Integrating with Microsoft Intune to Enforce Compliance on Mac Computers Managed by Jamf Pro

Technical Paper
Jamf Pro 10.16.0 or Later
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jamf

Jamf has made all efforts to ensure that this guide is accurate.

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Contents

Introduction

What's in This Guide

This guide provides step-by-step instructions for integrating with Microsoft Intune to enforce compliance on Mac computers managed by Jamf Pro 10.9.0 or later.

Additional Resources

- Jamf Pro Administrator's Guide
  Find more information on macOS Intune Integration.
- Conditional Access in Azure Active Directory
  Learn about Azure Active Directory and how to configure conditional access policies.

Overview

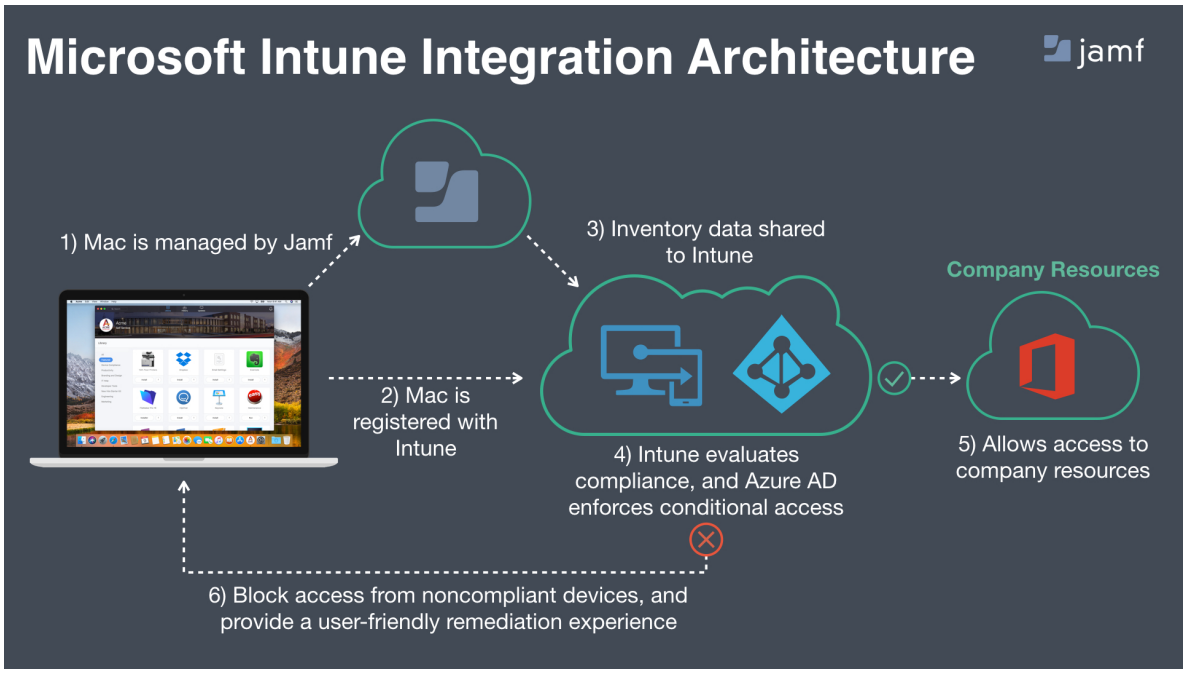
This guide provides a complete workflow for integrating with Microsoft Intune to enforce compliance on Mac computers managed by Jamf Pro.

Integrating with Microsoft Intune to enforce compliance involves the following steps:

1. Configure the connection between Jamf Pro and Microsoft Intune.
2. Apply device compliance policies to Mac computers.
3. Deploy the Company Portal app for Microsoft to end users.
4. Create a policy directing users to register Mac computers with Azure Active Directory.
5. Troubleshoot integration issues.

Jamf Pro delivers information about the management state of Mac computers to Microsoft Intune's device compliance engine, which integrates with Azure Active Directory (Azure AD). This allows you to identify unmanaged and non-compliant Mac computers, and remediate them in Jamf Self Service for macOS.

The following diagram shows a high-level flow of the integration architecture:



Requirements

To configure the Microsoft Intune integration with Jamf Pro, you need the following:

- Jamf Pro 10.9.0 or later
- Microsoft Enterprise Mobility + Security (specifically Microsoft AAD Premium and Microsoft Intune)
- A Jamf Pro user account with Conditional Access privileges
- Microsoft Intune Company Portal app for macOS v1.1 or later
- Computers with macOS 10.11 or later that are using a local or mobile account

> **Note:** Network accounts are not supported.

Depending on your environment, you may need to add the following domain names and ports as an exception or add them to your firewall whitelist:

- login.microsoftonline.com
- graph.windows.net
- *.manage.microsoft.com
- Port 443 (HTTPS protocol)

> **Note:** The JamfAAD pre-fill feature introduced in Jamf Pro 10.14.0 may cause issues with the authentication experience in environments that use both the Microsoft Intune Integration and Active Directory Federation Services to authenticate to Azure. For instructions on resolving this issue, see the Troubleshooting the JamfAAD Pre-fill Authentication Issue Knowledge Base article.

Related Information

Jamf Pro User Accounts and Groups
Find out how to create a user account with a specific privilege.

Configure the Connection Between Jamf Pro and Microsoft Intune

Configuring the connection between Jamf Pro and Microsoft Intune involves the following steps:

1. Create a new application for Jamf Pro in Microsoft Azure.
2. Configure Microsoft Intune to allow the Jamf Pro integration.
3. Configure the macOS Intune Integration setting in Jamf Pro.

Step 1: Create a new application for Jamf Pro in Microsoft Azure

1. Open Azure Active Directory, and navigate to **App registrations**.
2. Click **New registration**.
   a. Enter a display name for the Jamf Pro application.
   b. Under Supported account types, select which accounts can use the application.
   c. Specify your Jamf Pro URL as the Redirect URL.
   d. Click **Register**.
3. Select the newly created application, copy the value from the **Application (client) ID** field and paste it to another location.

   Note: The Application ID is required to configure the Compliance Connector in Intune and for configuring the macOS Intune Integration setting in Jamf Pro.

4. Navigate to **Certificates & secrets**, and click **New client secret**.
5. Give the Client Secret a description and select an expiration option. Once a new secret has been added, copy the value for the secret and paste it to another location.

   Important: The Client Secret value is required to configure the macOS Intune Integration setting in Jamf Pro. The value for the secret is shown only once after the secret is added. If the Client Secret expires, you must add a new Client Secret in Microsoft Azure, and then update your macOS Intune Integration configuration in Jamf Pro. Microsoft Azure allows you to have both the old secret and new secret active to prevent service disruptions.

6. Navigate to **API permissions**.
    a. Remove all permissions, including the default permissions.
    b. Click **Add a permission**.
    c. Under the Intune API, click **Application permissions**, and then select **update_device_attributes**.
    d. Click **Add permissions**.
    e. Click **Grant admin consent for Jamf**, and then click **Yes**.

Step 2: Configure Microsoft Intune to allow the Jamf Pro integration

1. In the Microsoft Azure portal, navigate to **Microsoft Intune** > **Device Compliance** > **Partner device management**.
2. Enable the Compliance Connector for Jamf by pasting the value you copied from the Application ID field into the **Jamf Azure Active Directory App ID** field.
3. Click **Save**.

Step 3: Configure the macOS Intune Integration setting in Jamf Pro

1. In Jamf Pro, navigate to **Settings** > **Global Management**.
2. Click **Conditional Access**  .
3. Navigate to the **macOS Intune Integration** tab, and then click **Edit**.
4. Select the **Enable Intune Integration for macOS** checkbox.
   When this setting is enabled, Jamf Pro sends inventory updates to Microsoft Intune. Clear the selection if you want to disable the connection but save your configuration.
5. Select the location of your Sovereign Cloud from Microsoft.
6. Click **Open administrator consent URL**, and follow the onscreen instructions to allow the Jamf Native macOS Connector app to be added to your Azure AD tenant.
7. Add the **Azure AD Tenant Name** from Microsoft Azure.
8. Add the **Application ID** and **Client Secret** (previously called Application Key) for the Jamf Pro application from Microsoft Azure.

9. Select one of the following landing page options for computers that are not recognized by Microsoft Azure:
   - The Default Jamf Pro Device Registration page

     Note: Depending on the state of the computer, this option redirects users to either the Jamf Pro device enrollment portal (to enroll with Jamf Pro) or the Company Portal app (to register with Azure AD).

   - The Access Denied page
   - A custom webpage
10. Click **Save**.
    Jamf Pro will test the configuration and report the success or failure of the connection.

Apply Device Compliance Policies to Mac Computers

Once the connection between Jamf Pro and Microsoft Intune has been established, you can start applying compliance policies to Mac computers in Microsoft Intune.

1. Open the Microsoft Azure portal, navigate to **Intune** > **Device Compliance** > **Policies** and create policies for Mac computers. You may also select a series of actions (e.g., sending warning emails) that should be applied to non-compliant users and groups.
2. (Optional) Navigate to **Intune** > **Device Compliance** > **Compliance policy settings** > **Compliance status validity period (days)** to set the number of days before a Mac computer is marked non-compliant. Default is 30 days.
3. Once you create all the required compliance policies, navigate to **Assignments** and apply the compliance policies to specified users or groups.

> **Note:** If Mac computers have network accounts that do not match a local account, compliance policies dealing with password complexity should not be used within Microsoft Intune as they cannot be reported correctly from Jamf Pro. Password complexity is enforced by the network account server.

Related Information

Microsoft Intune Documentation
Learn how to create a device compliance policy for a Mac computer with Microsoft Intune.

Deploy the Company Portal App from Microsoft to End Users

Before directing users to register their Mac computers with Azure Active Directory (Azure AD), it is necessary to deploy Microsoft's Company Portal app.

Deploying the Company Portal app involves the following steps:

1. Download the Company Portal app from Microsoft.
2. Upload the Company Portal app to Jamf Pro as a package.
3. (Optional) Identify Mac computers that do not have the Company Portal app installed.
4. Deploy the Company Portal app to Mac computers.

Step 1: Download the Company Portal app from Microsoft

On a Mac computer, download the current version of the Company Portal app for macOS from the Microsoft website.

> **Important:** Do not install it, you need a copy of the app to upload to Jamf Pro.

The `CompanyPortal_Installer.pkg` file can be downloaded from: https://go.microsoft.com/fwlink/?linkid=862280

Step 2: Upload the Company Portal app to Jamf Pro as a package

1. Upload the Company Portal app to a distribution point in Jamf Pro.
2. In Jamf Pro, navigate to **Settings** > **Computer Management** > **Packages**.
3. Create a new package that includes the Company Portal app and click **Save**.

Step 3: (Optional) Identify Mac Computers that do not have the Company Portal app installed

1. In Jamf Pro, navigate to **Computers** > **Smart Computer Groups**.
2. Create a new smart group that identifies Mac computers that do not have the CompanyPortal.app from Microsoft installed.
3. Click **Save**.

Step 4: Deploy the Company Portal app to Mac computers

1. In Jamf Pro, navigate to **Computers** > **Policies** and create a policy that deploys the Company Portal app to users.
   a. Use the General payload to configure the following settings:
      - For **Trigger,** select "Enrollment Complete" and "Recurring Check-in".
      - For **Execution Frequency**, select "Once per computer".
   b. Select the Packages payload, and then click **Configure**.
   c. Click **Add** for the package that includes the Company Portal app.
   d. Configure the settings for the package.
   e. Specify a distribution point for Mac computers to download the package from.
2. Click the **Scope** tab to specify Mac computers on which the Company Portal app should be installed. You may also use the smart computer group created in step 3.
3. Click **Save**.

> **Note**: The policy runs on Mac computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Related Information

Managing Packages
Find out how to create a package and upload a file to a distribution point in Jamf Pro.

Smart Computer Groups
Find out how to create smart groups in Jamf Pro.

Create a Policy Directing Users to Register Mac Computers with Azure Active Directory

Once the Company Portal app is deployed to Mac computers, you can create a policy in Jamf Pro that directs end users to initiate the device registration process by running the Company Portal app. Users will need to launch the Company Portal app from Jamf Self Service for macOS to register their Mac computers with Azure Active Directory (Azure AD) as a device managed by Jamf Pro.

Important: Prior to deploying the policy, it is recommended that you notify your end users that they will be prompted to take action.

Creating a policy that registers Mac computers with Azure AD involves the following steps:

1. In Jamf Pro, navigate to **Computers** > **Policies**, and create a new policy requiring users to register their Mac computer with Azure AD.
2. Use the General payload to specify policy settings. For **Execution Frequency**, select "Ongoing".
3. Configure the **macOS Intune Integration** payload.
4. Click the **Scope** tab, and scope the policy to all targeted Mac computers.
5. Click the **Self Service** tab and configure the policy to be made available in Jamf Self Service for macOS.
6. (Optional) Include the policy in the Device Compliance category in Self Service.
7. Click **Save**.

Note: The Company Portal app must be launched from Jamf Self Service to begin device registration. Launching the Company Portal app manually (e.g., from the Applications or Downloads folder) will not register the device. If an end user launches the Company Portal app manually, they will see an `'AccountNotOnboarded'` warning message.

Inventory information is sent to Microsoft Intune only for Mac computers that have completed the device registration process with Azure AD. Jamf Pro sends the inventory state of each managed Mac computer that has checked in with Jamf Pro within the last 24 hours. To view inventory data sent to Microsoft Intune for each username associated with a computer, navigate to a computer's history and click the **macOS Intune Integration Logs** category. For a list of Mac computer attributes that Jamf Pro sends to Microsoft Intune, see the Appendix in this guide.

Related Information

Smart Computer Groups
Find out how to create smart groups in Jamf Pro.

Jamf Self Service for macOS
Learn about Jamf Self Service and find out how to make items available to users.

Troubleshooting

You can verify if configured compliance policies are enforced on Mac computers by using an end user account to access an application that is protected with a compliance policy. It is recommended that you perform this test in the following scenarios:

- On a compliant Mac computer managed by Jamf Pro and registered with Azure Active Directory.
- On a non-compliant Mac computer managed by Jamf Pro and registered with Azure Active Directory.
- On a Mac computer not enrolled with Jamf Pro.

If the integration with Microsoft Intune is not working correctly, do the following:

- In Jamf Pro, navigate to **Settings** > **Global Management** > **Conditional Access** > **macOS Intune Integration**, and then click **Test** to view error messages.
- In Microsoft Intune, verify that the entered data is correct.
- In Jamf Pro and Microsoft Intune, check the logs for error messages.

Deleting a Computer from the Microsoft Azure and Intune Portals

To remove a Mac computer that is managed by Jamf from the Microsoft Azure and Intune portals, do the following:

1. In the Microsoft Azure portal, navigate to **Azure Active Directory** > **Devices** > **All Devices**.
2. Select the device you wish to delete.
3. Click **Delete**, and then click **Delete** again to confirm.
4. Navigate to **Intune** > **Devices** > **All Devices**.
5. Select the device you wish to delete.
6. Click **Delete**, and then click **Delete** again to confirm.

The computer is removed from the Microsoft Azure and Intune portals.

Best Practices for Keeping User Computers in Compliance

Compliance can be completely enforced by Jamf Pro. As a result, Mac computers are never out of compliance as long as the computer is managed by Jamf Pro. To keep Mac computers in compliance, it is recommended that you deploy a configuration profile or a policy in Jamf Pro for each compliance policy created in Microsoft Intune.

1. In Jamf Pro, navigate to **Computers** > **Smart Computer Groups**, and create a smart group that identifies compliant Mac computers by using the following criteria:
   a. Mac computers with the Company Portal.app installed
   b. Mac computers with the Azure Active Directory ID attribute
2. Deploy a configuration profile or a policy in Jamf Pro for each of your compliance policies. (e.g., Deploy a Mac computer configuration profile with the Passcode payload if you configured a password policy in Microsoft Intune or a policy with the Disk Encryption payload if you configured an encryption policy in Microsoft Intune)
3. Scope the policy or configuration profile to the smart group created in step 1.
4. Click **Save**.
5. Repeat the process for all compliance policies created in Microsoft Intune.

Related Information

Managing Policies
Find out how to create a policy for a Mac computer in Jamf Pro.

Computer Configuration Profiles
Find out how to create a Mac computer configuration profile in Jamf Pro.

Appendix: Inventory Information Shared with Microsoft Intune

The following Mac computer inventory attributes are collected and shared from Jamf Pro to Microsoft Intune:

Attribute	Example Data Sent to Microsoft Intune	Used in Compliance	Jamf Pro Computer Inventory Location and Attribute
Tenant ID	0012166F-5DB5-41F7-B832-D8763D641274	Primary key	N/A
Device AAD ID	0012166F-5DB5-41F7-B832-D8763D641274	Primary key	Local User Accounts category: Computer Azure Active Directory ID
Last Check-In Time	2017-06-07T13:32:42Z	No	Timestamp of last recurring check-in by device to Jamf Pro (in UTC timezone) **Important:** This is not the time of the last inventory update.
Architecture Type	x86_64	No	Hardware category
Available RAM Slots	0	No	Hardware category
Battery Capacity	91%	No	Hardware category
Boot ROM	MB81.0164.B18	No	Hardware category
Bus Speed	1.10 Ghz	No	Hardware category
Cache Size	4MB	No	Hardware category
Device Name	User's MacBook Pro	No	General category: Computer Name
Domain Join	Likewise: ad.jamf.com Centrify: ad.jamf.com ad.jamf.com FALSE	No	Operating System category: Active Directory Status
Jamf ID	140 143 (any integer)	No	General category: Jamf Computer ID

Attribute	Example Data Sent to Microsoft Intune	Used in Compliance	Jamf Pro Computer Inventory Location and Attribute
Conditional Access Inventory State **Note:** This attribute was called "Jamf Inventory State".	0 1 2	Yes; no direct setting in compliance; internal logic	Calculated 0 == activated in Jamf Pro (new or coming back from unresponsive); 1 == deactivated (deleted /retired from Jamf Pro); 2 == unresponsive (time of last recurring check-in is more than 24 hours ago)
MAC address	C4:B3:01:C5:F5:61	No	Hardware category: Primary MAC Address
Make	Apple	No	Hardware category
Model	15-inch Retina MacBook Pro (Mid 2015)	No	Hardware category: Model
Model Identifier	Macbook8,1	No	Hardware category
NIC Speed	N/A	No	Hardware category
Number of Cores	2	No	Hardware category
Number of Processors	1	No	Hardware category
OS	macOS	No	Operating System category: Operating System
OS Version	10.12.4 10.10.3	Yes	Operating System category: Operating System Version
Platform	macOS	No	General category: Platform
Processor Speed	1.10 Ghz	No	Hardware category
Processor Type	Intel Core M	No	Hardware category
Secondary MAC Address	A1:23:4F:56:78:9J	No	Hardware category
Serial Number	J01A234MFJA5	No	Hardware category
SMC Version	2.25f87	No	Hardware category
Total RAM	8.0 GB	No	Hardware category

Attribute	Example Data Sent to Microsoft Intune	Used in Compliance	Jamf Pro Computer Inventory Location and Attribute
UDID	0012166F-5DB5-41F7-B832-D8763D641274	No	Hardware category
User AAD ID	0012166F-5DB5-41F7-B832-D8763D641274	Yes	Local User Accounts category: User Azure Active Directory ID
User Email	user@mycompany.com	No	User and Location category: Email Address
# of previous password to prevent reuse	1 5 NotEnforced	Yes	Local User Accounts category: Password History
Encrypted (FileVault 2)	TRUE FALSE	Yes	Disk Encryption category: Boot Partition: FileValult 2 Partition Encryption State
Gatekeeper	App store only App store and developer ID FALSE	No	Security category: Gatekeeper
Minimum # of character sets	2 NotEnforced	Yes	Local User Accounts category: Minimum Number of Complex Characters
Password expiration (days)	30 NotEnforced	Yes	Local User Accounts category: Maximum Passcode Age
Password Type	Simple AlphaNumeric NotEnforced	Yes	N/A
Prevent Auto Login	TRUE FALSE	Yes	Security category: Disable Automatic Login
Required Passcode Length	10 NotEnforced	Yes	Local User Accounts category: Minimum Passcode Length
Start screensaver after inactivity	5 20 NotEnforced	Yes	N/A

Attribute	Example Data Sent to Microsoft Intune	Used in Compliance	Jamf Pro Computer Inventory Location and Attribute
System Integrity Protection	TRUE FALSE NOTAPPLICABLE	Yes	Security category: System Integrity Protection FALSE = not collected status (could happen on first enrollment or very recent upgrade of Jamf Pro agent) or Disabled status; NOTAPPLICABLE is displayed for a macOS version earlier than macOS 10.11