

What The DDM

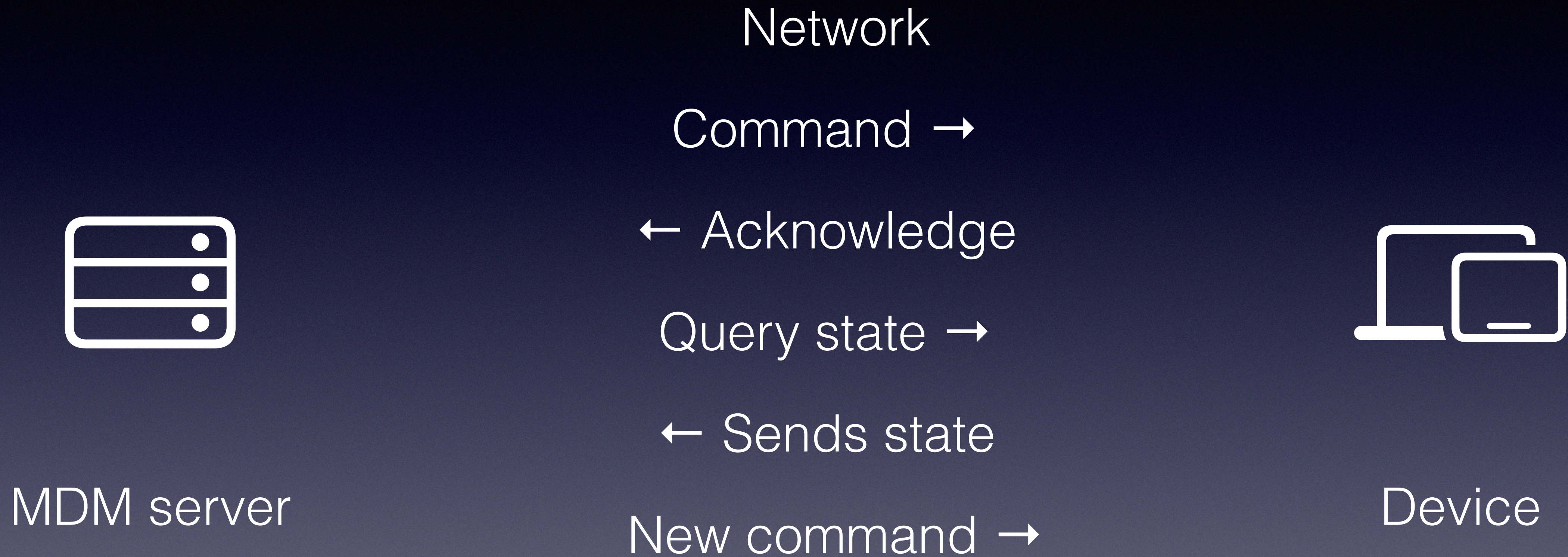




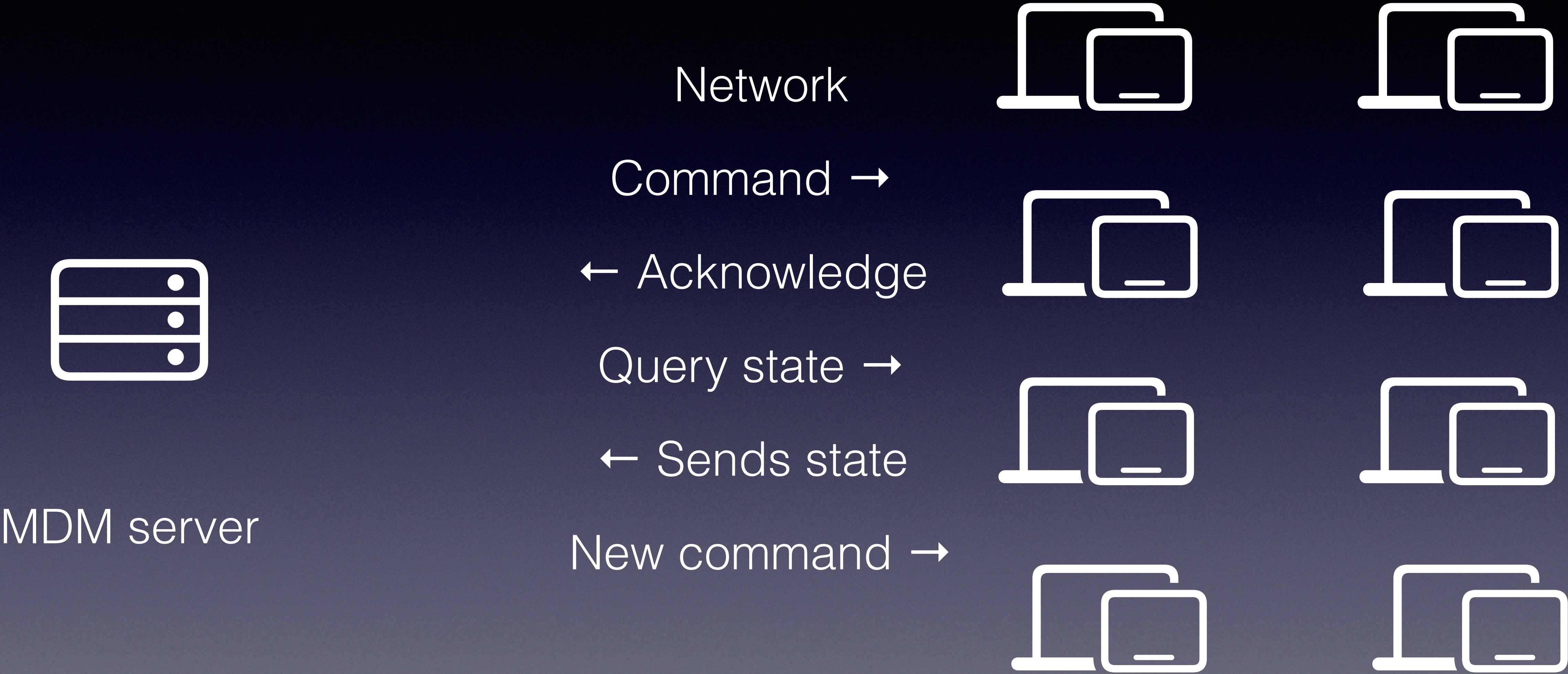
What The DDM

**This is all from research via blogs, Apple documentation
and my own testing*

Performance



Scalability



DDM History

- Introduced in 2021
- Autonomous and Proactive
- Status for reporting
- Still uses MDM

🍏 WWDC21

**Meet declarative
device management**

Melissa Nierle, System Software Engineer

Declaration Types



Configurations

Passcode



Assets

Certificates



Activations

Predicates



Management

Static Info

Declaration Types



Configurations

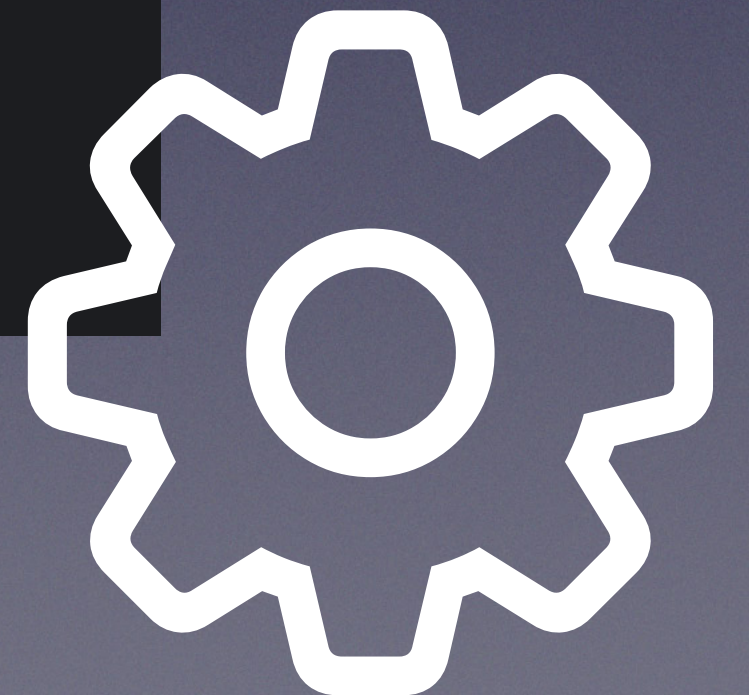
Configuration

- Configurations describe the **actual settings** or **policies** that should be applied.
- These are the functional parts — the “do this” instructions.
- They can include payloads similar to those used in traditional MDM profiles (like `com.apple.wifi.managed`, `com.apple.security.firewall`, etc.), but the difference is that in DDM, configurations are **declarative** and **state-aware**.



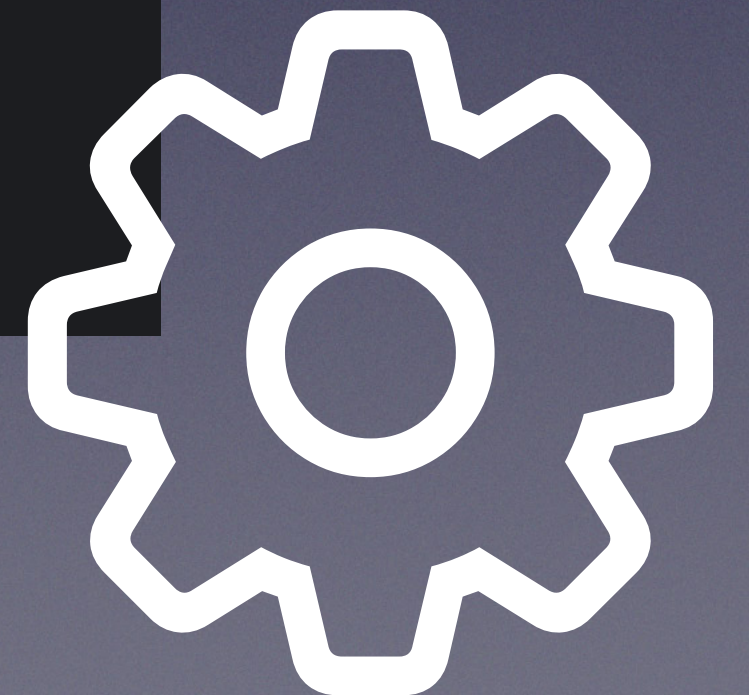
Configuration

```
{
  "Type": "com.apple.configuration.passcode.settings",
  "Identifier": "EB13EE2B-5D63-4EBA-810F-5B81D07F5017",
  "ServerToken": "E180CA9A-F089-4FA3-BBDF-94CC159C4AE8",
  "Payload": {
    "RequirePasscode": true,
    "RequireComplexPasscode": true,
    "MinimumLength": 6,
    "MaximumFailedAttempts": 10,
    "MaximumGracePeriodInMinutes": 10,
    "MaximumInactivityInMinutes": 10,
    "PasscodeReuseLimit": 0
  }
}
```



Configuration

```
{  
  "Type": "com.apple.configuration.passcode.settings",  
  "Identifier": "EB13EE2B-5D63-4EBA-810F-5B81D07F5017",  
  "ServerToken": "E180CA9A-F089-4FA3-BBDF-94CC159C4AE8",  
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    "RequireComplexPasscode": true,  
    "MinimumLength": 6,  
    "MaximumFailedAttempts": 10,  
    "MaximumGracePeriodInMinutes": 10,  
    "MaximumInactivityInMinutes": 10,  
    "PasscodeReuseLimit": 0  
  }  
}
```



Declaration Types



Assets

Assets

- Assets are the **resources** referenced by other declarations.
- They make DDM modular — you can reuse them across different configurations or policies.
- Think of assets like “shared ingredients” used in multiple recipes (the recipes being the declarations).

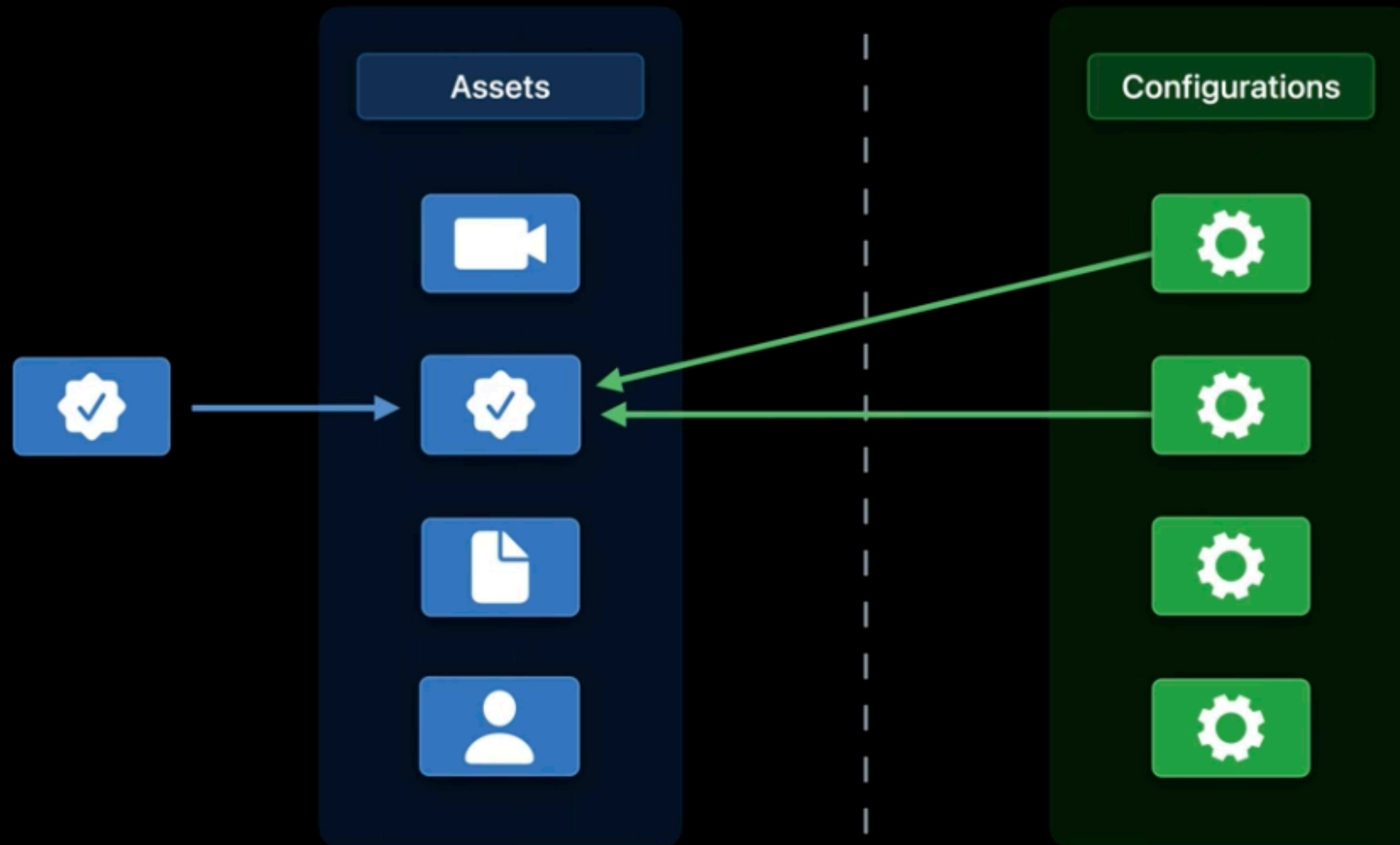


Assets

```
{  
  "Type": "com.apple.asset.useridentity",  
  "Identifier": "F762F45E-0678-413E-9493-B3D5B1A5CE1E",  
  "ServerToken": "98E16ED2-79F3-42AA-82A1-B6B79BA3C51C",  
  "Payload": {  
    "FullName": "First Last",  
    "EmailAddress": "user@example.com"  
  }  
}
```



Asset relationships

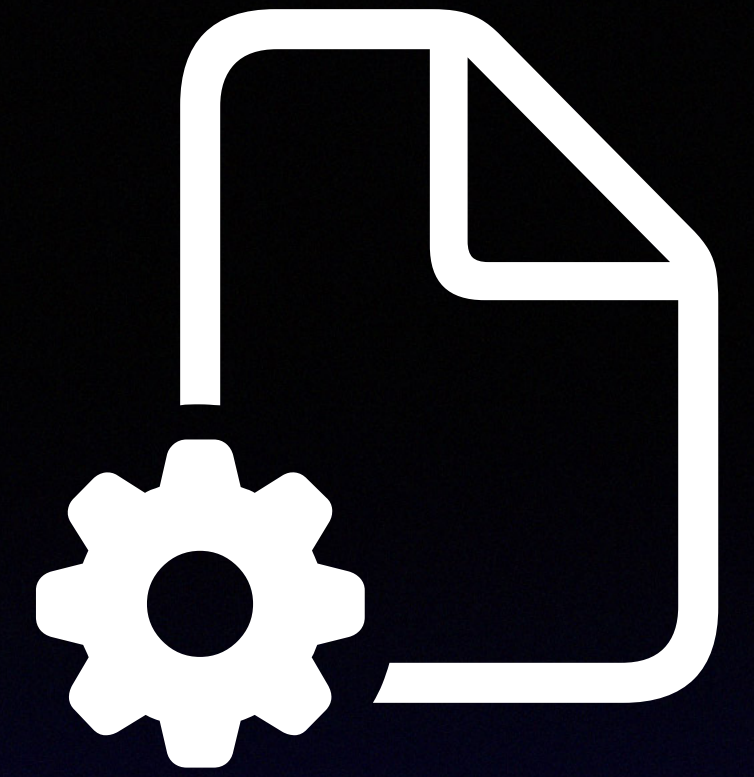


Declaration Types



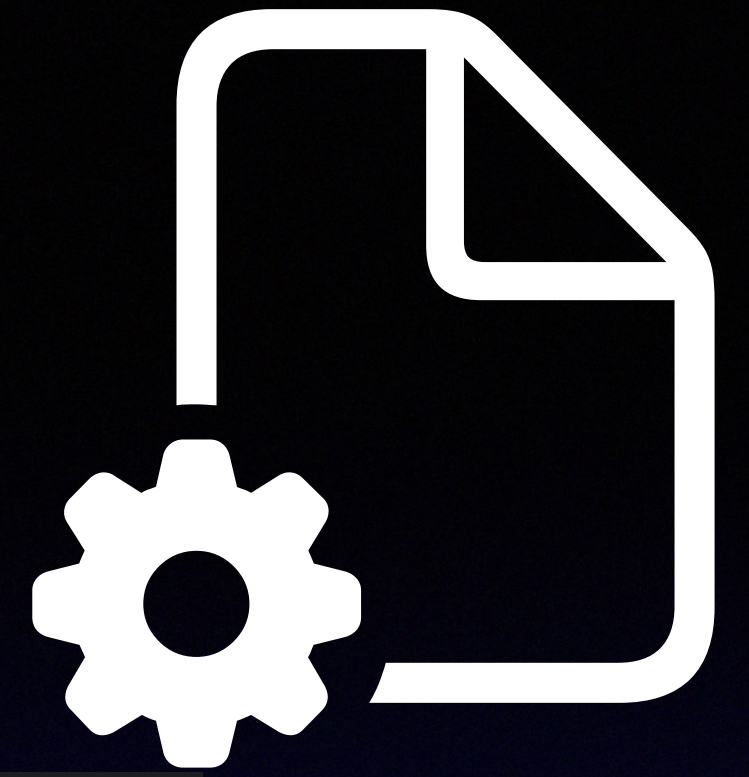
Activations

Activations



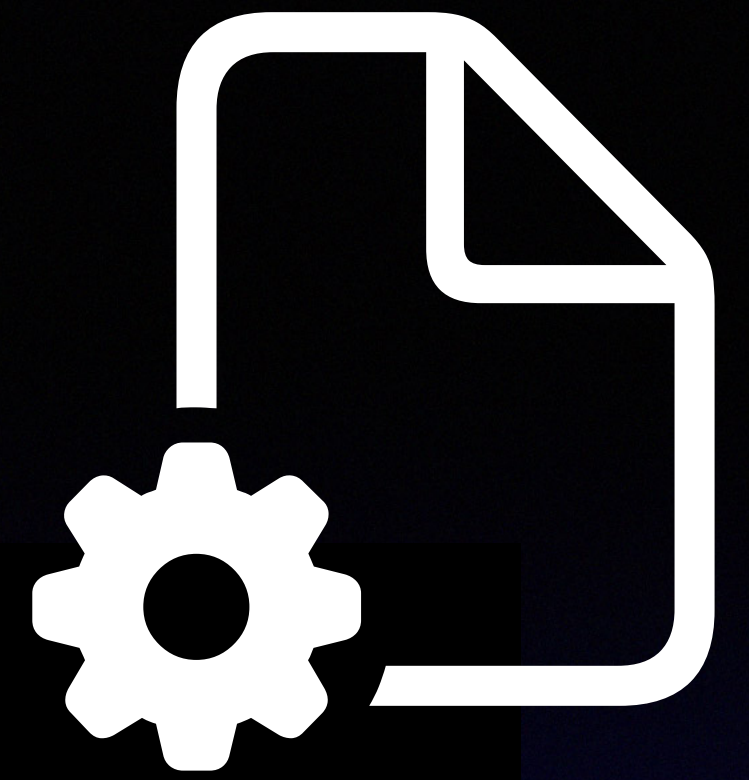
- The most interesting (and powerful) part of Apple's Declarative Device Management (DDM) system
- It doesn't contain configuration data itself — it's a logic layer that links conditions to the configurations that should apply when those conditions are met.
- A Configuration Declaration says what to do (e.g. enable FileVault). An Activation Declaration says when or under what conditions to do it.

Activations



```
{
  "Type": "com.apple.activation.simple",
  "Identifier": "076F928B-9D8E-4BA2-AD34-5655805C82D7",
  "ServerToken": "4FFA91BF-85AE-4053-B8FE-B1C3E507A9CB",
  "Payload": {
    "StandardConfigurations": [
      "3BBB4407-238A-44B1-ABB1-5E7AB95160E0",
      "C7CF88B9-520D-45DB-85BA-EA537A92A4A8"
    ]
  },
  "Predicate": "(device.model.family == 'iPad')"
}
```


Activations



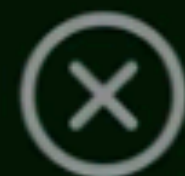
Activations



Configuration



Configuration



Configuration



Not applied



Declaration Types



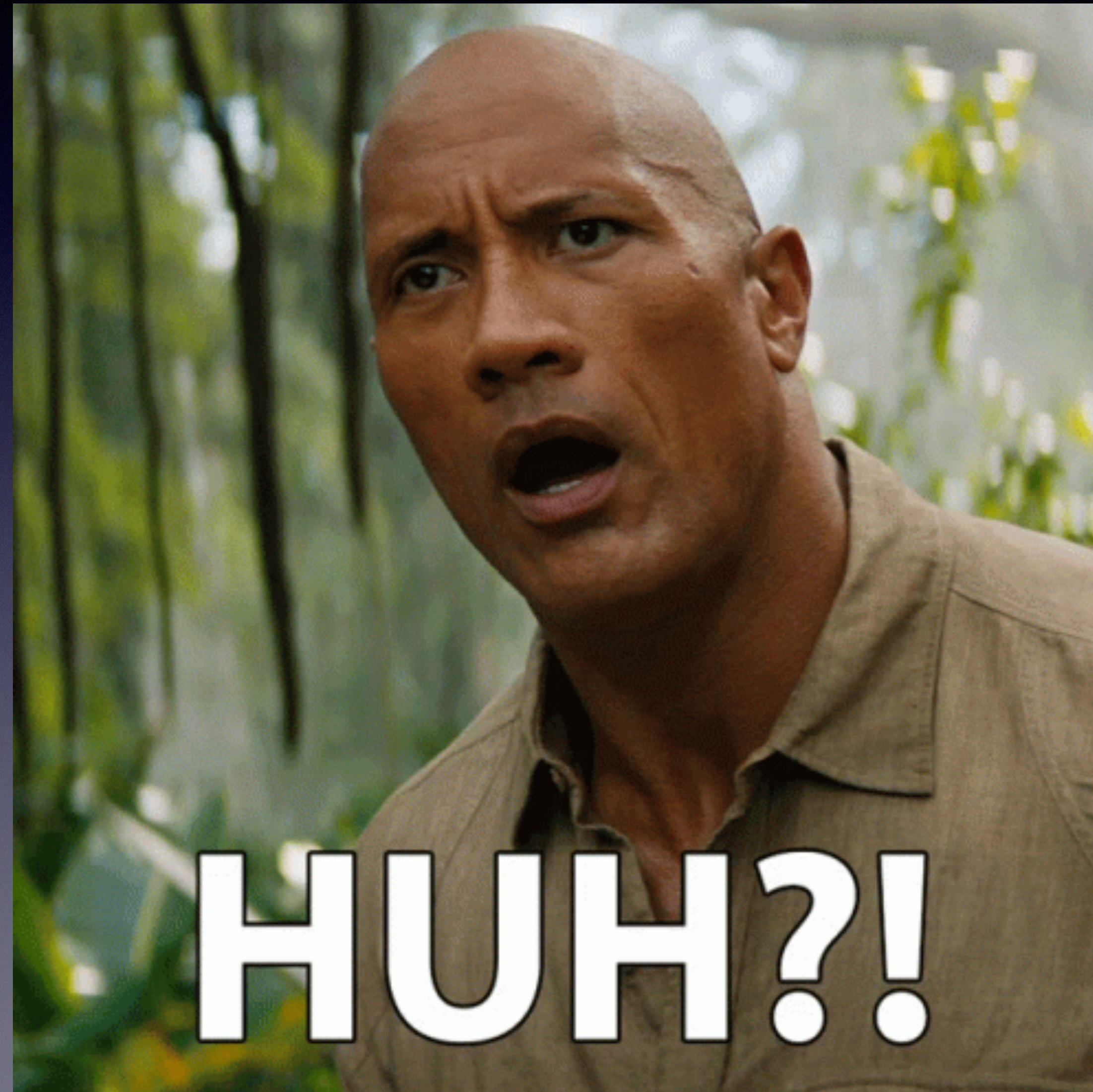
Management

Management



- Represent properties of the overall management state
- Organisation information
- Server capabilities
- Conveys static information to the device

Management



Declaration Types



Configurations

Passcode



Assets

Certificates



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Predicates



Management

Static Info

Where are they?


- Github
- Whole lotta YAML
- A bit hard to read?
- Jamf DDM Explorer - concepts.jamf.com
- Apple Policy Explorer - Thanks Neil Johnson - <https://appledevicepolicy.tools/policy-explorer>
- <https://github.com/apple/device-management/tree/release/declarative>






Declarative Device Management Explorer

- Home
- Activations
- Assets
- Configurations
 - Configurations
 - Account CalDAV
 - Account CardDAV
 - Account Exchange
 - Account Google
 - Account LDAP
 - Account Mail
 - Account Subscribed Ca...
 - App Managed
 - Disk Management Setti...
 - Legacy Interactive
 - Legacy
 - Management Status Su...
 - Management Test
 - Math Settings
 - Passcode Settings
 - Safari Extensions Settin...
- Search
- Settings...




Account CalDAV



App Managed

123

Passcode Settings



Security Passkey Attest...

[Return](#)

Send Declaration

Build & Send Remove & Sync

Activation

-Pick saved Activation

Asset

-Pick saved Asset

Configuration

-Pick saved Configuration


Management

-Pick saved Management


Declaration Channel

Send to Computer!


```
{
  "type" : "com.apple.activation.simple",
  "id" : "com.jamf.activation.predicate.mac",
  "payload" : {
    "StandardConfigurations" : [
      "com.jamf.passcode"
    ],
    "Predicate" : "(@status(device.model.family) == 'Mac')"
  }
}
```



Account Mail



Account Subscribed Ca...



Management Test

$f(x)$


Math Settings




Security Certificate




Security Identity




Security Passkey Attest...




Services Background Tasks




Services Configuration Files




Software Update Enforc...



Software Update Settings



Watch Enrollment



Send Declarations



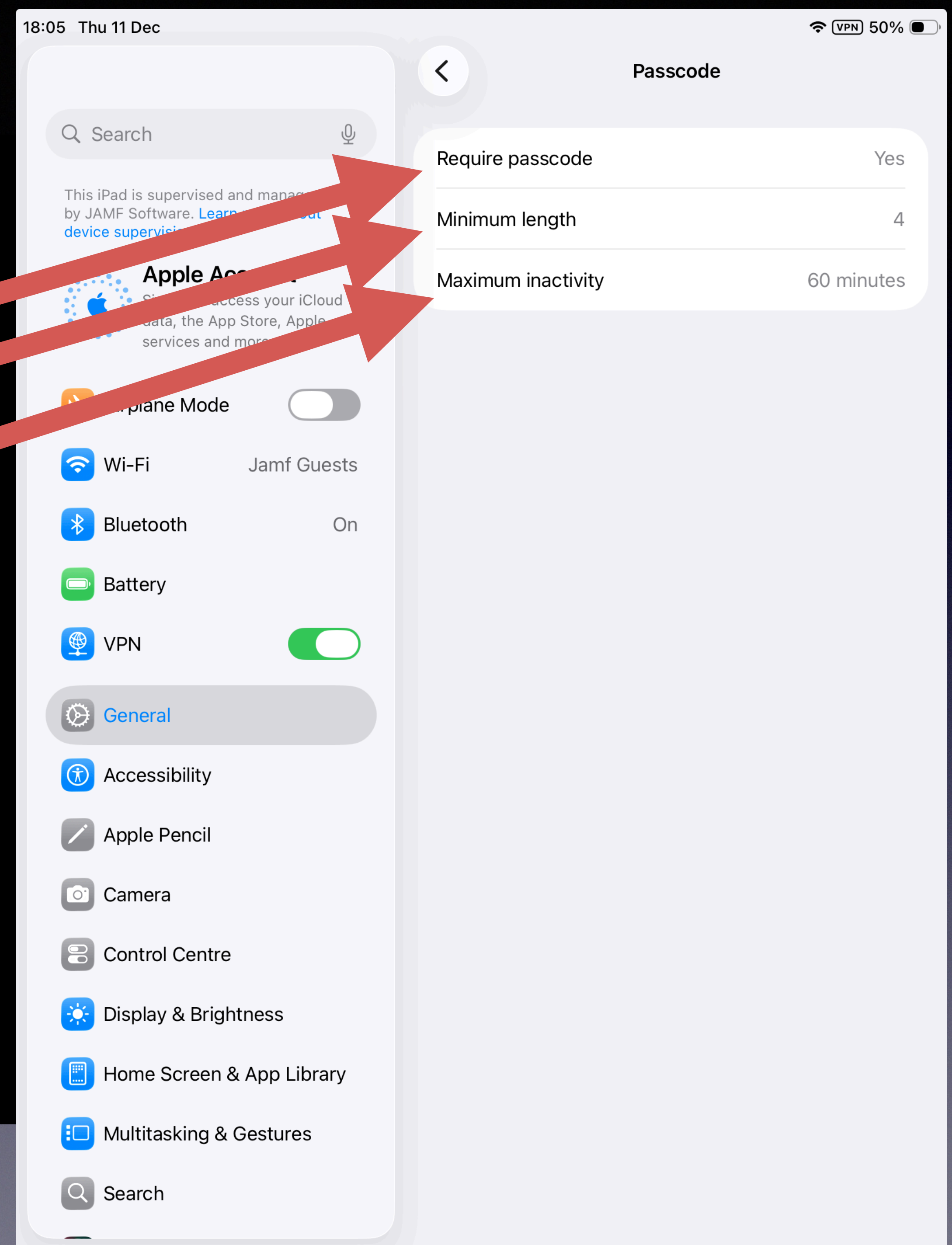


Great, kid! Don't get cocky.


```
{  
  "id" : "com.laa.passcode.example",  
  "payload" : {  
    "RequirePasscode" : true,  
    "MinimumLength" : 4,  
    "MaximumInactivityInMinutes" : 60  
  },  
  "type" : "com.apple.configuration.passcode.settings"  
}
```



```
{  
  "id" : "com.laa.passcode.example",  
  "payload" : {  
    "RequirePasscode" : true,  
    "MinimumLength" : 4,  
    "MaximumInactivityInMinutes" : 60  
  },  
  "type" : "com.apple.configuration.passcode.settings"  
}
```



DDM BACK TO THE FUTURE



Everything new will be DDM

- Software update management using mobile device management commands, restrictions, the `com.apple.SoftwareUpdate` payload and queries is deprecated and will be removed next year. Going forward, software updates can only be managed and enforced by using declarative software update management.

<https://support.apple.com/en-gb/124963>

Resources

- Apple WWDC 2021 - Meet declarative device management - [10131](#)
- Apple WWDC 2023 - Explore advances in declarative device management - [10041](#)
- Apple Platform Deployment Guide
- Apple Seed
- [What is Apple declarative device management?](#)
- [A primer on Declarative Device Management for Apple devices](#)
- [How declarative device management transforms Apple MDM](#)

Yes I didn't cover the Status
Channel

Questions?