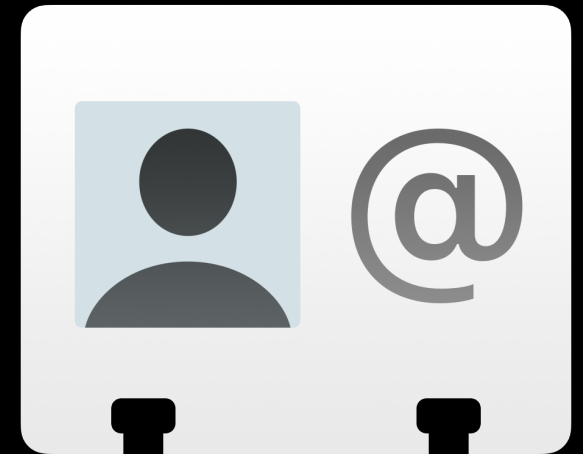
- **Configurations**
- **Assets**
- **Activations**
- **Management**

# Declaration Types

```
{
  "Type": "com.apple.configuration.passcode.settings",
  "Identifier": "4AE28C9F-7082-4521-B435-2550E8B4D57A",
  "Server Token": "EAB5142C-7E86-4C8E-B576-B7F94D0F6CEA",
  "Payload": {
    "RequirePasscode": "true",
    "RequireComplexPasscode": "true",
    "MinimumLength": 6,
    "MaximumFailedAttempts": 10,
    "MaximumGracePeriodInMinutes": 10,
    "MaximumInactivityInMinutes": 10,
    "PasscodeReuseLimit": 0
  }
}
```

**Configuration:** represents policies being applied to the device.

# Declaration Types



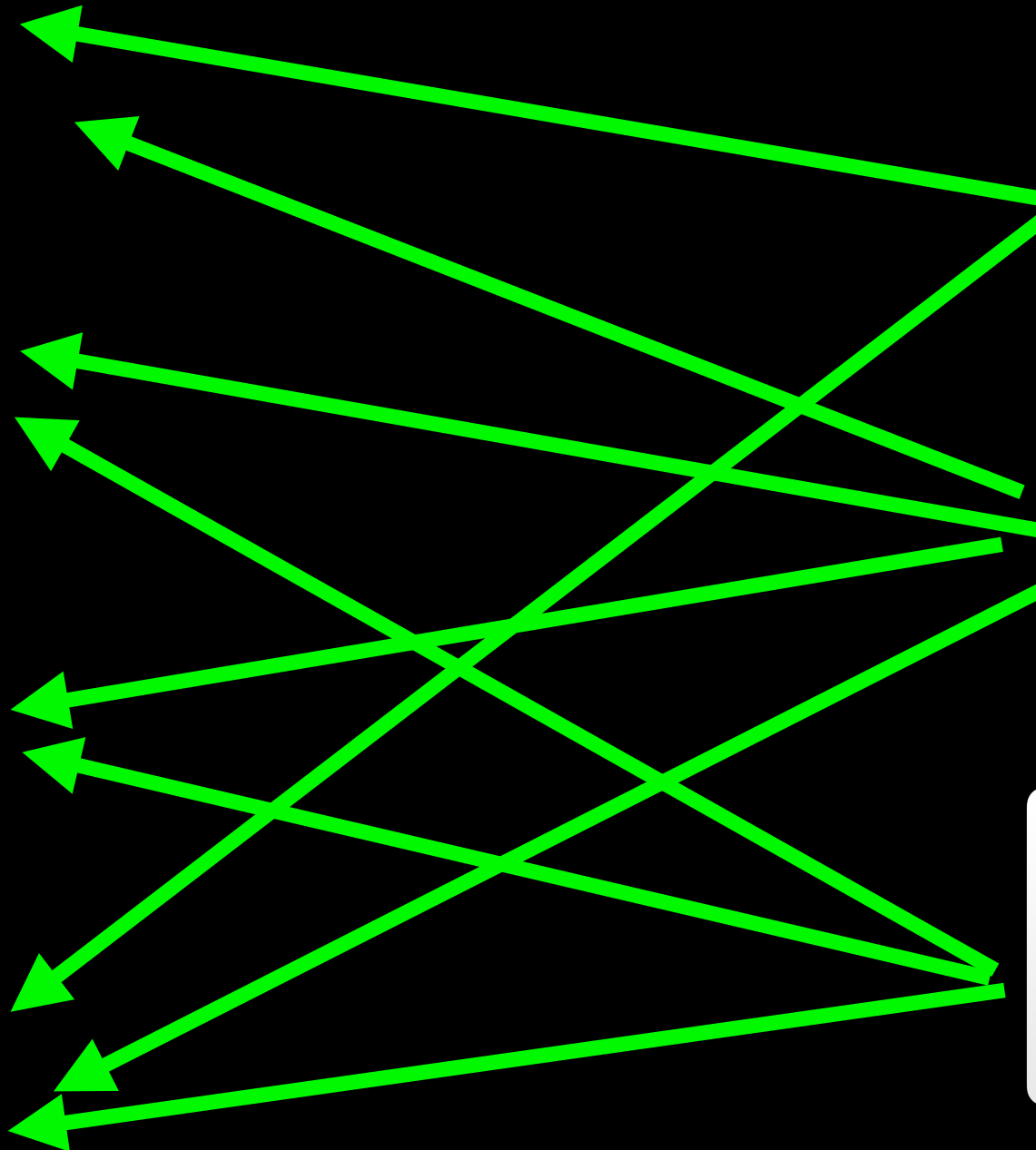
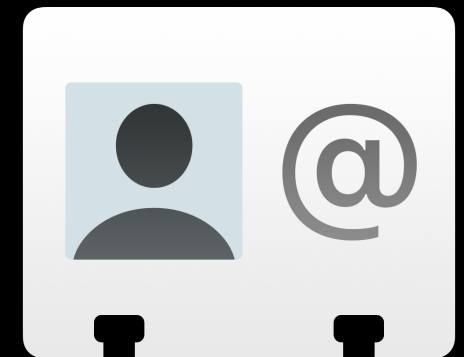
**Assets:** data needed by  
a configuration.

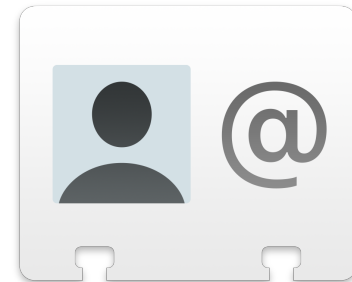
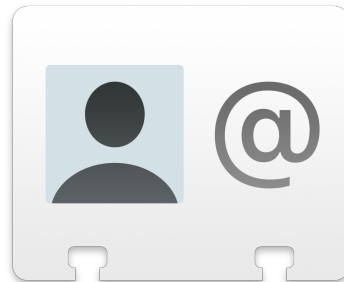
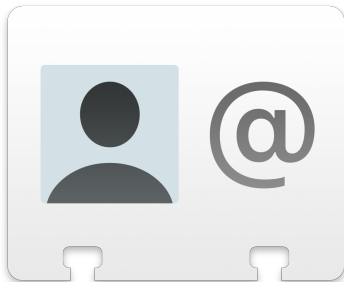
# Declaration Types

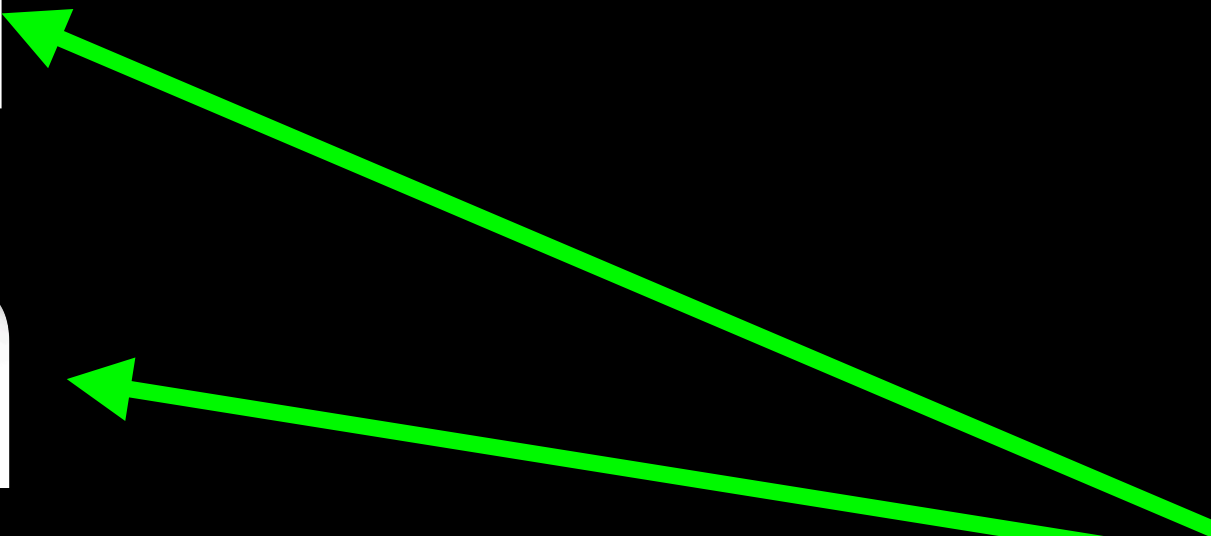
```
{  
  "Type": "com.apple.asset.useridentity",  
  "Identifier": "0DEE79A7-3244-42A0-A4CB-46333AC0F63A",  
  "Server Token": "469D704C-A817-4B71-A1B5-B221FDB43E97",  
  "Payload": {  
    "FullName": "First Last",  
    "EmailAddress": "user@example.com"  
  }  
}
```

**Assets:** data needed by  
a configuration.





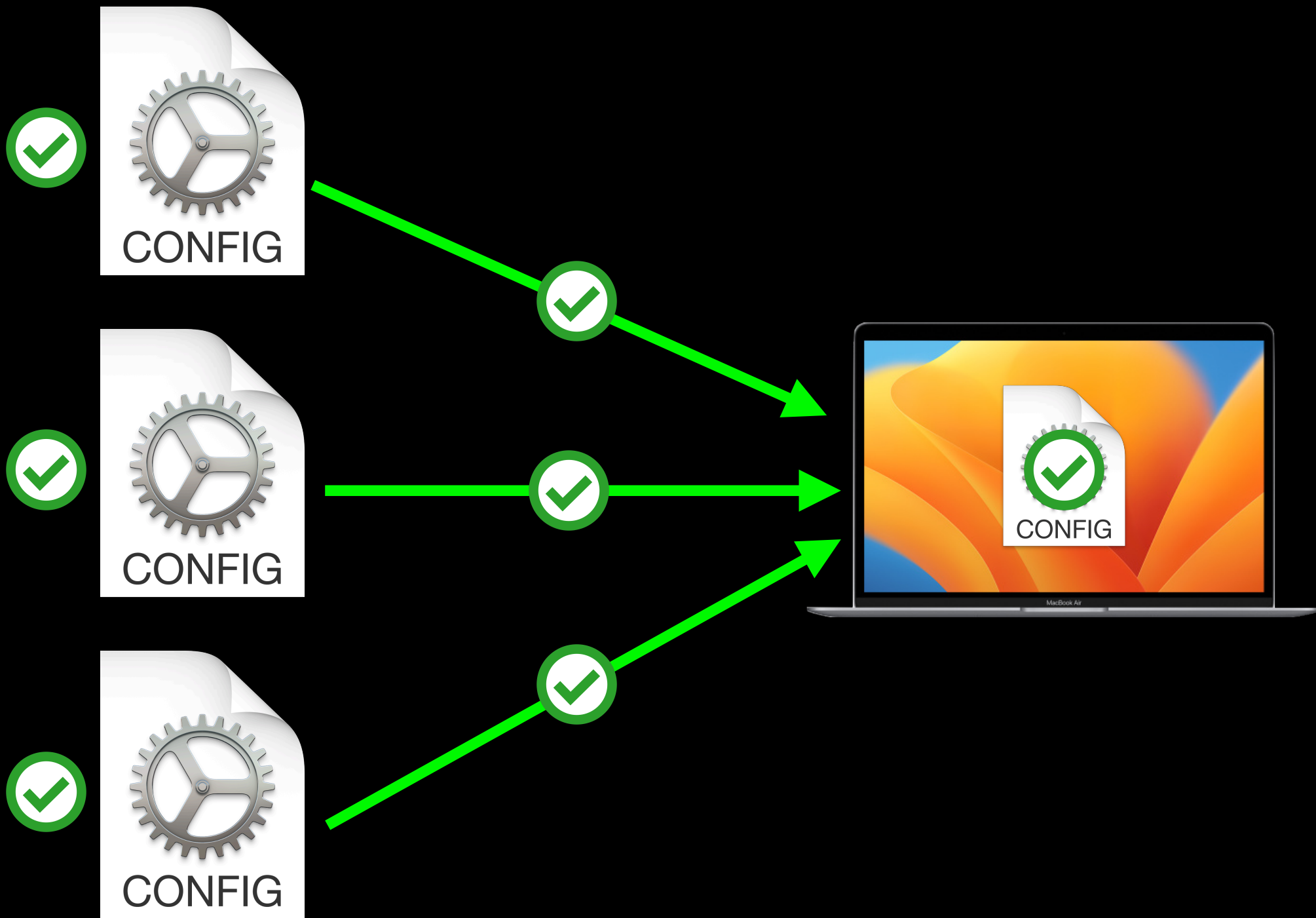




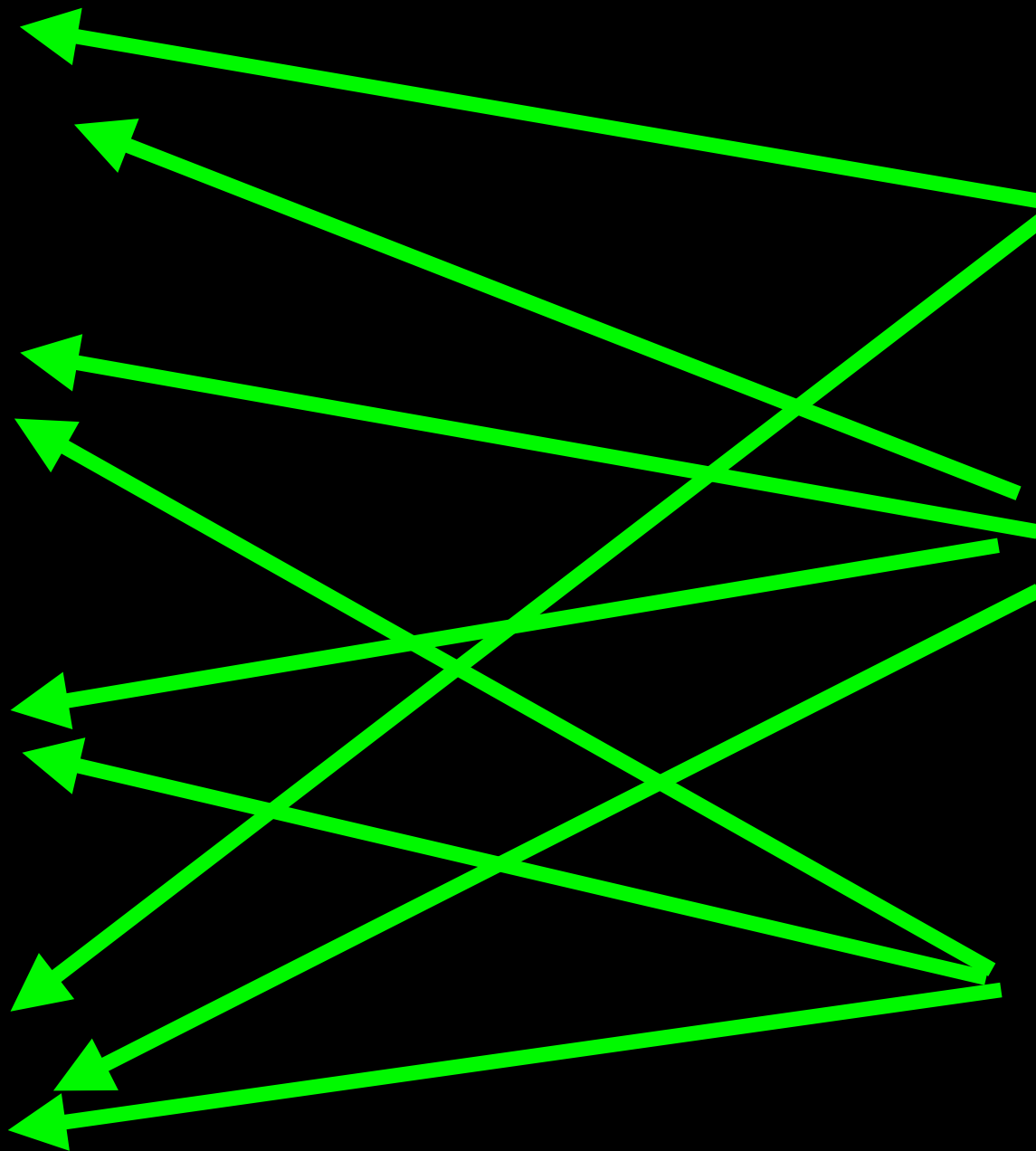
# Declaration Types

```
{
  "Type": "com.apple.activation.simple",
  "Identifier": "2AD45A8B-B656-4E51-8406-D97549CDE134",
  "Server Token": "7BCE079A-73D6-4A3E-8F5B-9B6021F43140",
  "Payload": {
    "StandardConfigurations": [
      "F3FB5A3F-9835-4A9B-9ED0-D2C813E6668E",
      "EBC2380F-4F8A-4E75-B9AC-F6300AFBD7FE"
    ]
  }
}
```

**Activation:** group of configurations







# Activation Predicates

- **Determines activation behavior**
  - **Boolean logic**
  - **Device will only process activation if predicate evaluates to **TRUE****



# Activation Predicates

```
{
  "Type": "com.apple.activation.simple",
  "Identifier": "2AD45A8B-B656-4E51-8406-D97549CDE134",
  "Server Token": "7BCE079A-73D6-4A3E-8F5B-9B6021F43140",
  "Payload": {
    "StandardConfigurations": [
      "F3FB5A3F-9835-4A9B-9ED0-D2C813E6668E",
      "EBC2380F-4F8A-4E75-B9AC-F6300AFBD7FE"
    ]
  },
  "Predicate": "(device.model.family == 'iPad')"
}
```

# Declaration Types

**Management:** properties of the overall management state on the device.

# Management Declarations

- **Represent properties of the overall management state**
- **Organization information**
- **MDM server capabilities**
- **Conveys static information to the device.**

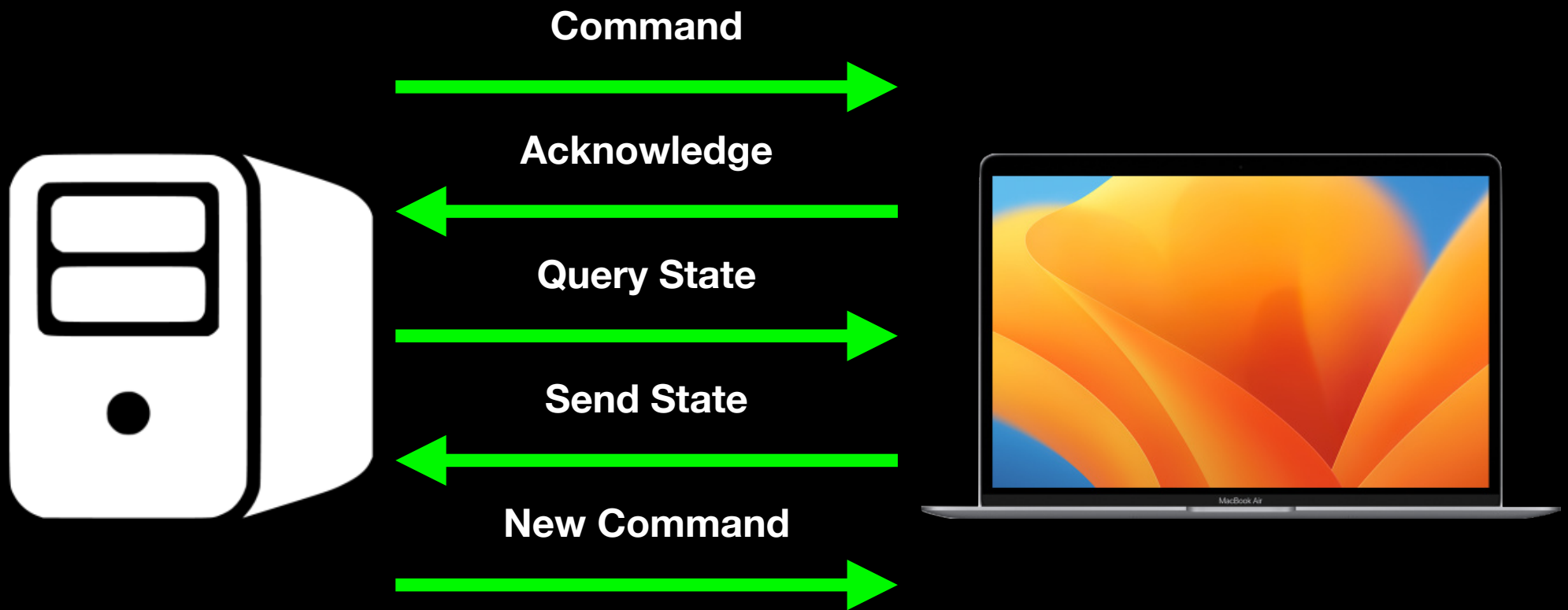
# Declarations

- **Configuration**: represents policies being applied to the device.
- **Assets**: data needed by a configuration.
- **Activation**: group of configurations
- **Management**: properties of the overall management state on the device.

# Status Channel



# MDM



# Status Items

- **device.operating-system.family**
- **device.operating-system.version**
- **device.model.family**
- **device.model.identifier**

# Status Items

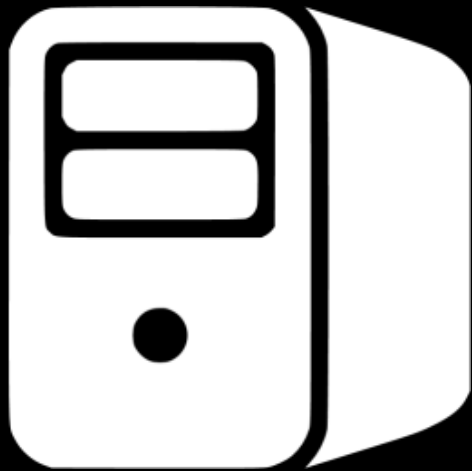
```
{
  "Type": "com.apple.configuration.management.status-subscriptions",
  "Identifier": "8DEACD8F-3EA6-42AB-85A1-1EB2BB47F790",
  "Server Token": "90452134-FFB3-4006-AF8D-B4F76E00E668",
  "Payload": {
    "StatusItems": [
      {
        "Name": "device.operating-system.version"
      },
      {
        "Name": "device.operating-system.family"
      },
      {
        "Name": "device.model.family"
      }
    ]
  }
}
```



# Status Items

```
{
  "StatusItems": {
    "device": {
      "operating-system": {
        "version": "16.0"
      }
    }
  },
  "Errors": []
}
```

# Extensibility



**Here's what I have.  
What do you have?**



**Here's what I have.  
What do you have?**



# Extensibility

- **Both endpoint and MDM server advertise what they support**
  - **Supported features**
  - **Supported payloads**
- **MDM server indicates support in management declaration.**
- **Client indicates support as specific status item.**

# DDM Integration with MDM

- **DDM is integrated into the MDM protocol for enrollment, transport and authentication.**
  - **Declarations and MDM commands / profiles coexist**
  - **Unenrolling from MDM management also removes all DDM.**

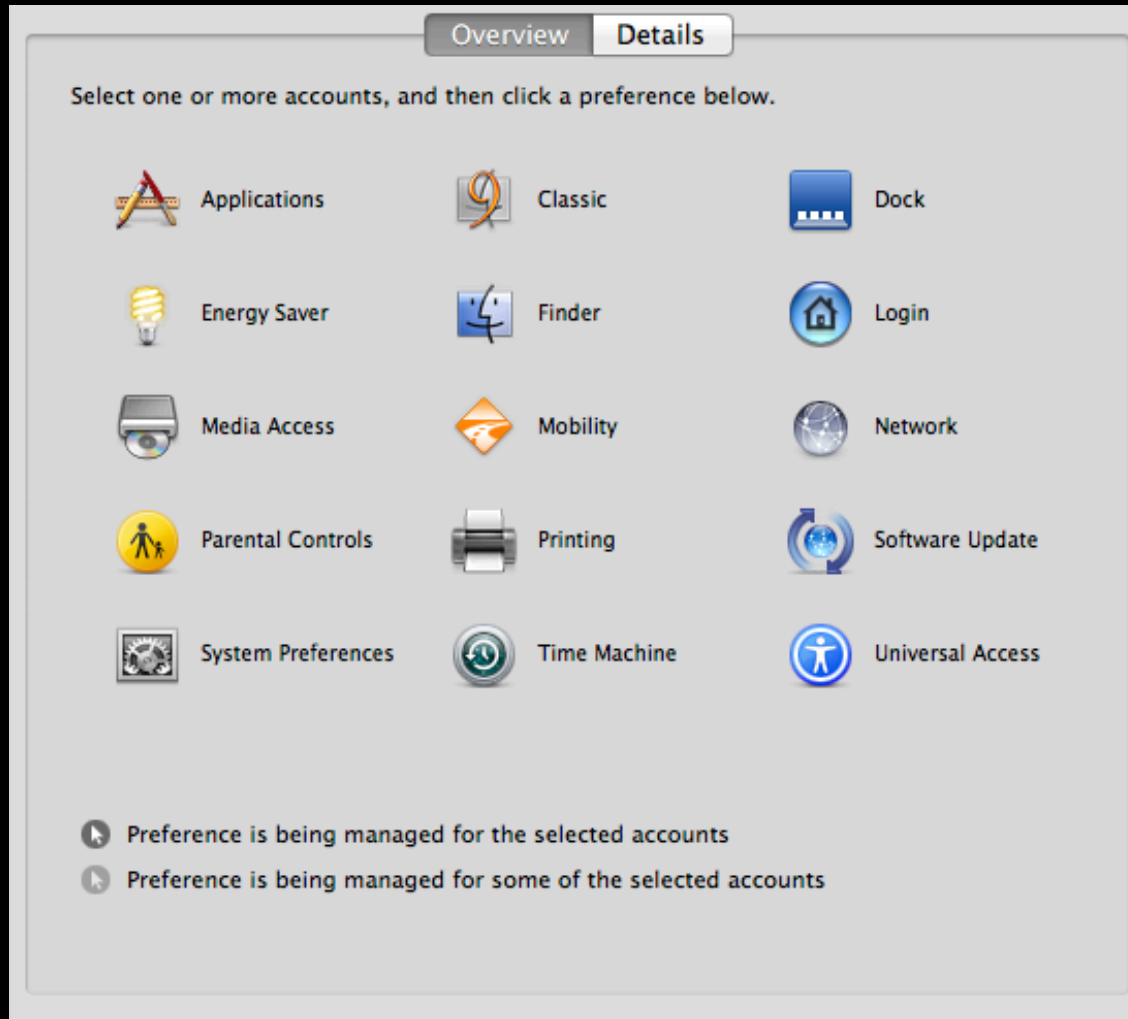
# DDM Integration with MDM

- **DDM is not disruptive to MDM.**
  - **Declarations and MDM commands / profiles coexist.**
  - **DDM can send and install MDM profiles as configurations.**

# DDM Integration with MDM

```
{  
  "Type": "com.apple.configuration.legacy",  
  "Identifier": "4B0E572A-7188-4249-87B3-C58F2340ECF8",  
  "Server Token": "815357CC-6571-4992-A8E4-AFDB9DB0CD89",  
  "Payload": {  
    "ProfileURL": "https://mdm.server.goes.here/profiles/importantsetting.mobileconfig"  
  }  
}
```

# DDM Integration with MDM



# DDM Integration with MDM

The image displays two overlapping macOS utility windows. The background window is 'Profile Manager: User Group: Settings for Sales Users', showing a list of settings on the left and a 'Property List Values' table on the right. The foreground window is 'Workgroup Manager: Local', showing a table of keys for the 'com.apple.SoftwareUpdate' domain.

**Profile Manager: User Group: Settings for Sales Users**

8 Payloads Configured – Created 04/05/12 at 9:32 PM

**Settings for Sales Users**

**Preference Domain**  
The name of a preference domain (com.company.application)

**Property List Values**  
Key value pairs for settings in the specified domain

Key	Type	Value
CatalogURL	String	krypted.com:8088/index.sucatalog

**Workgroup Manager: Local**

**com.apple.SoftwareUpdate**

Name	Type	Value
Once	dictionary	empty
Often	dictionary	empty
Always	dictionary	1 item
CatalogURL	string	http://server.krypted.com:8088/index.sucatalog



# DDM Integration with MDM

```
{  
  "Type": "com.apple.configuration.legacy",  
  "Identifier": "4B0E572A-7188-4249-87B3-C58F2340ECF8",  
  "Server Token": "815357CC-6571-4992-A8E4-AFDB9DB0CD89",  
  "Payload": {  
    "ProfileURL": "https://mdm.server.goes.here/profiles/importantsetting.mobileconfig"  
  }  
}
```

**I UNDERSTAND**

**BUT WHY DO WE CARE?**

[makeameme.org](http://makeameme.org)



# **New DDM-managed software updates**

- **Can enforce software updates for a specified OS version and build at specified time.**
- **Available for the following platforms:**
  - **macOS**
  - **iOS**
  - **iPadOS**

# **New DDM-managed software updates**

- **DDM software update configurations can coexist with MDM software update commands**
  - **Software updates enforced by DDM will take precedence over MDM commands or profiles**

**WHEN I FOUND OUT**

**ABOUT DDM SOFTWARE UPDATE**

imgflip.com

# **DDM-managed app deployment**

- **DDM configuration can specify an app be available on a device at a desired time.**
- **App can be sent to the device ahead of time, then made available when needed.**
- **Administrators can switch between sets of apps as needed.**

# **DDM-managed app deployment**

- **App can be shown to user without the app being installed, so that the user can choose when to install it.**
- **Since user is choosing to install, no consent prompt appears.**
- **Asynchronous reporting keeps the admin up to date on changes to managed apps on the endpoints.**



# DDM-managed security compliance

- **sshd**
- **sudo**
- **PAM**
- **CUPS**
- **Apache httpd**
- **bash**
- **zsh**

# DDM-managed security compliance

- FileVault status monitoring
  - Status item:  
**diskmanagement.filevault.enabled**
  - Returns a boolean value to indicate whether FileVault is enabled or not

**SUCH PROGRESS**

**MUCH IMPROVEMENT**

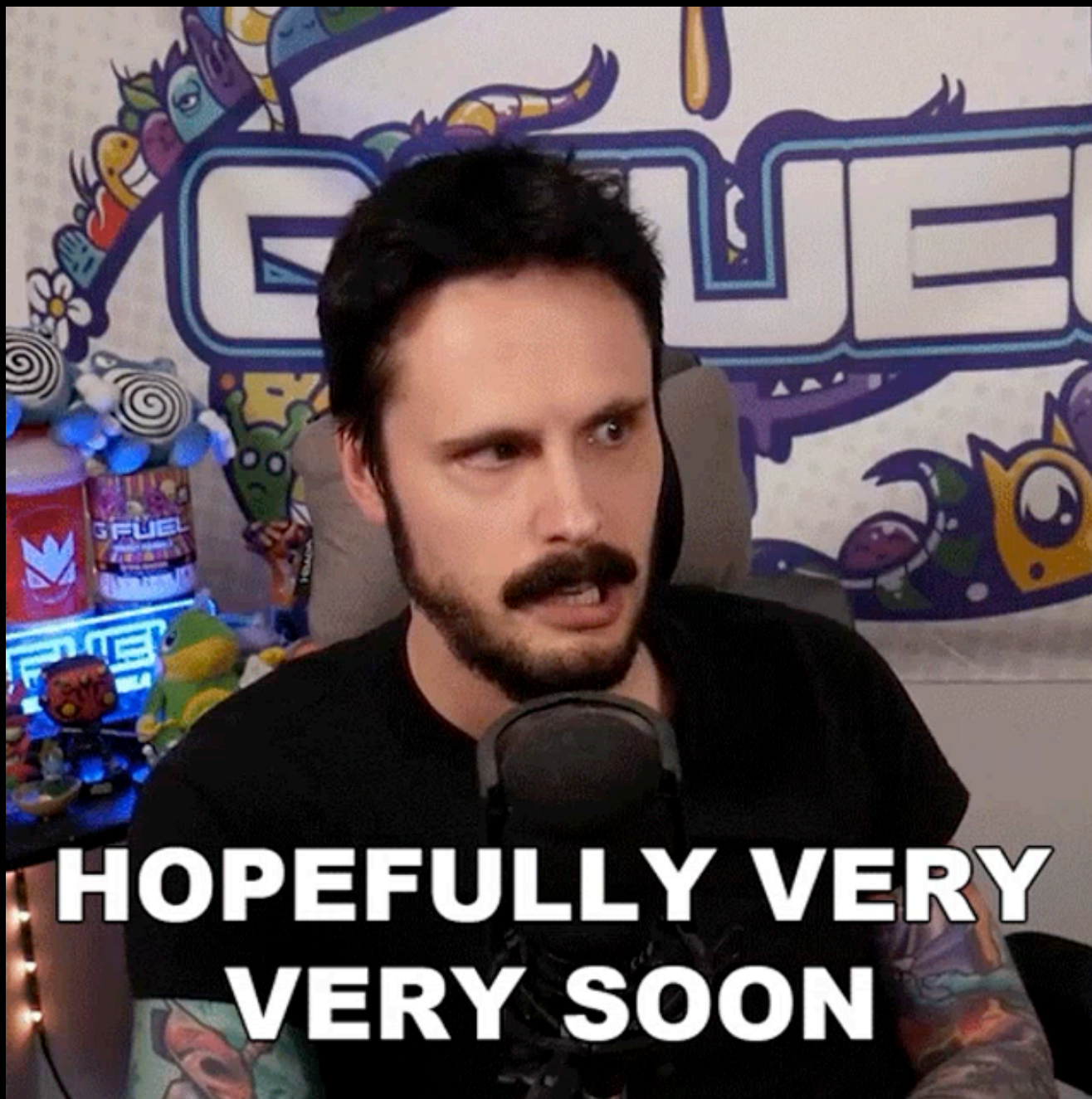
[makeameme.org](http://makeameme.org)



**THE BEACONS ARE LIT!**



**THAT'S WHAT I CAN DO.**



# Useful Links

Apple Mobile Device Management: [https://  
developer.apple.com/documentation/devicemanagement](https://developer.apple.com/documentation/devicemanagement)

Apple Device Management documentation: [https://  
developer.apple.com/documentation/devicemanagement](https://developer.apple.com/documentation/devicemanagement)

A Push Odyssey - Journey to the Center of APNS: [https://  
www.youtube.com/watch?v=Z-Lg9uBbmfk](https://www.youtube.com/watch?v=Z-Lg9uBbmfk)

Getting MicroMDM working and working with MicroMDM: <https://youtube.com/watch?v=WGKT-PyHz6I>

Demystifying MDM: open source endeavours to manage  
Macs: <https://youtube.com/watch?v=6DBGIDcBKFw>

# Useful Links

WWDC 2023 What's New in managing Apple devices: <https://developer.apple.com/wwdc23/10040>

WWDC 2023 Explore advances in declarative device management: <https://developer.apple.com/wwdc23/10041>

WWDC 2022 Adopt declarative device management: <https://developer.apple.com/wwdc22/10046>

WWDC 2021 Meet Declarative Device Management: <https://developer.apple.com/wwdc21/10131>



# Downloads

PDF available from the following link:

<https://tinyurl.com/PSUMac2023PDF>

Keynote slides available from the  
following link:

<https://tinyurl.com/PSUMac2023Keynote>