Lenovo Display Fleet Manager Installation Guide

Version	1.0.3
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Lenovo

Content

Revision History

Date	Modifications	Version
2025-03-10	Initial Creation	1.0.1
2025-07-02	Current Version Deployment Manual，Supports software versions 1.0.2.6 and later. • Newly added: 6.HTTPS Certificate Replacement 、7.Deploy LDFM Server on Linux • Update: 4.LDFM Client Installation Process 、 5.Access the LDFM Management System	1.0.2
2025-07-29	Current Version Deployment Manual，Supports software versions 1.0.2.8 and later. • Newly added: 4.2.Installation Process on This Local Machine (MacOS) 、4.4.Verify whether the service is successful 、 4.5.2.MacOS Verification 、 8.IP Change • Update: 3.1.4.Configure the Server 、 3.2.Configure Server Parameters (Optional)	1.0.3

1. Introduction

Lenovo Display Fleet Manager (abbreviated as LDFM) is a tool specifically developed for enterprise users to remotely manage monitors. It supports remote On-Screen Display (OSD) menu settings, firmware upgrades, and control operations for monitors.
This document introduces the installation of the LDFM management system, which includes two parts: the LDFM Server and the LDFM Client.

2. Preparation Work

2.1. Hardware Configuration Requirements

Server :
Processor: Intel i5 - 12400F or a processor with higher performance.
Memory: 16GB or more (The memory will increase by approximately 500k bytes for each additional managed device).
Hard Disk Space: More than 500GB, used for storing service data and log files.
System: Windows 10, Windows 11 Pro, or Windows Server, 64 - bit.

Client :
Processor: Intel Core i5 - 7500 or a processor with equivalent or higher performance.
Memory: 8GB or more.
Hard Disk Space: More than 200GB to meet the requirements of client - side program operation and data caching.
System: Windows 10, Windows 11 Home Edition or higher, 32 - bit or 64 - bit operating system.

2.2. Required Network Configuration

The client host on which LDFMClient is installed must support https access to LDFMServer.

2.3. Preparation before Installation

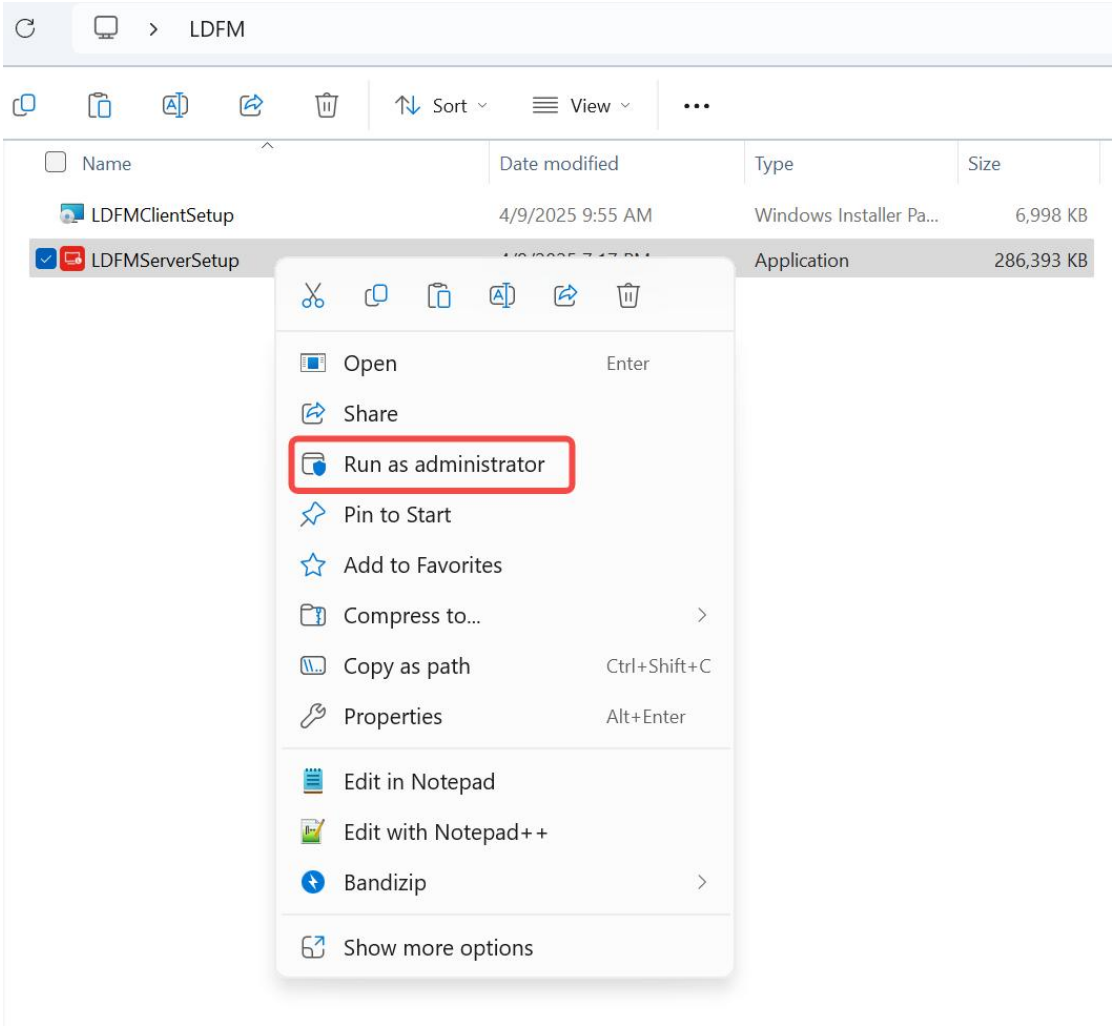
Unzip the downloaded LDFM installation package.

3. LDFM Server Installation Process

3.1. Installation process

3.1.1. Run the installation process

Right - click and run LDFMServerSetup as an administrator. On the User Account Control page, select "yes" to proceed to the next step.

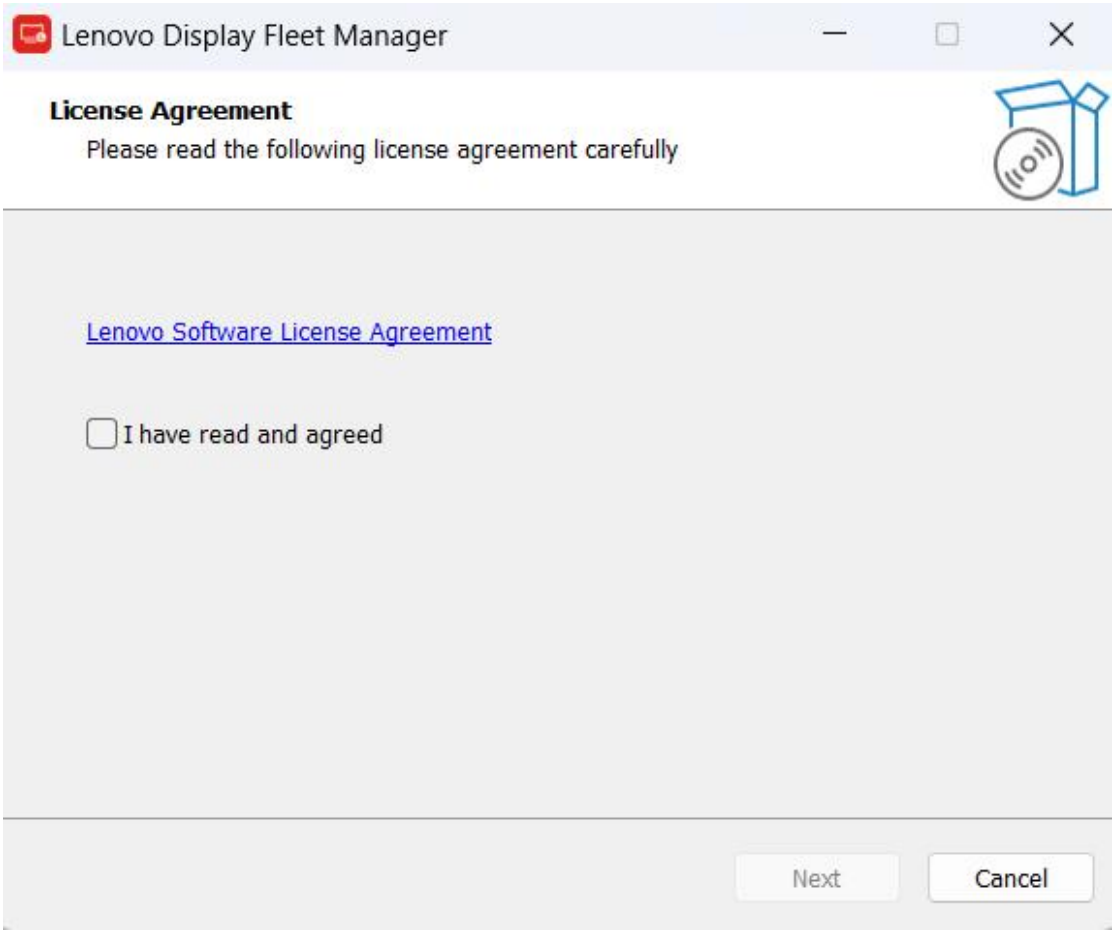


3.1.2. Select a language

In the language setting, select the language. The default language is English. Click "OK" to proceed to the next step.

3.1.3. Review the software license agreement

In the license agreement interface, carefully read the "Lenovo Software License Agreement". After confirming that you have fully understood the content of the agreement, check the box "I have read and agree to the terms", and then click "Next" to continue with the subsequent installation process.

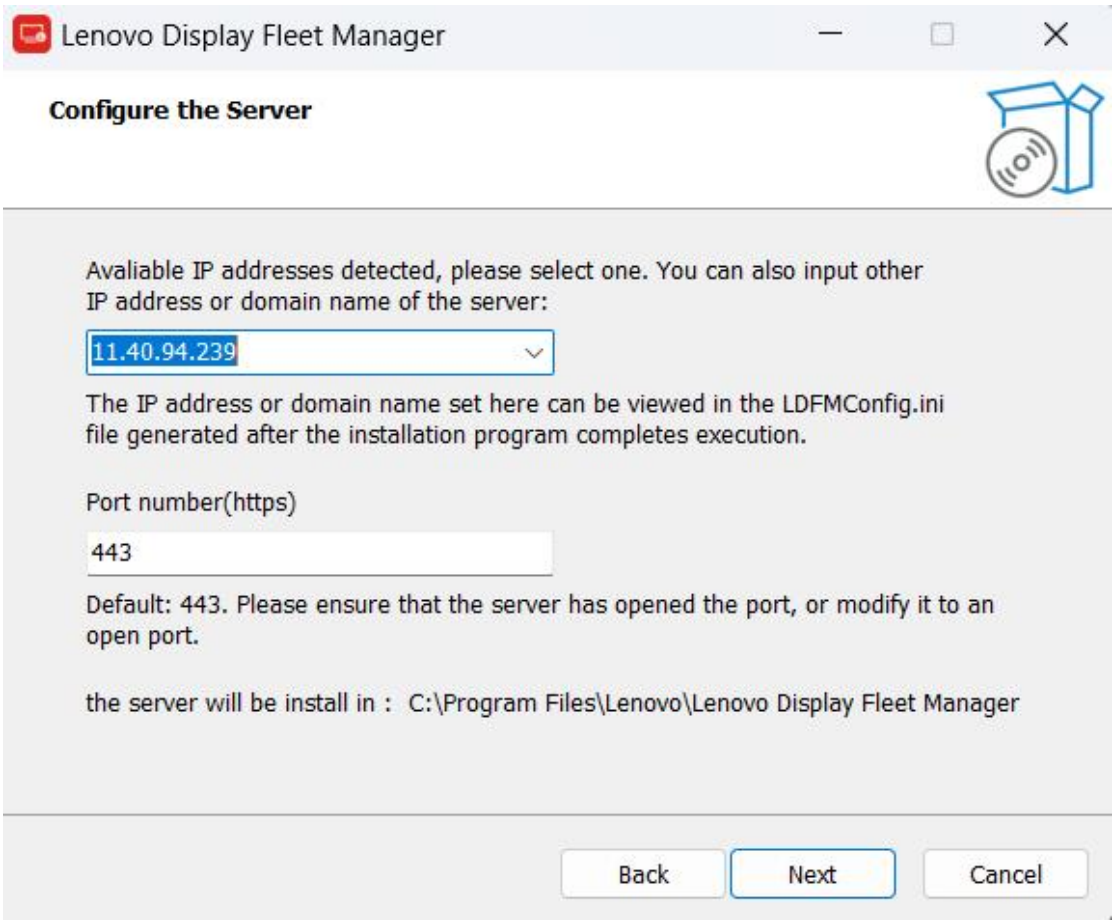


3.1.4. Configure the Server

On the server configuration interface, you can either select or manually enter an IP address or domain name. The default port number is 443, and

it can be modified as needed. After confirming that the settings are correct, click "Next".

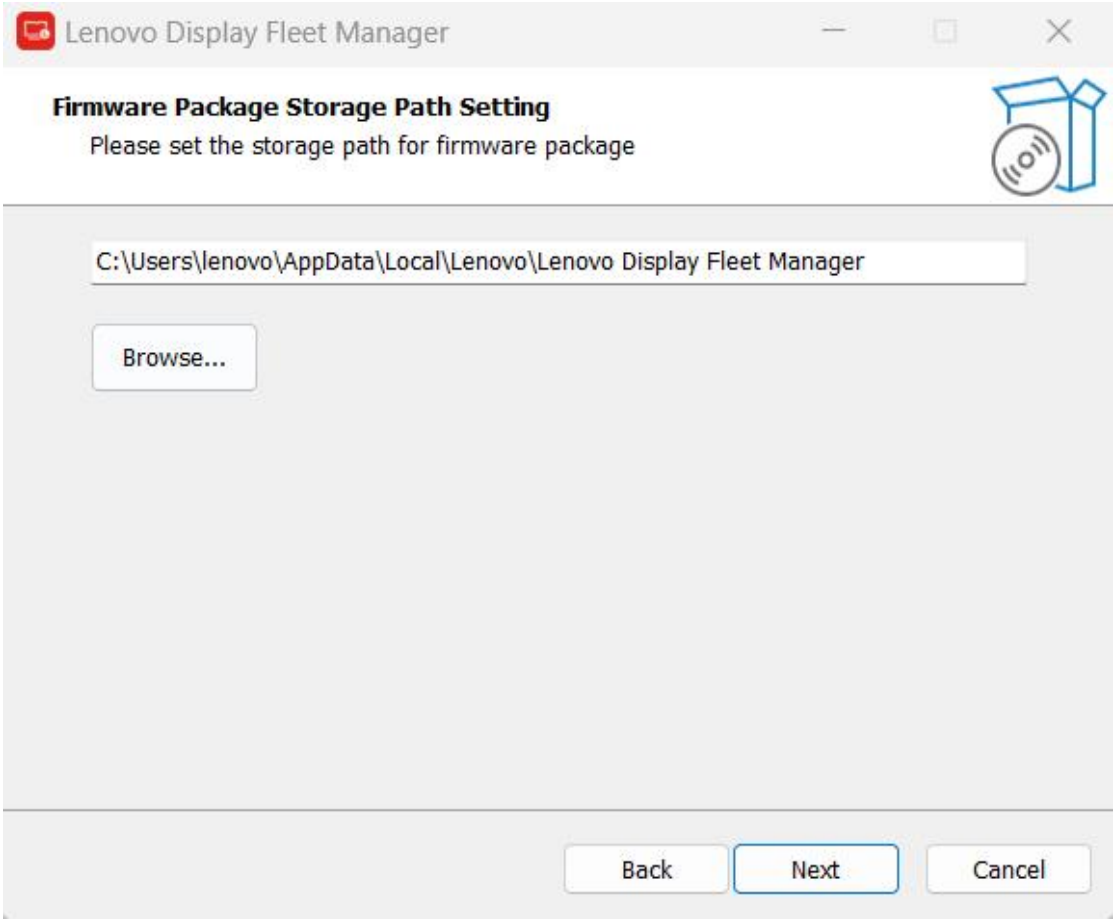
If the port number is modified, the URL to be entered during login will be: https:// ip: port/



3.1.5. Configure the Storage Path of the Firmware Package

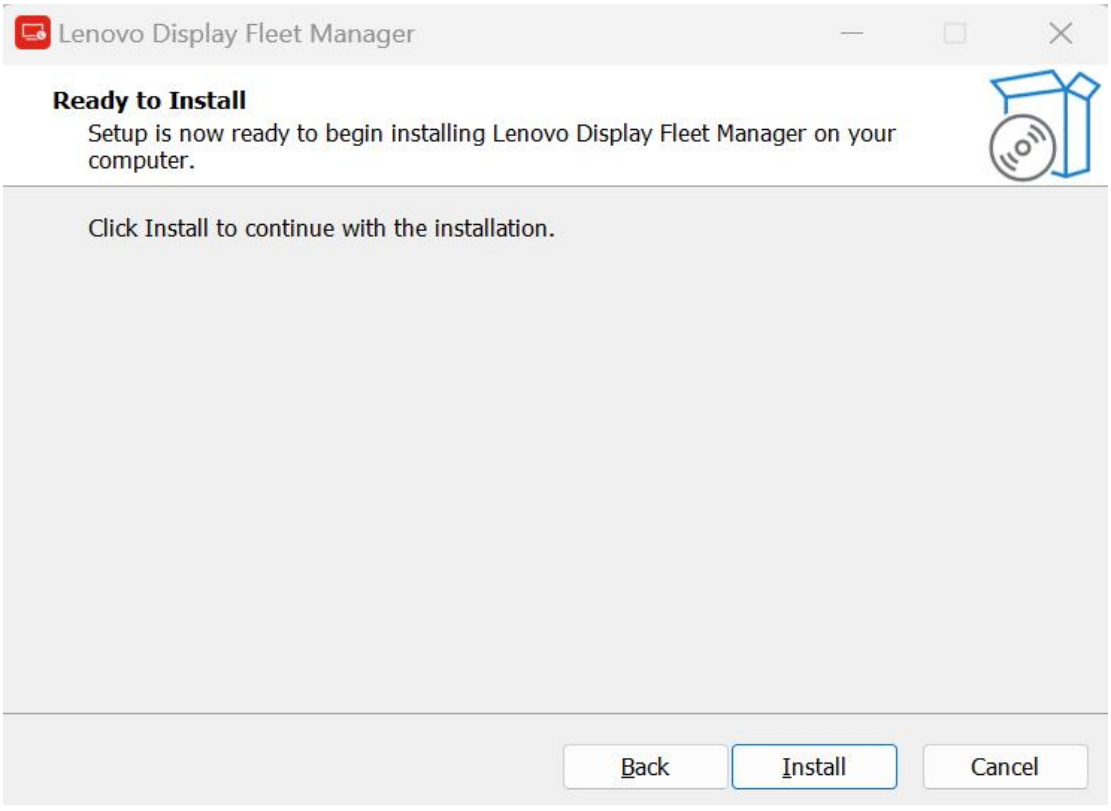
In the setting interface of the firmware package storage path, the default storage path of the firmware package is: C:\Users\lenovo\AppData\Local\Lenovo\Lenovo Display Fleet Manager\uploads.

If you need to change it, click "Browse" and select the storage location of the firmware package you need from the local directory. After the selection is made, click "Next".

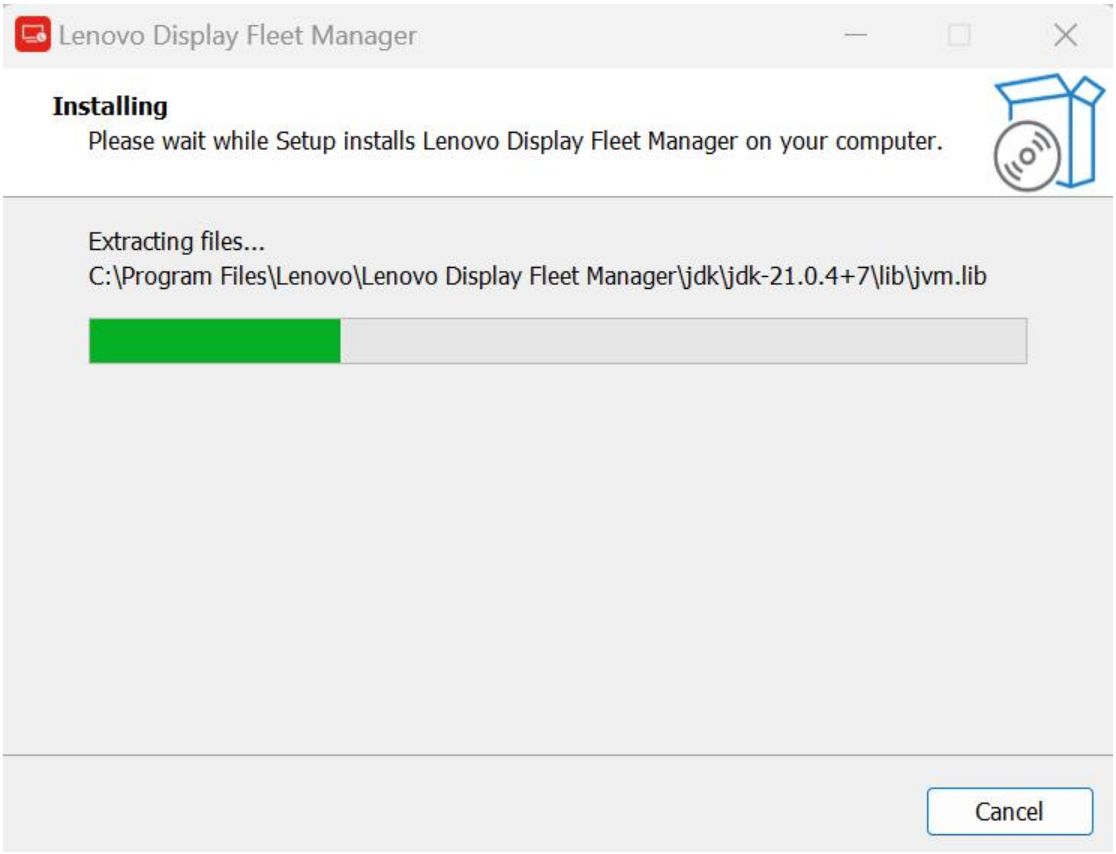


3.1.6. Start the installation

On the "Ready to Install" interface, click "Install" to start the installation.

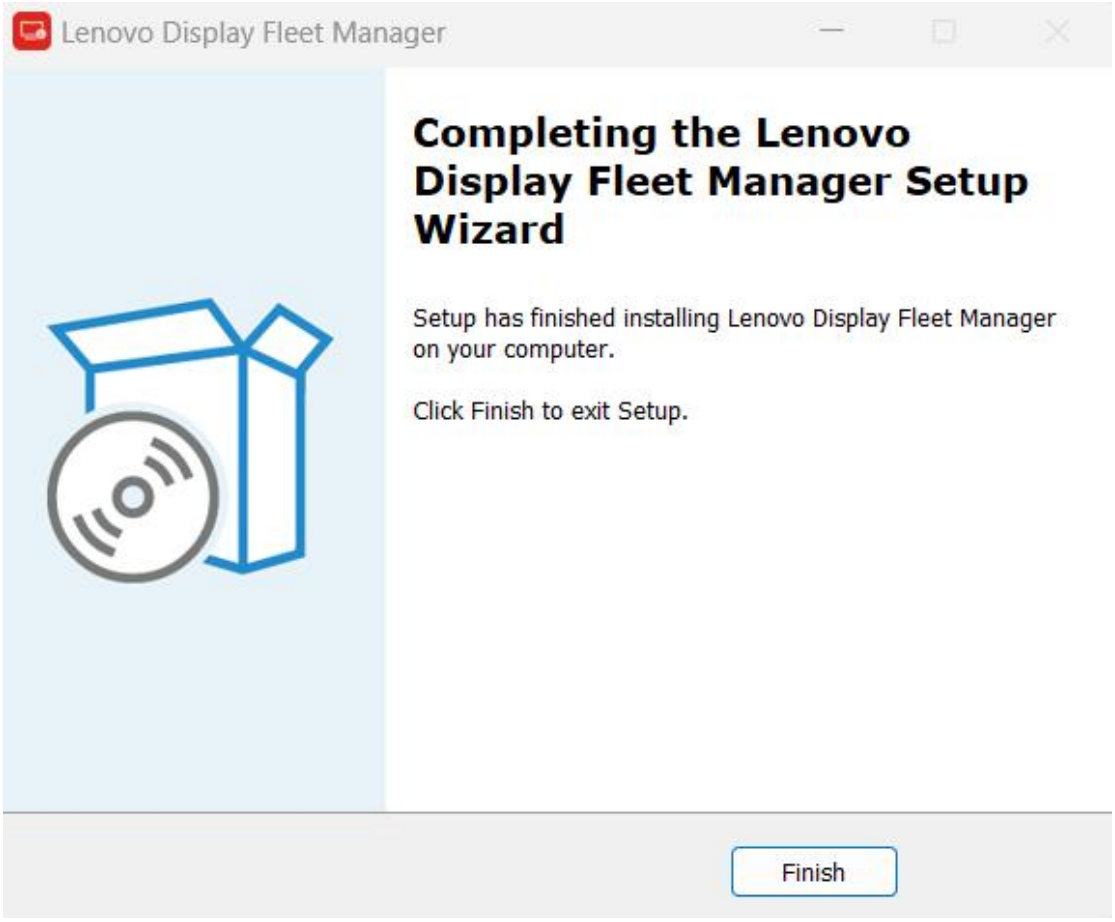


Installing... Showing progress.

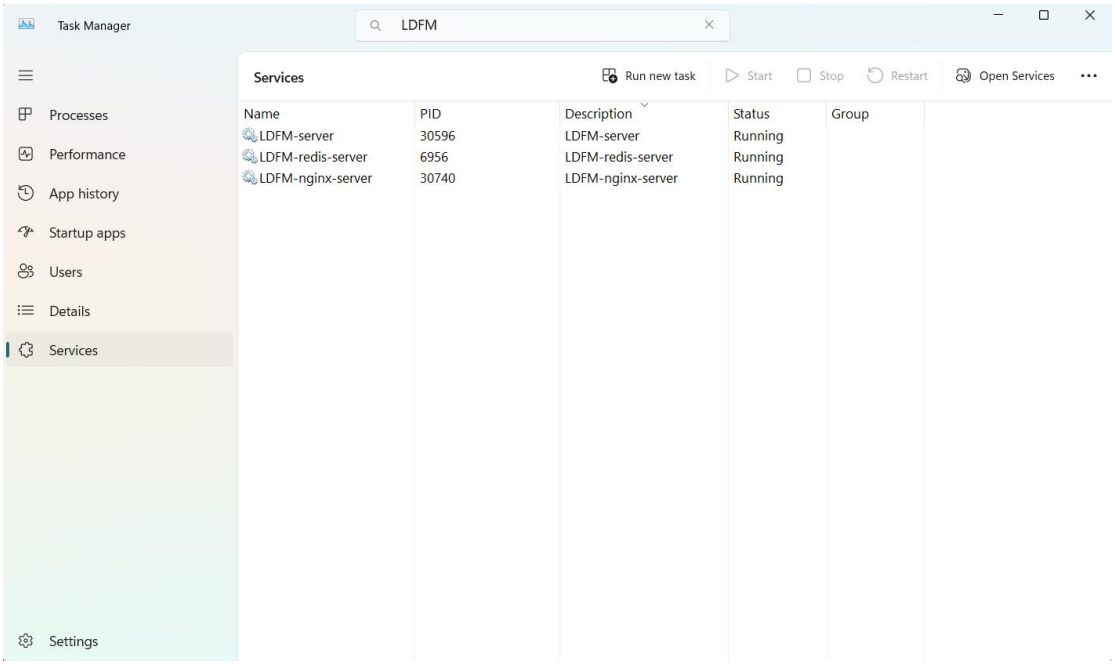


3.1.7. The installation is complete

Installation complete. Click "Finish" to close.



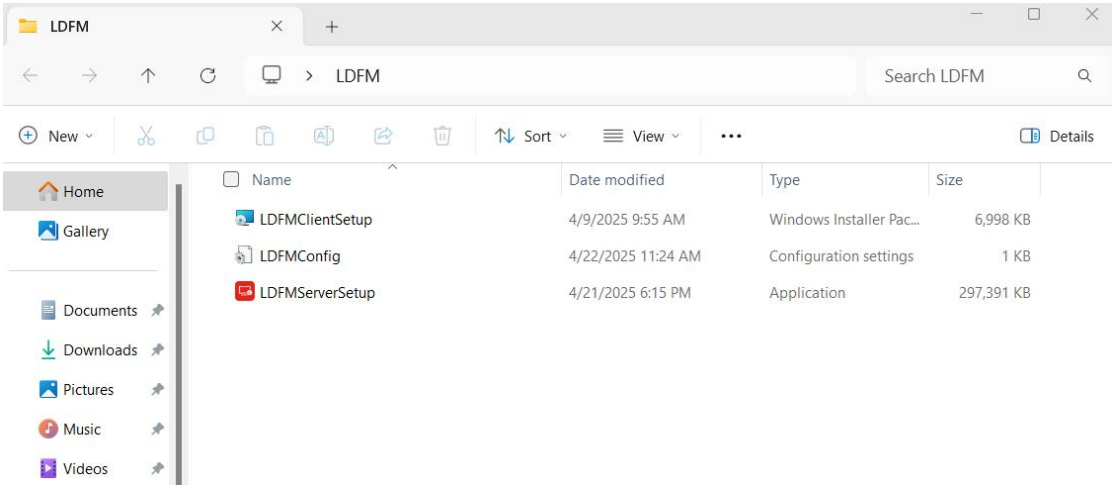
After the installation is completed, the following three services will appear in the Task Manager:



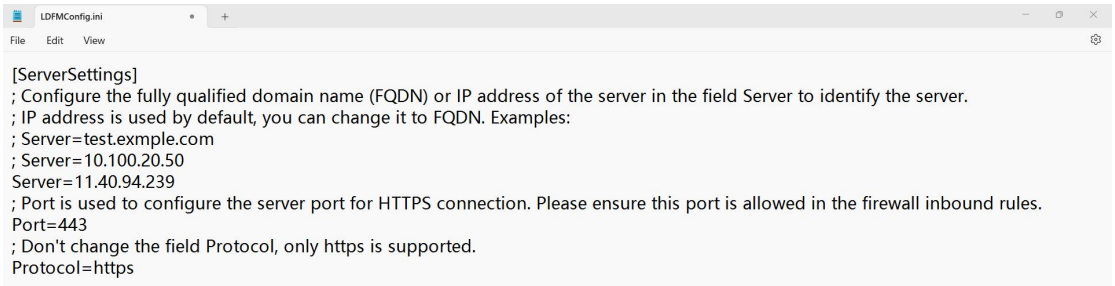
3.2. Configure Server Parameters (Optional)

After the installation is completed, an LDFMConfig.ini file will be

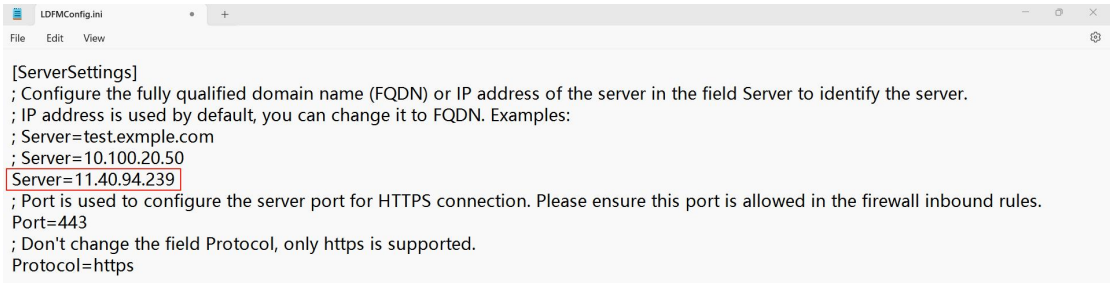
generated in the same path as LDFMServerSetup.exe. This file will be used during the installation of the LDFMClient.



If you need to modify the IP address and port number, double-click the "LDFMConfig.ini" file, make the necessary modifications and save them.

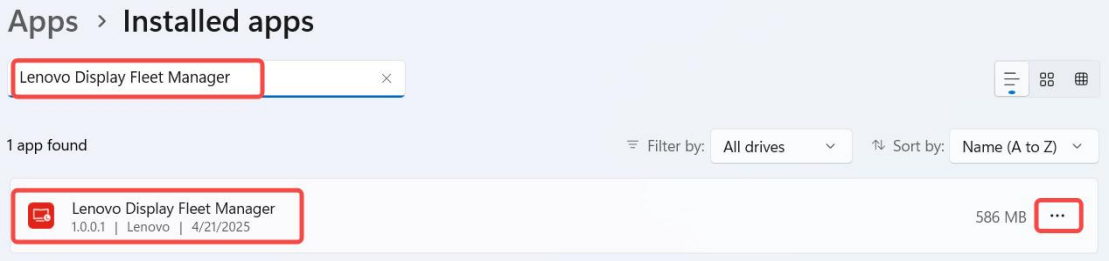


If you need to configure a domain name, replace the IP address with the domain name, then save the changes.



3.3. Uninstall the Service

Go to Settings > Apps > Installed apps, find "Lenovo Display Fleet Manager", click on the "..." button, and then click "Uninstall".



3.4. Tips

The front - end service of LDFMServer depends on nginx. By default, nginx uses port 80. If there is software running on port 80 on the current server, you need to modify the port configuration of nginx and then restart the LDFM service. The following is the method to modify the nginx port configuration.

Open the directory where nginx is located:
C:\Users\Admin\AppData\Local\Lenovo\Lenovo Display Fleet Manager\nginx\nginx - 1.26.2\conf
Since my user is Admin, I'm under the Admin directory in the users folder.
If the administrator user of the current server is Mike, then open:
C:\Users\Mike\AppData\Local\Lenovo\Lenovo Display Fleet Manager\nginx\nginx - 1.26.2\conf
Then modify the nginx.conf file and set port 80 to another available port, for example, 9300.

After modification:
After saving, restart LDFMServer. Double - click "Lenovo Display Fleet Manager" in the Windows Start menu. Then open a browser, enter "http://localhost:9300/" and press Enter. You can then access the management page.

4. LDFM Client Installation Process

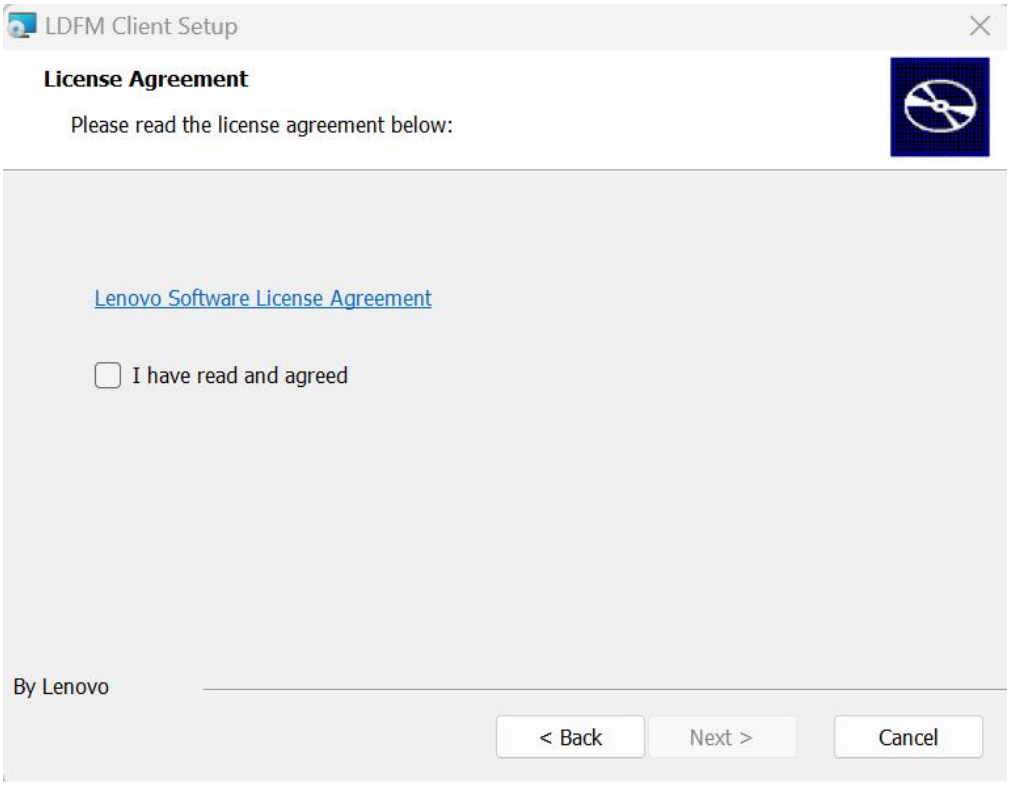
4.1. Installation Process on This Local Machine (Windows)

4.1.1. Installation Preparation

Copy the LDFMConfig.ini file generated during the server installation to the same directory as LDFMClientSetup.exe.

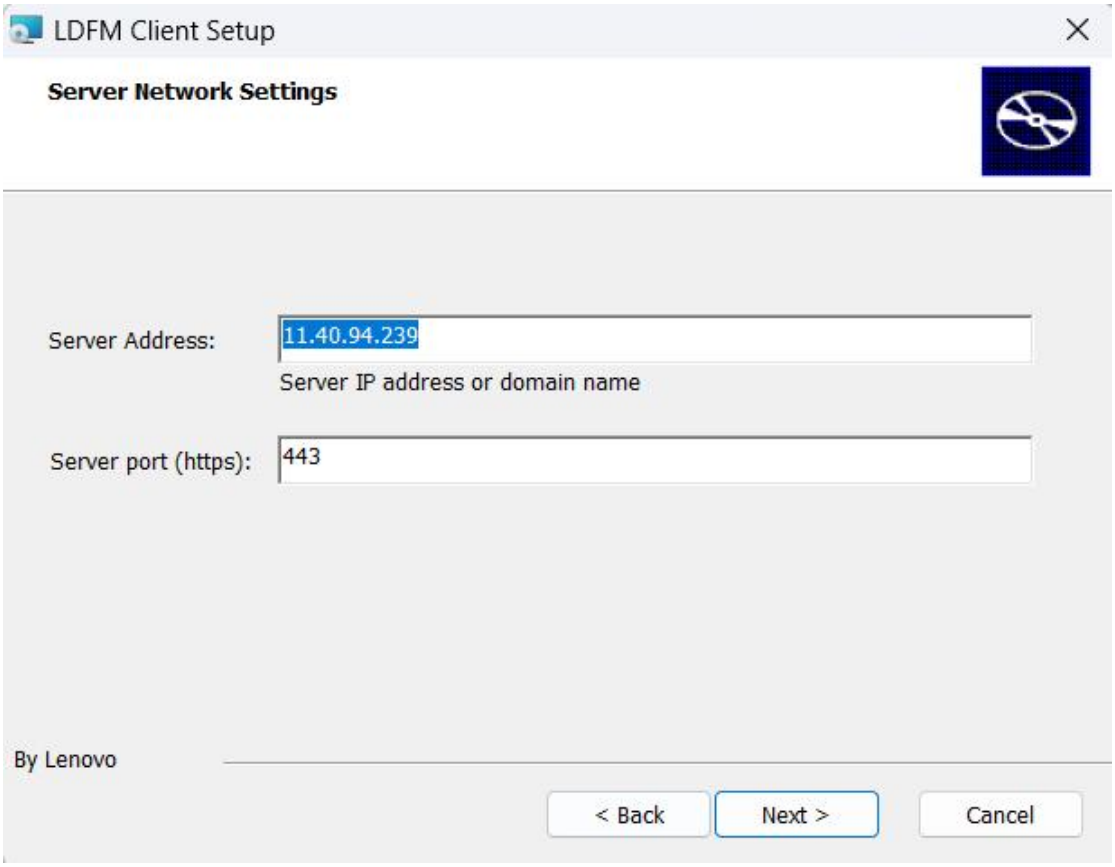
4.1.2. Run the installation program

Double-click to run LDFMClientSetup.msi.
On the license agreement interface, carefully read the "Lenovo Software License Agreement". After confirming that you have fully understood the content of the agreement, check the box labeled "I have read and agree to the terms", and then click "Next" to proceed with the subsequent installation process.



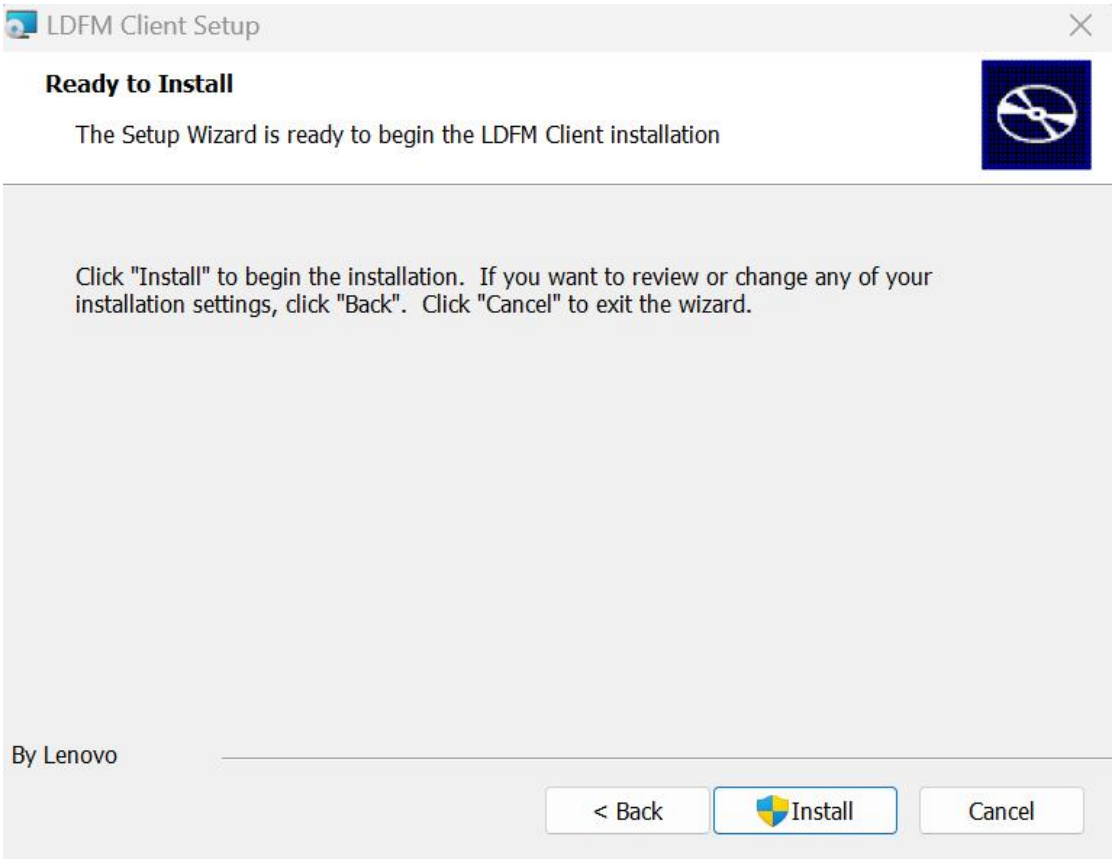
4.1.3. Configure Server Parameters

The Server Address and Server Port will be automatically retrieved from the config.ini file.
For details on configuring HTTPS certificate, refer to: 6. https Configuration.



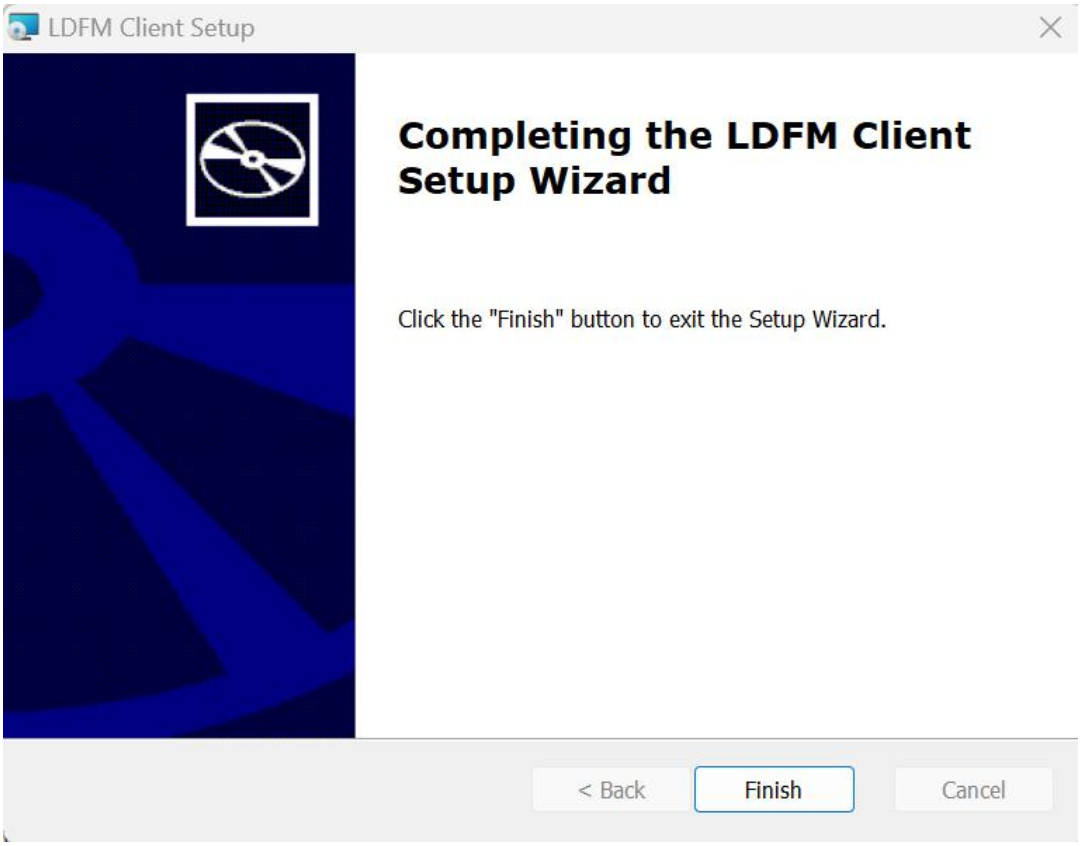
4.1.4. Start the installation

After confirming that you're ready, click the "Install" button. At this time, the installation progress bar will show the installation process.
Before the installation, the system will request administrative privileges. Please click "Yes" to continue the installation.



4.1.5. Installation Completed

Installation complete. Click "Finish" to exit.



4.2. Installation Process on This Local Machine (MacOS)

4.2.1. Installation Preparation

Unzip the LDFMClientService.zip file to obtain the root directory of the installation package, which contains the LDFMClient.pkg file.
Place the LDFMConfig.mobileconfig file generated during the installation of LDFMServer in this directory.

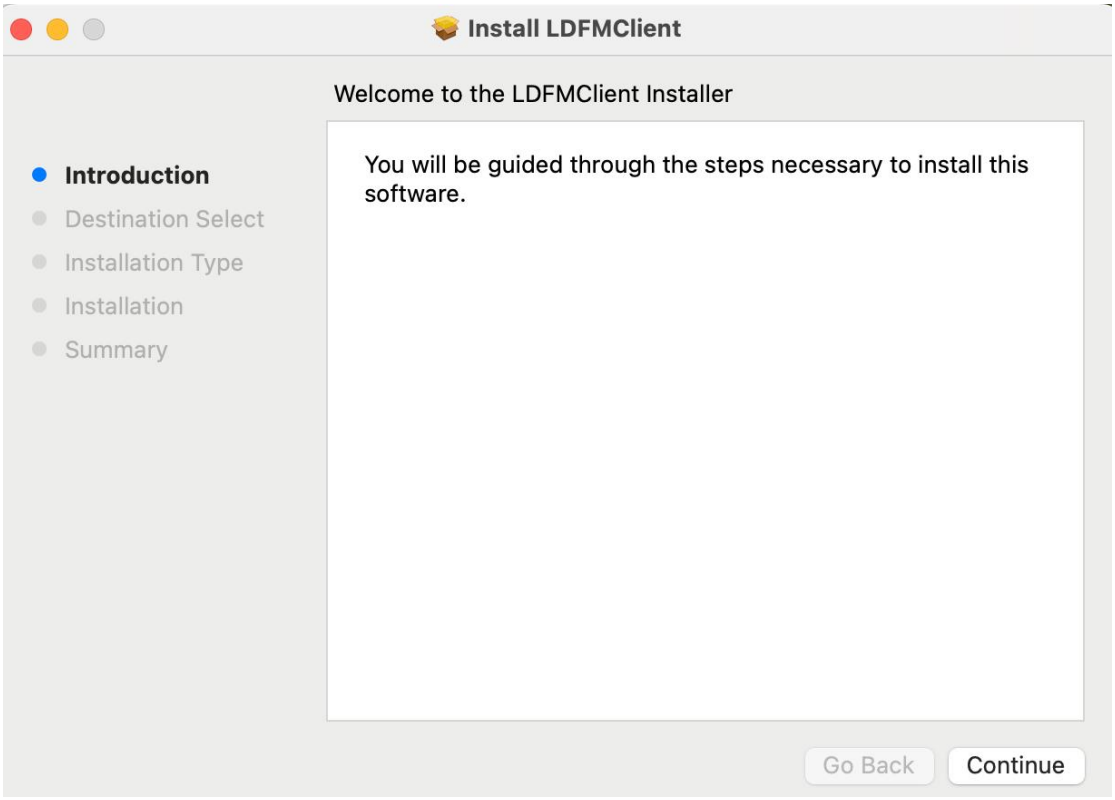
4.2.2. Parameter Configuration

If you need to modify the server address and port information, you can edit the LDFMConfig.mobileconfig file.
The content of the file is as shown in the figure:

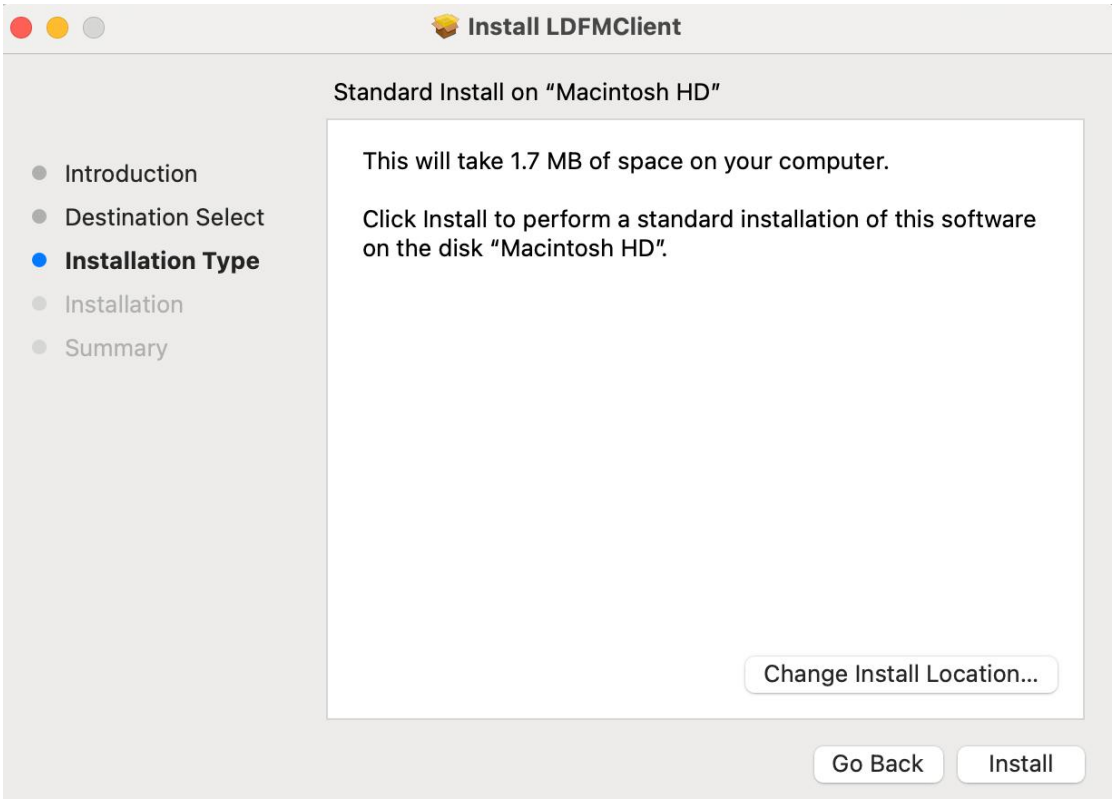
```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
    <key>PayloadContent</key>
    <array>
     <!-- this is the server parameters -->
        <dict>
            <key>PayloadDisplayName</key>
            <string>LDFM Server Configuration</string>
            <key>PayloadIdentifier</key>
            <string>com.lenovo.LDFM.server</string>
            <key>PayloadType</key>
            <string>com.lenovo.LDFM.server</string>
            <key>PayloadUUID</key>
            <string>E23F5A6B-1234-5678-9ABC-DEF123456789</string>
            <key>PayloadVersion</key>
            <integer>1</integer>
            <key>Server</key>
            <string>10.40.94.57</string>
            <key>Port</key>
            <string>443</string>
            <key>Protocol</key>
            <string>https</string>
        </dict>
    </array>
    <key>PayloadDescription</key>
    <string>Configuration settings for LDFM Client</string>
    <key>PayloadDisplayName</key>
    <string>LDFM Client Configuration</string>
    <key>PayloadIdentifier</key>
    <string>com.lenovo.LDFMClient.config</string>
    <key>PayloadOrganization</key>
    <string>Lenovo</string>
    <key>PayloadType</key>
    <string>Configuration</string>
    <key>PayloadUUID</key>
    <string>A1B2C3D4-E5F6-A7B8-C9D0-E1F2A3B4C5D6</string>
    <key>PayloadVersion</key>
    <integer>1</integer>
</dict>
</plist>
```

4.2.3. Installer

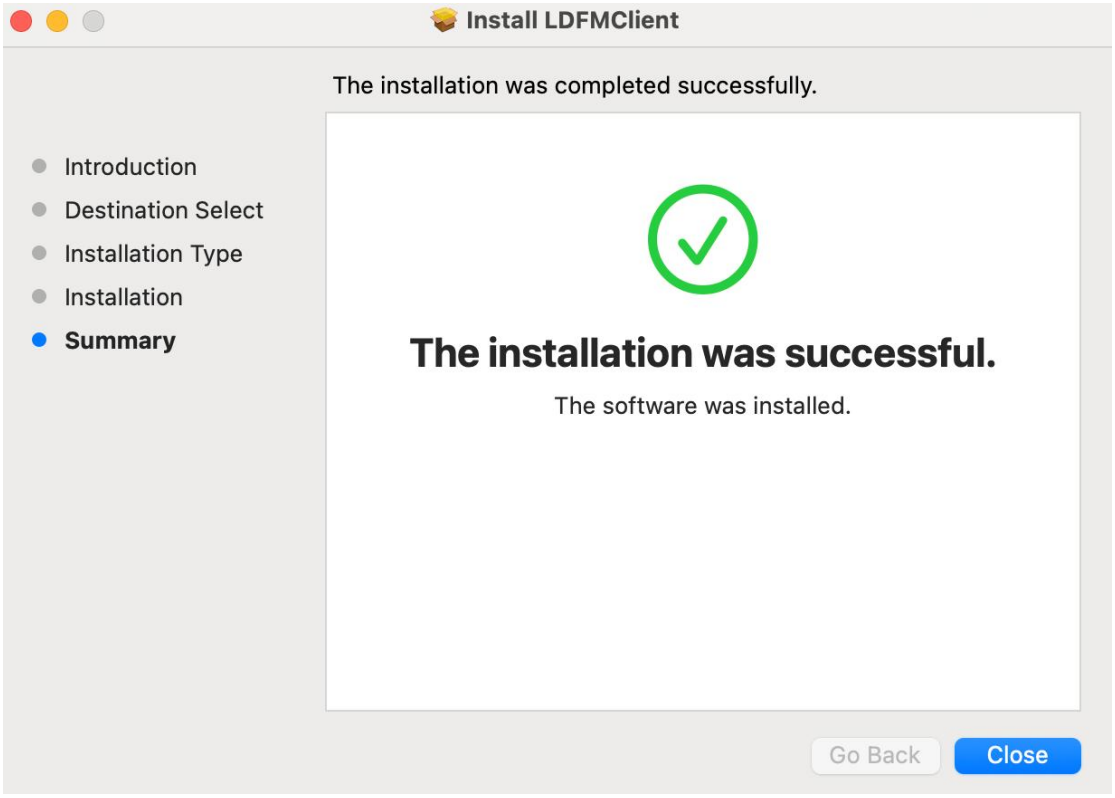
Double-click the LDFMClient.pkg file to start the installation.
If the following prompt appears, open System Settings, find Privacy & Security, click "Open Anyway", and enter the local machine password.
The LDFMClient installation interface will pop up. After reading through it, click "Continue".



Choose an installation location or use the default one, click "Install", and then you need to enter the local machine password to proceed with the installation.



Once the installation progress is complete, the installation will be successful.



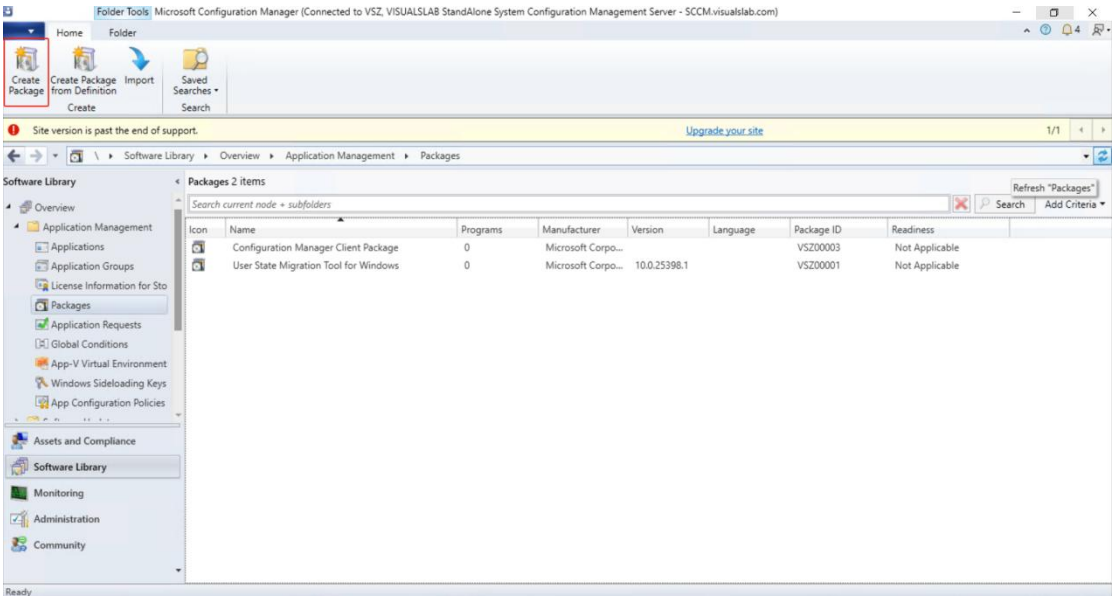
4.2.4. Terminal Execution

Press the command + space key combination to bring up Spotlight Search, type "Terminal" and press Enter.
Navigate to the root directory of the installation package, and execute the script updateLDFMServerIP.sh as an administrator.
sudo bash ./updateLDFMServerIP.sh

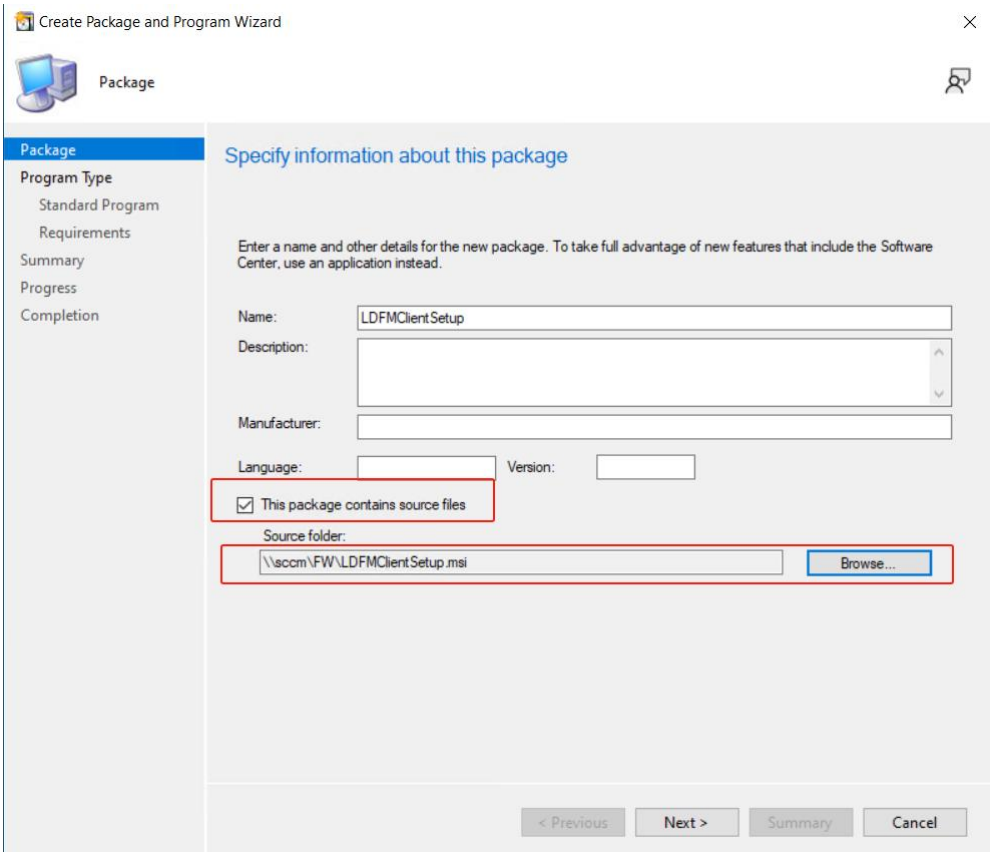
4.3. Installation Process via SCCM (Windows)

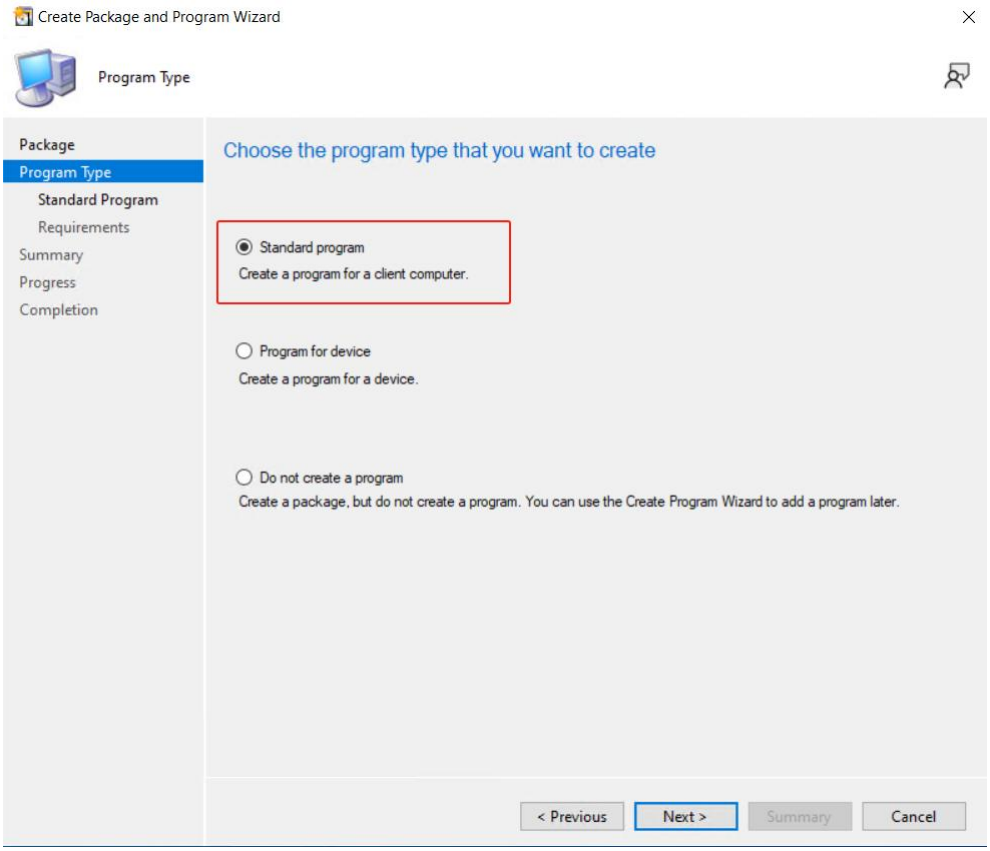
4.3.1. Package Deployment

Software Library > Overview > Application Management > Packages, right-click and select "Create Package".



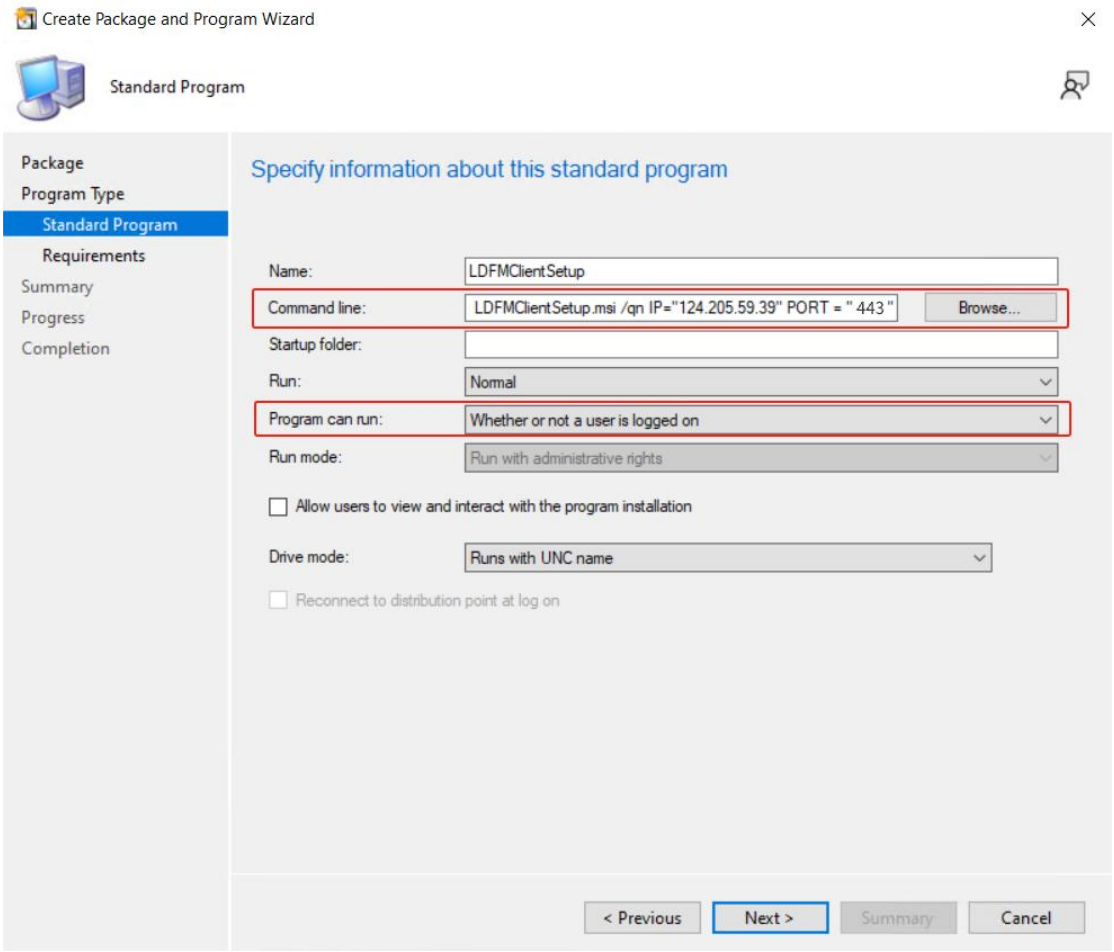
Check "This package contains source files", then specify the actual network path (e.g., “\\sccm\gx\ldfm\LDFMClientSetup.msi”).



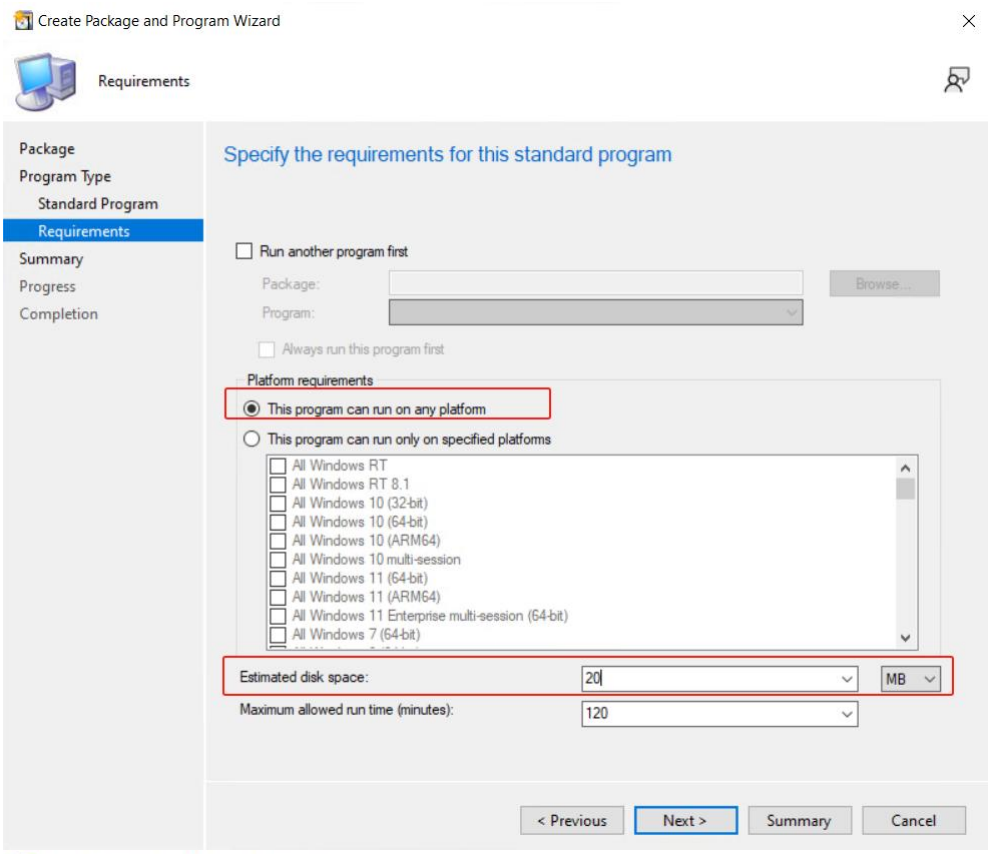


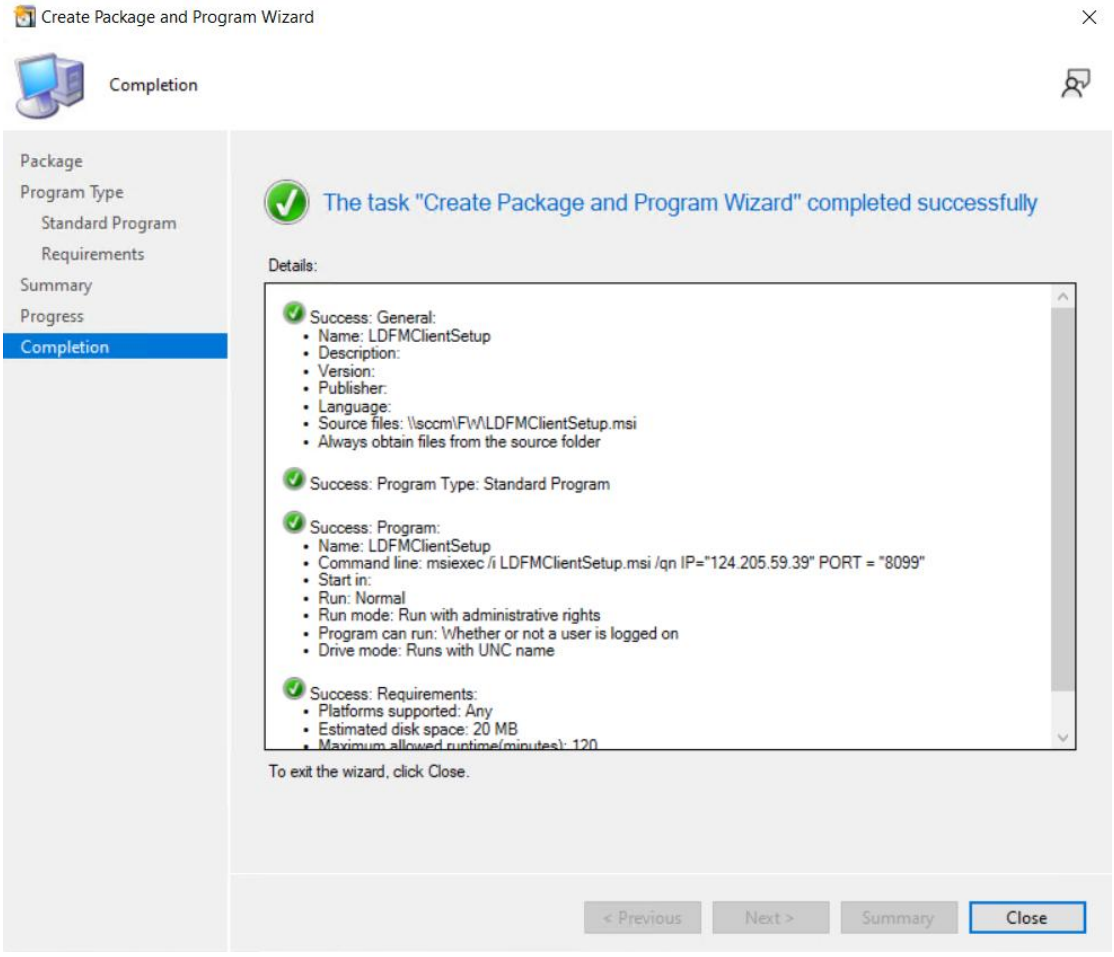
Execute the following command: msiexec /i LDFMClientSetup.msi /qn IP="124.205.59.39" PORT="443" PROTOCOL="https" .

IP can be an IP address or a domain name.



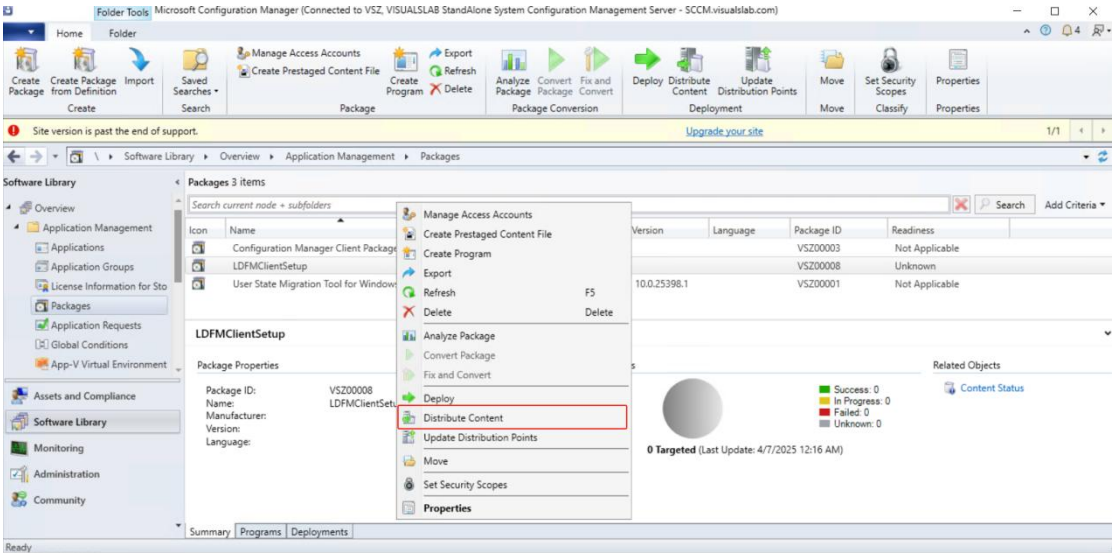
[Optional]: Entering "Estimated Disk Space" may execute faster than leaving it unknown.


Create Package and Program Wizard
Requirements
Package
Program Type
Standard Program
Requirements
Summary
Progress
Completion
Specify the requirements for this standard program
Run another program first
Package:
Program:
Browse...
Always run this program first
Platform requirements
This program can run on any platform
This program can run only on specified platforms
All Windows RT
All Windows RT 8.1
All Windows 10 (32-bit)
All Windows 10 (64-bit)
All Windows 10 (ARM64)
All Windows 10 multi-session
All Windows 11 (64-bit)
All Windows 11 (ARM64)
All Windows 11 Enterprise multi-session (64-bit)
All Windows 7 (64-bit)
Estimated disk space:
20
MB
Maximum allowed run time (minutes):
120
< Previous
Next >
Summary
Cancel

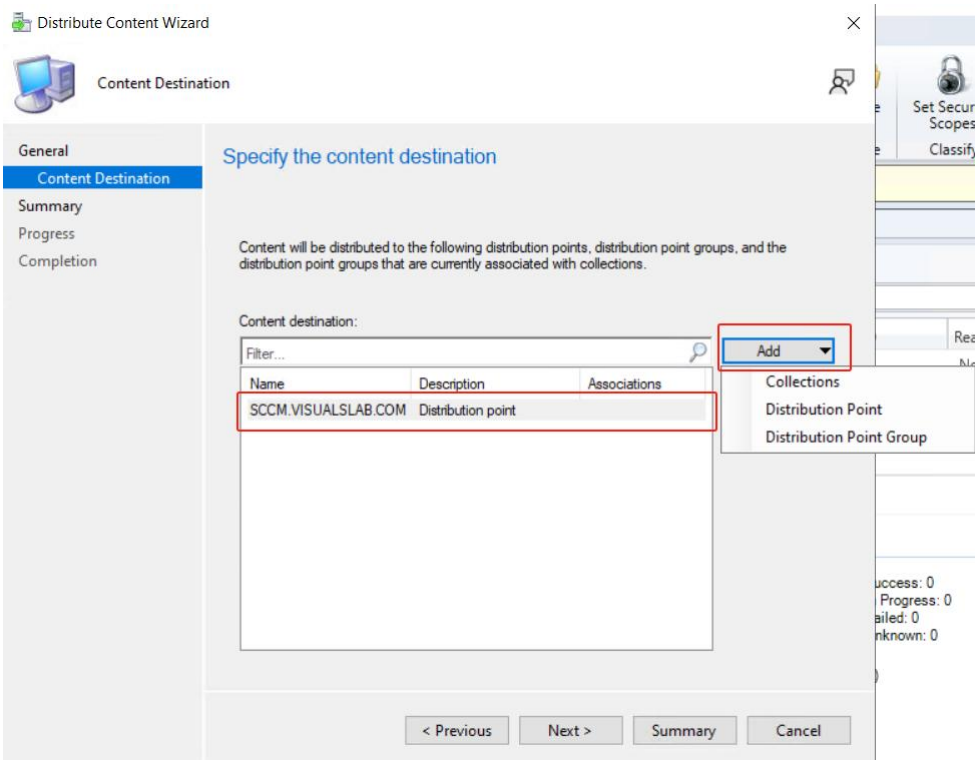

Create Package and Program Wizard
Completion
Package
Program Type
Standard Program
Requirements
Summary
Progress
Completion
The task "Create Package and Program Wizard" completed successfully
Details:
Success: General:
Name: LDFMClientSetup
Description:
Version:
Publisher:
Language:
Source files: \\sccm\FW\LDFMClientSetup.msi
Always obtain files from the source folder
Success: Program Type: Standard Program
Success: Program:
Name: LDFMClientSetup
Command line: msiexec /i LDFMClientSetup.msi /qn IP="124.205.59.39" PORT = "8099"
Start in:
Run: Normal
Run mode: Run with administrative rights
Program can run: Whether or not a user is logged on
Drive mode: Runs with UNC name
Success: Requirements:
Platforms supported: Any
Estimated disk space: 20 MB
To exit the wizard, click Close.
< Previous
Next >
Summary
Close

4.3.2. Distribute Content

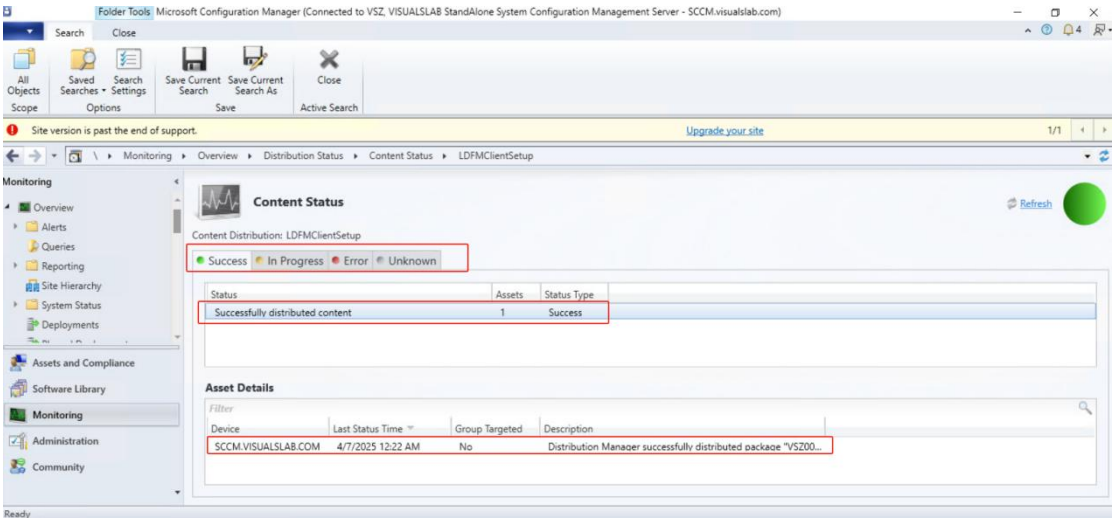
Software Library > Overview > Application Management > Applications. Select the application that has just been created, then right-click and select "Distribute Content".



Select Distribution Points.

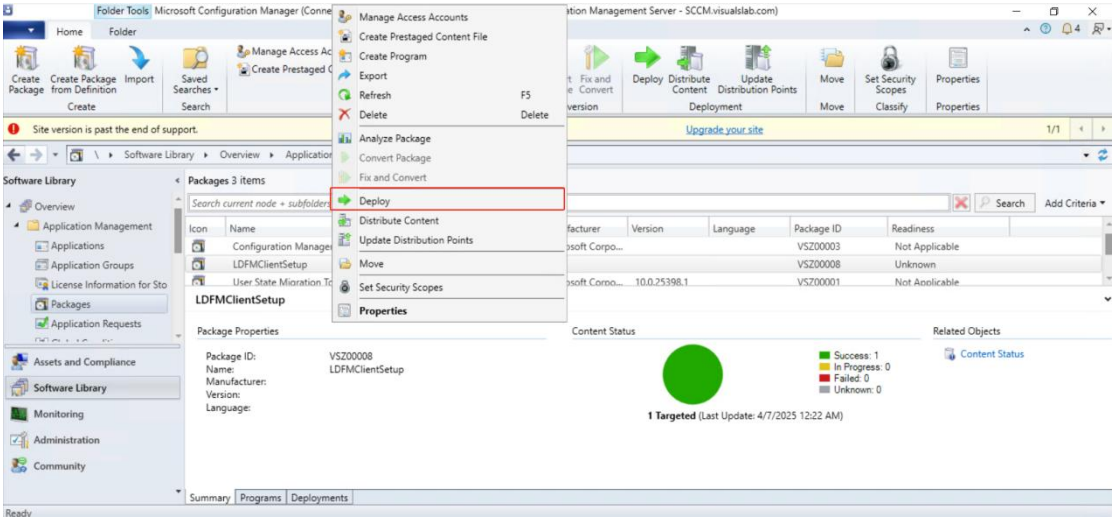


Monitoring > Overview > Distribution Status > Content Status. Right-click on the package and select "View Status", and wait until the content status changes to "Success".

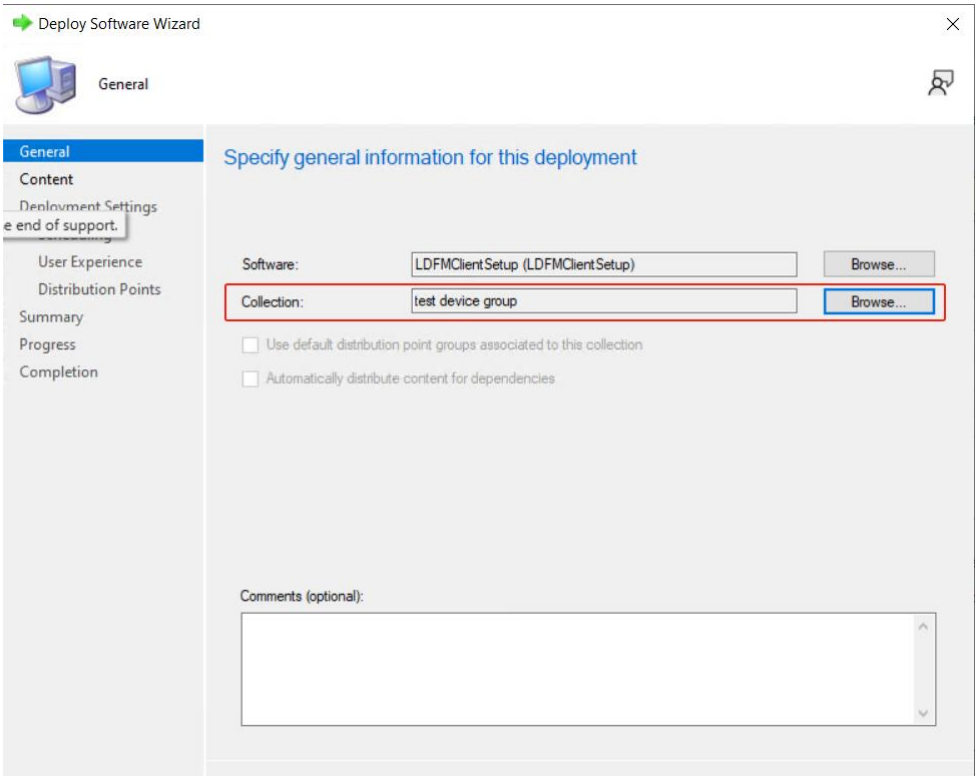


4.3.3. Deployment

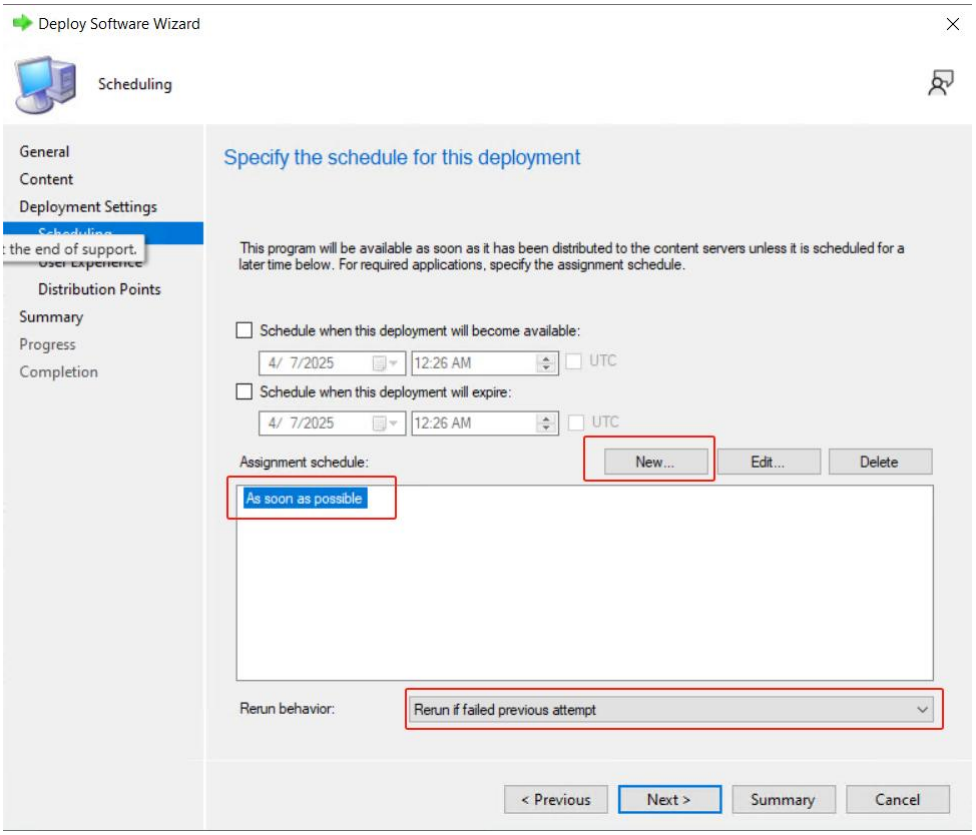
Software Library > Overview > Application Management > Packages. Right-click and select "Deploy".



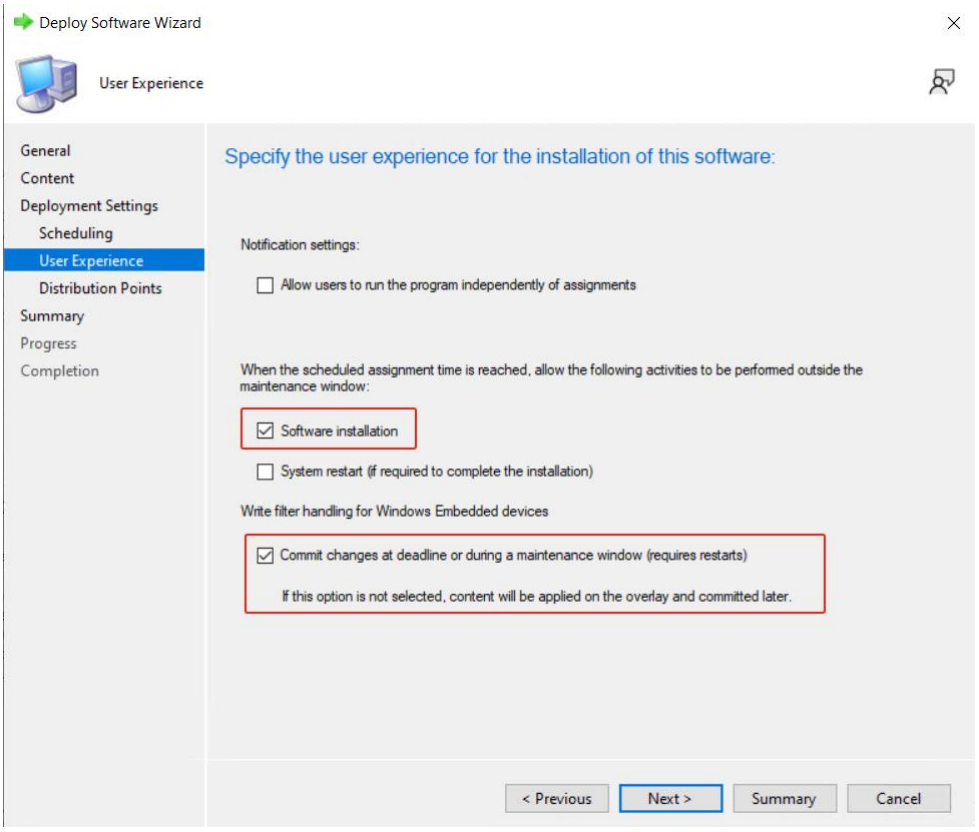
Select the target user/device collection and click "Next" to proceed with the deployment configuration.

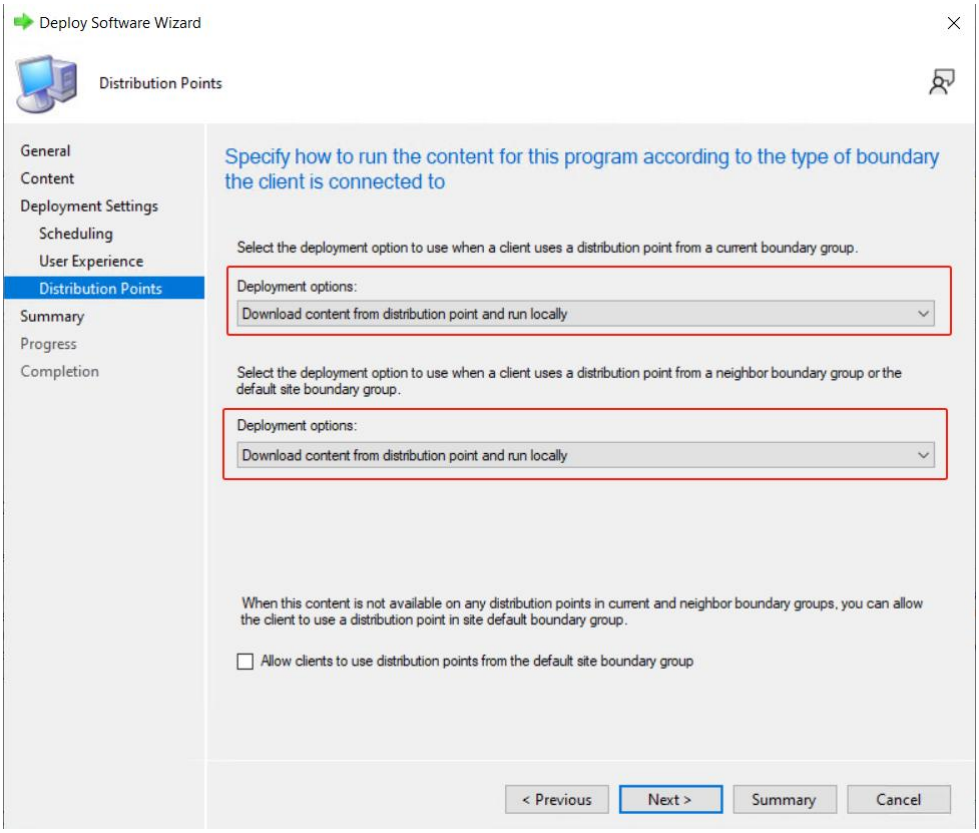


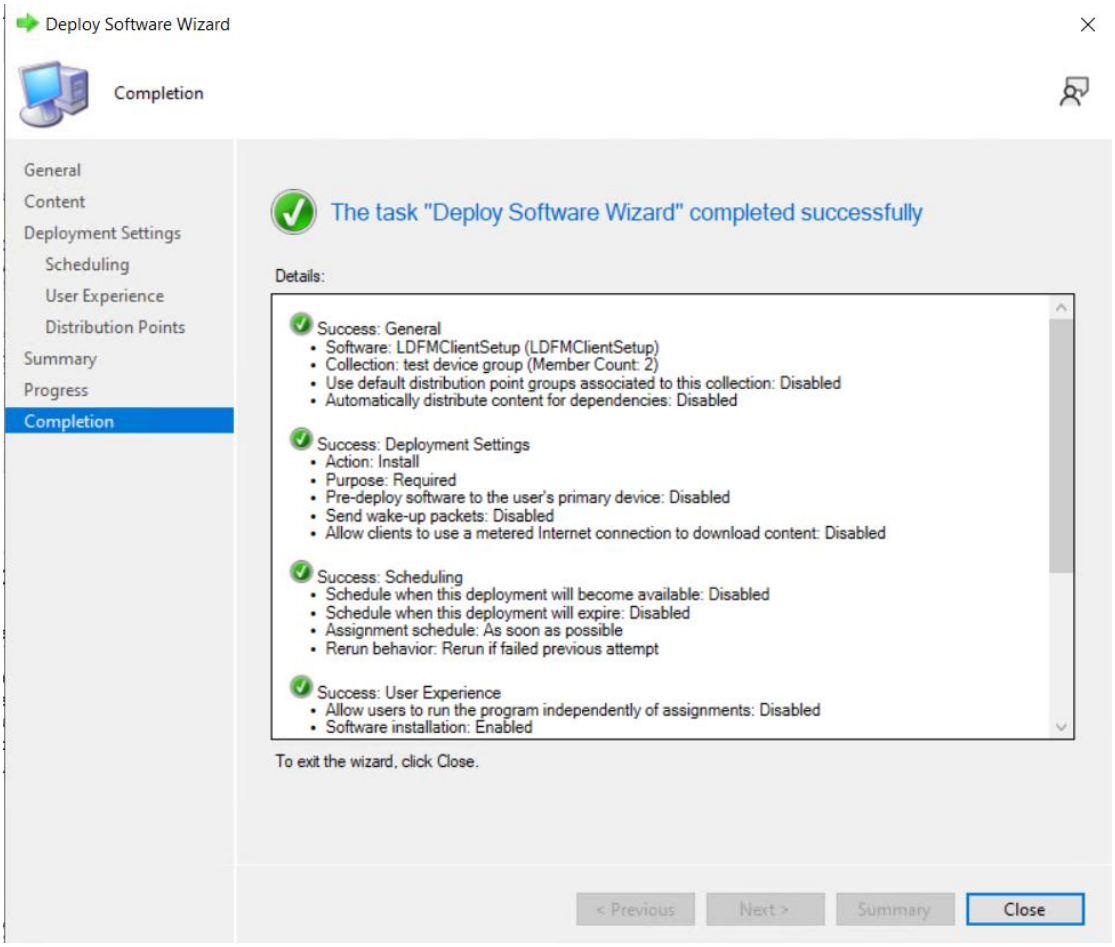
Set the assignment schedule to "As soon as possible" and select "Rerun if failed previous attempt " for the rerun behavior.



Check "Software Installation" to download content from the distribution point and run locally.

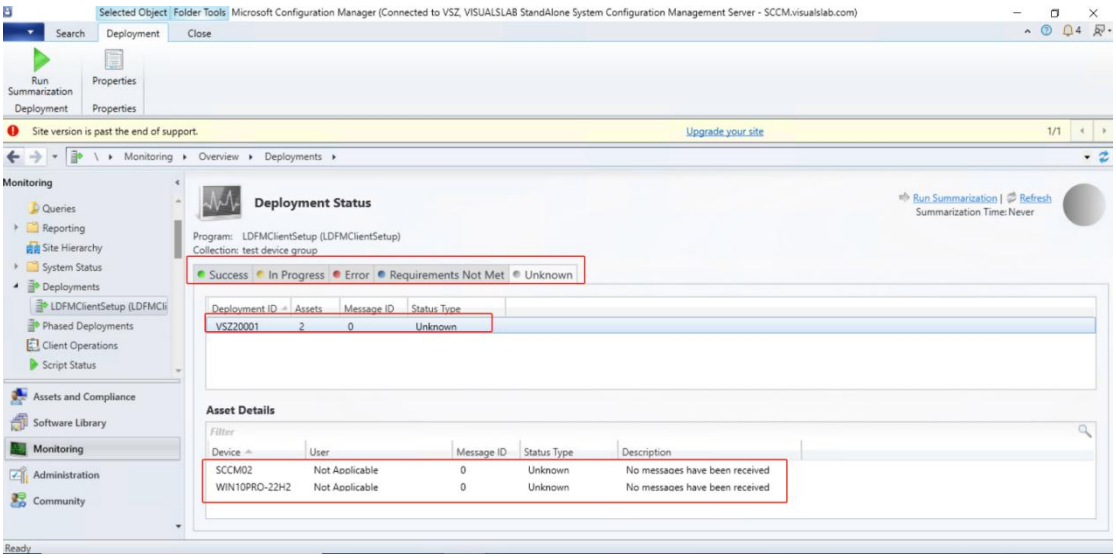

Deploy Software Wizard
User Experience
General
Content
Deployment Settings
Scheduling
User Experience
Distribution Points
Summary
Progress
Completion
Specify the user experience for the installation of this software:
Notification settings:
Allow users to run the program independently of assignments
When the scheduled assignment time is reached, allow the following activities to be performed outside the maintenance window:
Software installation
System restart (if required to complete the installation)
Write filter handling for Windows Embedded devices
Commit changes at deadline or during a maintenance window (requires restarts)
If this option is not selected, content will be applied on the overlay and committed later.
< Previous
Next >
Summary
Cancel


Deploy Software Wizard
Distribution Points
General
Content
Deployment Settings
Scheduling
User Experience
Distribution Points
Summary
Progress
Completion
Specify how to run the content for this program according to the type of boundary the client is connected to
Select the deployment option to use when a client uses a distribution point from a current boundary group.
Deployment options:
Download content from distribution point and run locally
Select the deployment option to use when a client uses a distribution point from a neighbor boundary group or the default site boundary group.
Deployment options:
Download content from distribution point and run locally
When this content is not available on any distribution points in current and neighbor boundary groups, you can allow the client to use a distribution point in site default boundary group.
Allow clients to use distribution points from the default site boundary group
< Previous
Next >
Summary
Cancel



4.3.4. Deploy Progress Tracking

To monitor the deployment status, navigate to Monitoring > Overview > Deployments - successful deployments typically transition through 'Unknown' > 'In Progress' > 'Success' states, with detailed progress available in the asset details view.



4.4. Installation Process via InTune

4.4.1. Create the configuration policy

Log in to the Intune admin center, navigate to *Devices* --> *MacOS*--> *Configuration* in sequence, and then click "Create".

Select the configuration profile type as "Template", the template name as "Custom", and click "Create".

In the "Basics" tab, fill in the name and click "Next".

In the "Configuration settings" tab: Fill in the custom configuration name and select the deployment channel as "Device channel".

The configuration profile is as follows:

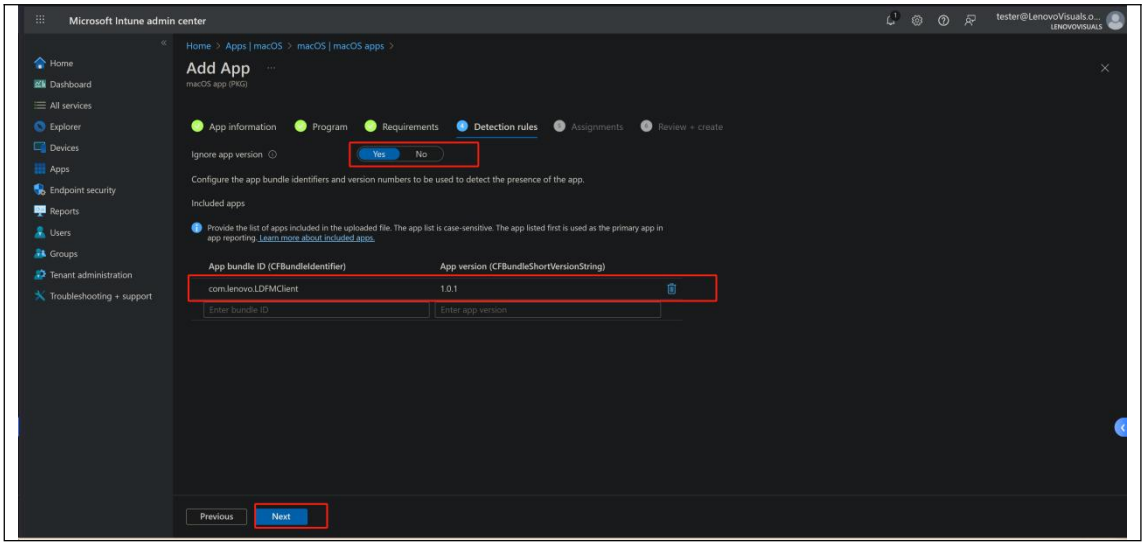
```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
    <key>PayloadContent</key>
    <array>
    <!-- this is the server parameters -->
        <dict>
            <key>PayloadDisplayName</key>
            <string>LDFM Server Configuration</string>
            <key>PayloadIdentifier</key>
            <string>com.lenovo.LDFM.server</string>
            <key>PayloadType</key>
            <string>com.lenovo.LDFM.server</string>
            <key>PayloadUUID</key>
            <string>E23F5A6B-1234-5678-9ABC-DEF123456789</string>
            <key>PayloadVersion</key>
            <integer>1</integer>
            <key>Server</key>
```

```
            <string>10.100.20.50</string>
            <key>Port</key>
            <string>443</string>
            <key>Protocol</key>
            <string>https</string>
        </dict>
    </array>
    <key>PayloadDescription</key>
    <string>Configuration settings for LDFM Client</string>
    <key>PayloadDisplayName</key>
    <string>LDFM Client Configuration</string>
    <key>PayloadIdentifier</key>
    <string>com.lenovo.LDFMClient.config</string>
    <key>PayloadOrganization</key>
    <string>Lenovo</string>
    <key>PayloadType</key>
    <string>Configuration</string>
    <key>PayloadUUID</key>
    <string>A1B2C3D4-E5F6-A7B8-C9D0-E1F2A3B4C5D6</string>
    <key>PayloadVersion</key>
    <integer>1</integer>
</dict>
</plist>
```

In the "Assignments" tab, add the group to which the push is needed. Finally, in the "Review" tab, after confirming that everything is correct, click "Create" to complete the process.

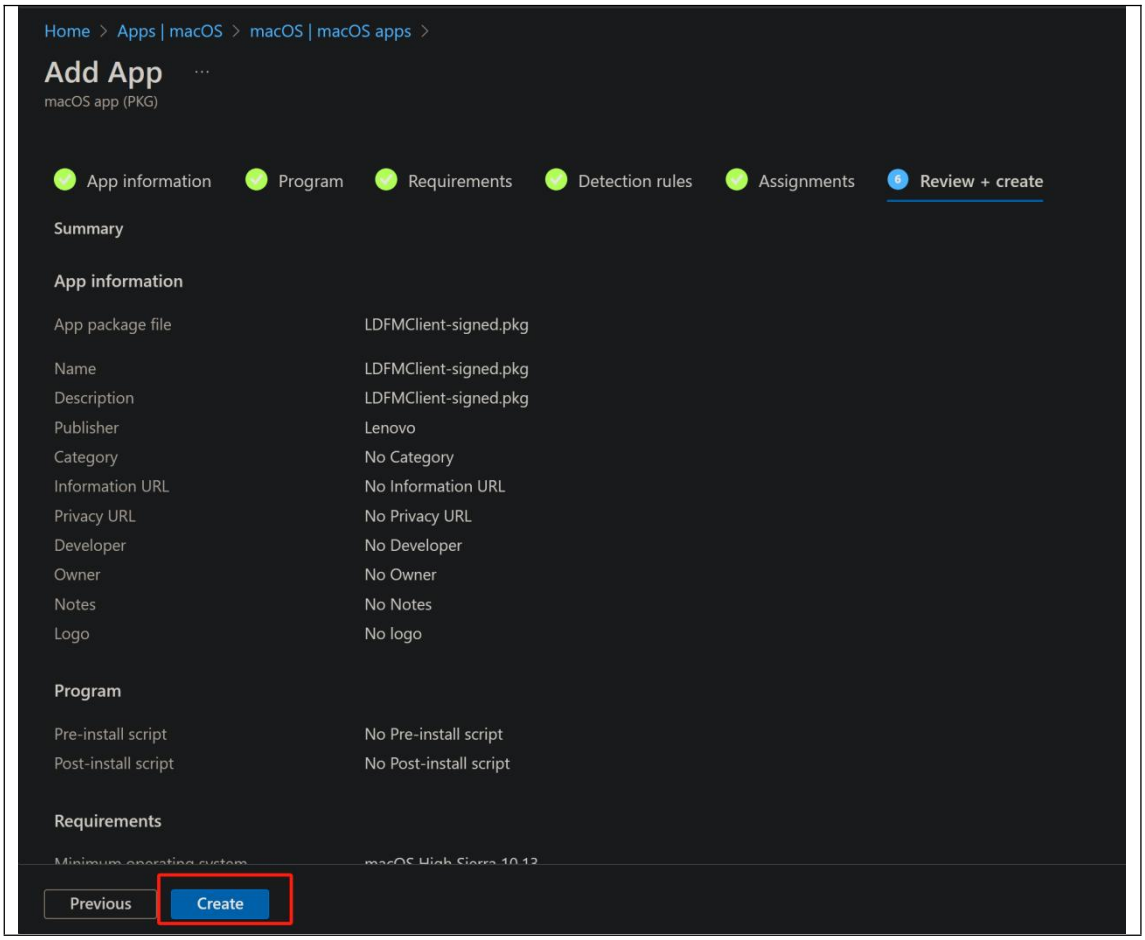
4.4.2. Distribute LDFMClientService

Create a MacOS app. Navigate to the *Apps* --> *macOS apps* page in sequence, click "Create", and select "MacOS app (PKG)".
Upload the package file "LDFMClient.pkg".
Do not fill in the content in the Program tab.
In the selection of the minimum operating system version, you can choose from MacOSHigh Sierra 10.13 and later versions.
In the Detection rules tab, configure the application package identifier as com.lenovo.LDFMClient, and the application version as the current version number, for example: 1.0.6.



In the Assignments tab, add the corresponding groups, such as macos devices, etc.

Navigate to the Review + Create page. After confirming that the application information, program, requirements, detection rules, assignments, and other contents are correct, click "Create".



4.4.3. Check the Push Status

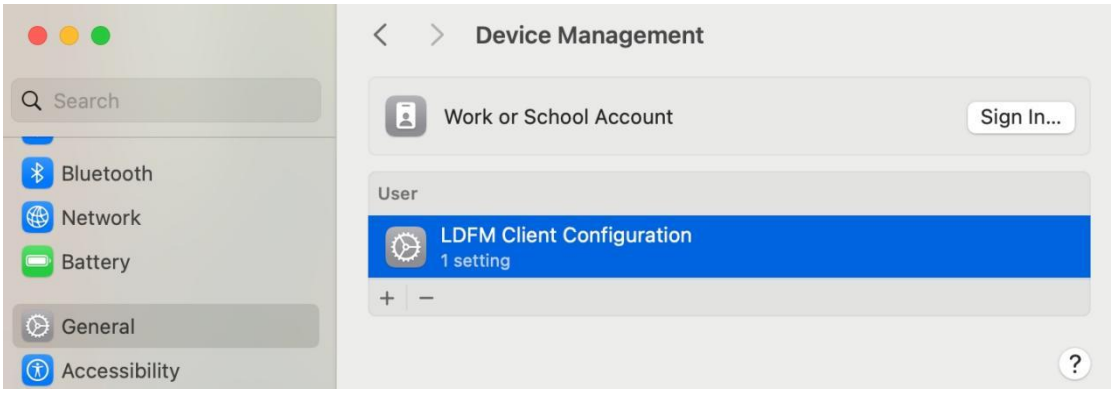
- Intune Management End Verification

On the device configuration page of Intune, find the device configuration file named "Idfm_sever_config", click "View Report" to check whether the device check-in status is successful.

Check whether the device installation status of the app is "Installed".

- Device End Verification

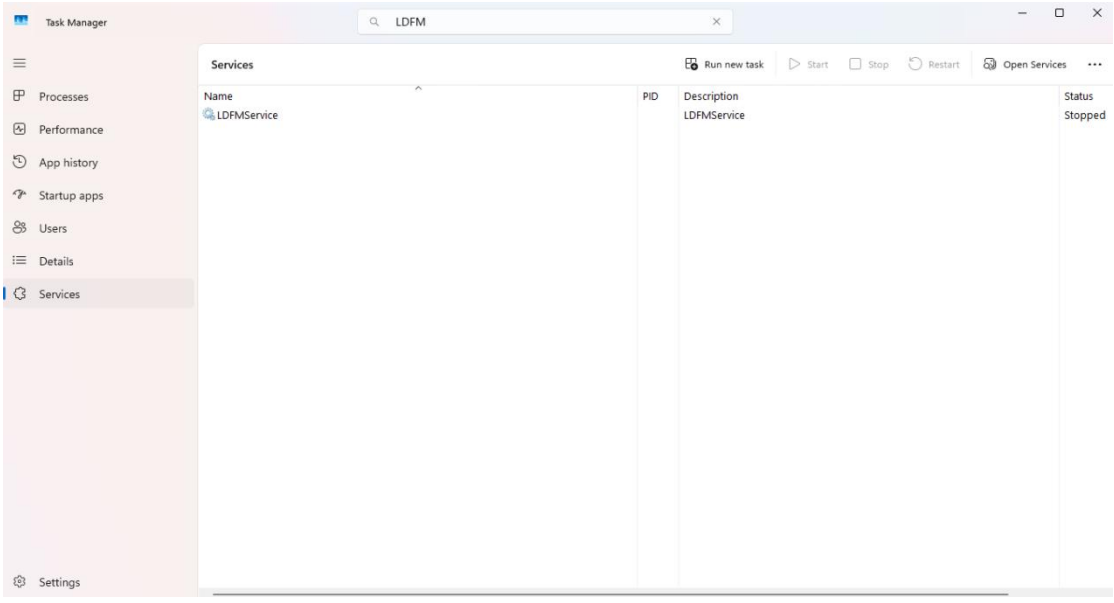
Go to General > Device Management page to check whether the configuration profile "LDFM Client Configuration" is installed.



4.5. Verify whether the service is successful

4.5.1. Windows Verification

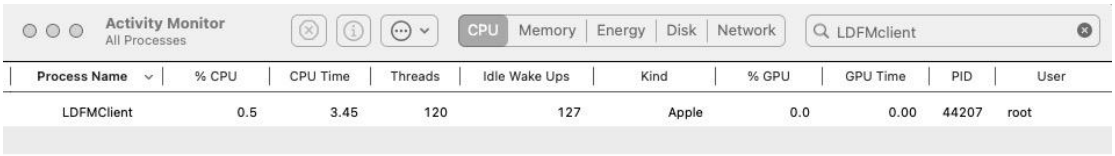
Look for "LDFMService" in the "Services" section of the Task Manager on the client host. If you can find it and its status is "Running", it indicates that the LDFM Client has been installed successfully.



4.5.2. MacOS Verification

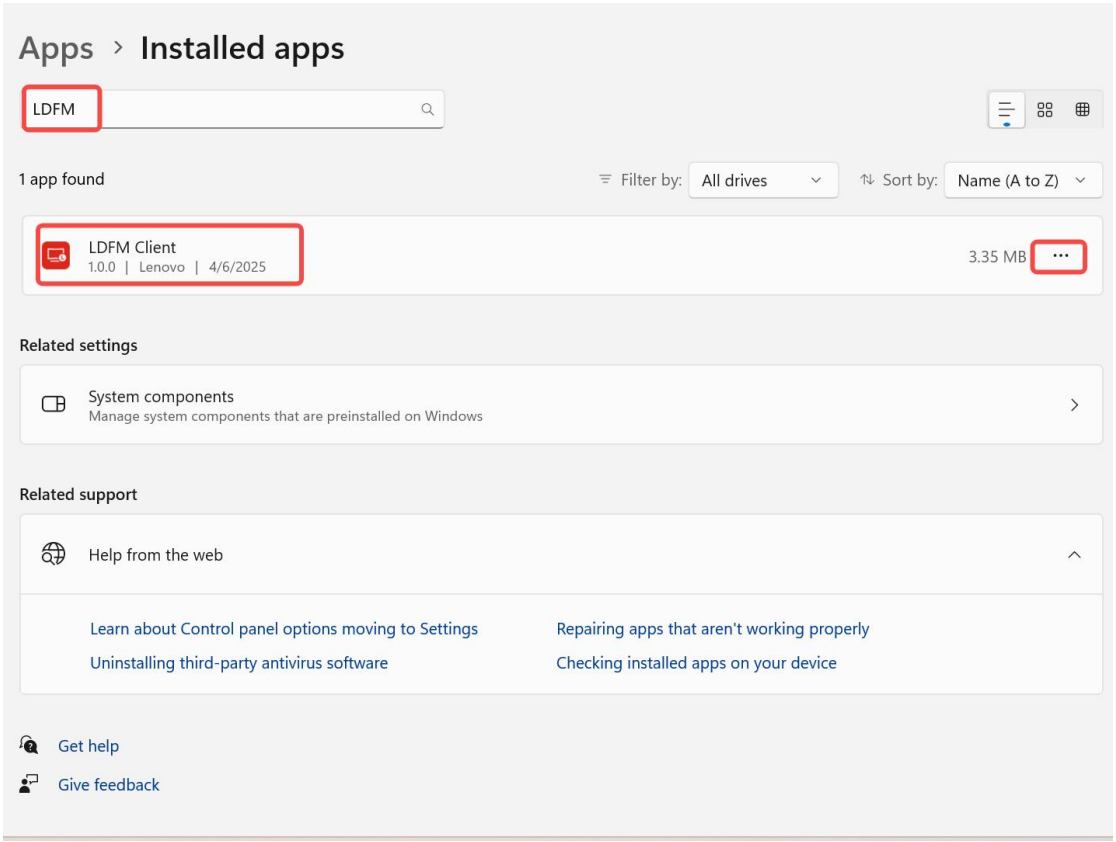
Press the Command + Space keys to open Spotlight Search. Type "Activity Monitor" in the search box, then select the "Activity Monitor" app from the search results and click to open it.

Look for LDFMClient; if the following image appears, it means it is running successfully.



4.6. Uninstallation of LDFM Client Software

Go to Settings > Apps > Installed apps. Locate the LDFM Client, click on "..." and then click "Uninstall".



5. Access the LDFM Management System

5.1. Enter the Website Address

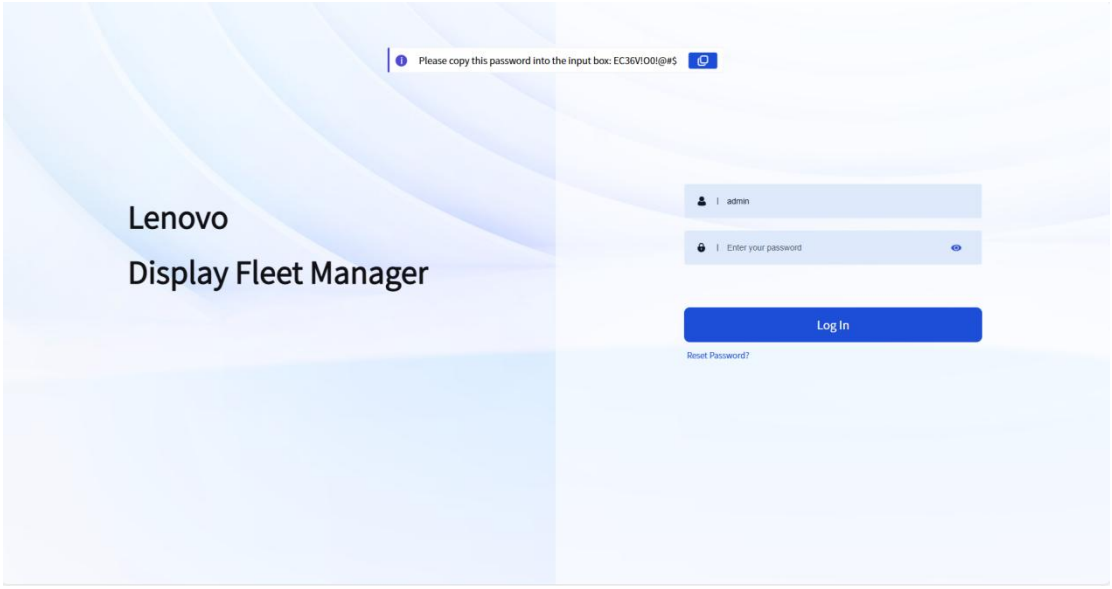
According to the configuration during installation, if the port number is not modified, access via browser using https://server IP address or

domain name.

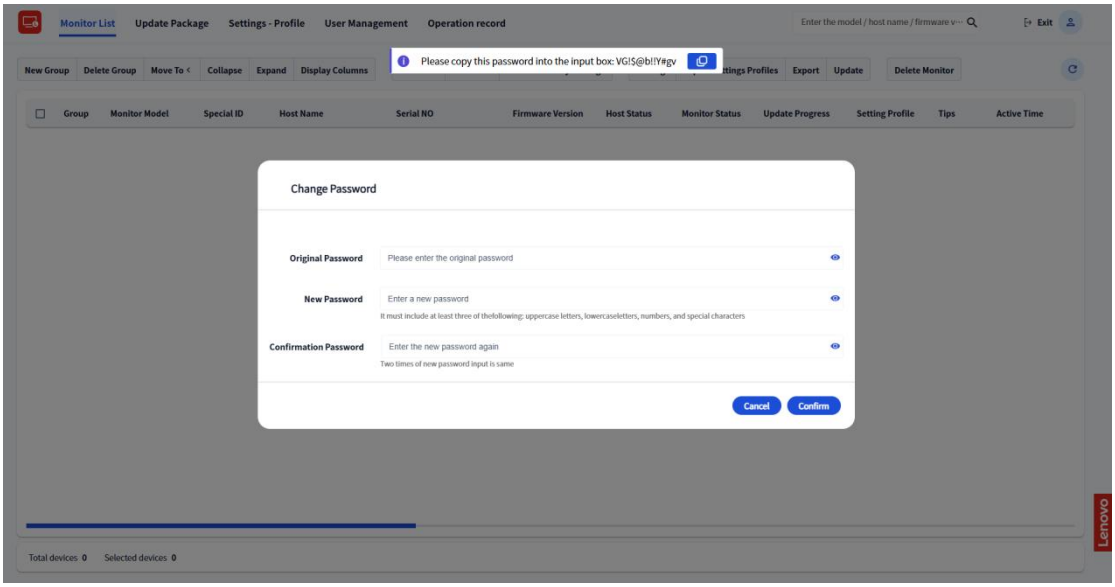
If the port number is modified, the URL to enter when logging in is: https://ip:port/

5.2. Enter the username and password.

For the first login, enter the "admin" account. Then click on the password input area. The initial administrator password will pop up. Copy the password and click the "Login" button.

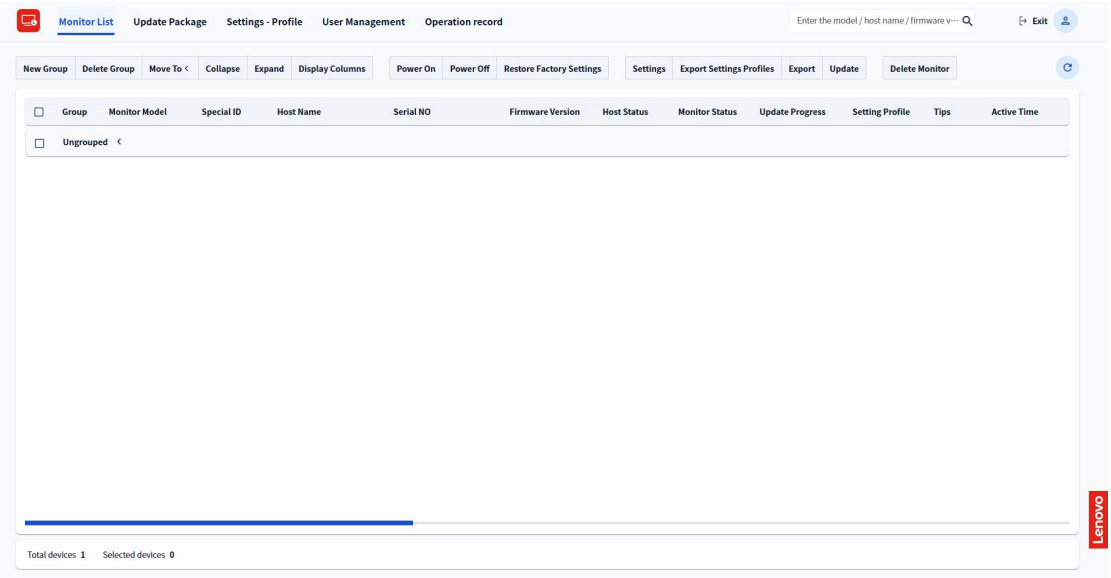


It will jump to the password modification page. For the first login, you will be forced to change the password. Set a new password and then enter the page.



5.3. Start using it

After the login is completed, the "Monitor List" interface will be displayed, and you can start the management of the monitors.

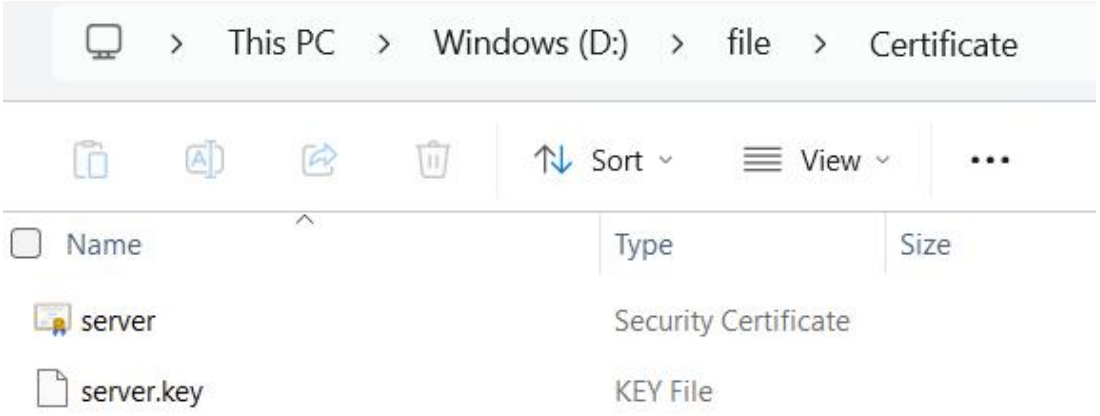


6. HTTPS Certificate Replacement

When the company needs to replace the HTTPS certificate with its own certificate, follow the procedures below. For certificates that are not in PEM/CRT format, tools are required to convert them into a format compatible with Nginx.

6.1. Locate the New Certificate

Example: The new certificate is stored at the following path:



6.2. Modify Nginx Configuration

Navigate to the current administrator user’ s folder under the C:\Users directory. For example, if the current user is "Admin," open the path: C:\Users\Admin\AppData\Local\Lenovo\Lenovo Display Fleet

Manager\nginx\nginx-1.26.2\conf

Edit the nginx.conf file and replace the certificate paths with the locations of the new certificates, as shown below:

Before modification: Original certificate configuration

```
53    server {
54        listen       443 ssl;
55        #  Need to be replaced with the current IP addresss
56        server_name  192.168.55.45;
57
58        # Need to replace the directory where the certificate is stored
59        ssl_certificate      "C:\Program Files\Lenovo\Lenovo Display Fleet Manager\Certificate\server.crt";
60        ssl_certificate_key  "C:\Program Files\Lenovo\Lenovo Display Fleet Manager\Certificate\server.key";
61
```

After modification: New certificate configuration

```
53    server {
54        listen       443 ssl;
55        #  Need to be replaced with the current IP addresss
56        server_name  192.168.55.45;
57
58        # Need to replace the directory where the certificate is stored
59        ssl_certificate      "D:\file\Certificate\server.crt";
60        ssl_certificate_key  "D:\file\Certificate\server.key";
```

6.3. Restart the Nginx Service

Open the Task Manager and go to the Services tab.

Locate the LDFM-nginx-server service.

Right-click the service and select Stop. Wait for the service to fully terminate.

Right-click again and select Start. The replacement is complete once the service is running.

7. Deploy LDFM Server on Linux

This deployment solution realizes the deployment of LDFM Server with the help of Docker. Containerization technology can avoid many differences among Linux distribution versions and effectively reduce the deployment difficulty.

It should be noted that this content is written by taking the Ubuntu system and x86 architecture as examples. The deployment processes of other Linux systems are similar to it. Only the ways to install Docker and Docker Compose are different, while the operation steps to deploy LDFM Server in Docker are completely the same. Since Docker needs to use root privileges, users need to have root privileges.

7.1. Install Docker

7.1.1. Update the package index

```
sudo apt-get update
```

7.1.2. Install dependency components

```
sudo apt-get install -y \
      ca-certificates \
      curl \
      gnupg \
      lsb-release
```

7.1.3. Add the official GPG key of Docker

```
sudo mkdir -p /etc/apt/keyrings
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo
gpg --dearmor -o /etc/apt/keyrings/docker.gpg
```

7.1.4. Set up the stable repository

```
echo \
  "deb [arch=$(dpkg --print-architecture)
signed-by=/etc/apt/keyrings/docker.gpg]
https://download.docker.com/linux/ubuntu \
  $(lsb_release -cs) stable" | sudo tee
/etc/apt/sources.list.d/docker.list > /dev/null
```

7.1.5. Install Docker Engine

```
sudo apt-get update
sudo apt-get install -y docker-ce docker-ce-cli containerd.io
docker-buildx-plugin docker-compose-plugin
```

7.1.6. Install Docker Compose

```
sudo apt-get update
sudo apt-get install docker-compose-plugin
```

7.2. Deploy LDFM Server in Docker

7.2.1. Upload and unzip the deployment package

Here is the English translation: Create a directory `ldfm_server_docker` on the server, then change the directory to it with `cd`, upload the `ldfm_server_docker.zip` file to this directory, and finally unzip the file using `unzip ldfm_server_docker.zip`.

```
mkdir ldfm_server_docker
cd ldfm_server_docker
unzip ldfm_server_docker.zip
```

The subsequent commands should all be executed within this directory. Do not enter the `sh` directory to execute them; commands must only be run in the directory where `docker-compose.yml` is located. After unzipping, the directory structure is as shown in the figure:

```
.
├── data
│   ├── javaServer
│   │   ├── logs
│   │   └── mydata.db
│   ├── nginx
│   │   ├── certs
│   │   ├── html
│   │   └── nginx.conf
│   └── redis
├── docker-compose.yml
├── images
│   ├── ldfm-nginx-1.27.tar
│   ├── ldfm-redis-6.tar
```

```
│   └── temurin-21-jre-alpine.tar
├── ldfm_server
│   ├── application.yaml
│   ├── Dockerfile
│   ├── LDFMServer.jar
│   └── timezone-files
│       ├── localtime
│       ├── timezone
│       └── zoneinfo-asia-shanghai
├── ldfm_server_docker.zip
├── nginx
│   └── Dockerfile
└── sh
    ├── down.sh
    ├── getIp.sh
    ├── show.sh
    ├── start.sh
    ├── updateIp.sh
    └── updateServer.sh
```

7.2.2. Add users to the Docker user group

After the operation, you need to log out and log back in to the terminal for the permissions to take effect. This step is to ensure that the current user has the permissions to operate Docker commands.

```
sudo usermod -aG docker $USER
```

Please navigate to the extracted target directory (the same level directory as docker-compose.yml), then execute the following command and enter the IP address or domain name according to your actual requirements:

- If using a domain name: Ensure that the domain name has been correctly resolved to the current server's IP address (you can verify this using the `nslookup` or `ping` command).

- If using an IP address:

If providing services to the public network, please enter the server's public IP address.

If providing services within a private network, please enter the server's private IP address (e.g., 192.168.x.x, 10.x.x.x, etc.).

```
sh ./sh/updateIp.sh
```

7.3. Compile and start the service

Before starting, you should first check whether ports 443, 8099, and 6379 are already occupied. If any of the above ports are found to be in use, you need to make corresponding adjustments to the docker-compose.yml file in the current directory. Specifically, modify the configuration items corresponding to these ports (only change the port number before the colon, while keeping the port number after the colon unchanged). This operation ensures that the service can be correctly deployed and avoids port conflict issues, as shown in the figure:

```yaml
version: '3.8'

services:
  ldfm_redis:
    image: ldfm-redis:6
    container_name: ldfm_redis
    ports:
      - "6379:6379"
    environment:
      - REDIS_PASSWORD=dfrc@redis01
    command: ["redis-server", "--requirepass", "dfrc@redis01"]
    networks:
      - ldfm-network
    volumes:
      - redis-data:/data

  ldfm_server:
    build:
      context: ./ldfm_server
      dockerfile: Dockerfile
    container_name: ldfm_server
    ports:
      - "8099:8099"
    depends_on:
      - ldfm_redis
    networks:
      - ldfm-network
    volumes:
      - ./data/javaServer:/db

  ldfm_nginx:
    build:
      context: ./nginx
      dockerfile: Dockerfile
    container_name: ldfm_nginx
    ports:
      - "443:443"
    networks:
      - ldfm-network
    depends_on:
      - ldfm_server
    volumes:
      - ./data/nginx/html:/usr/share/nginx/html
      - ./data/nginx/certs:/etc/nginx/certs
      - ./data/nginx/nginx.conf:/etc/nginx/nginx.conf
    restart: unless-stopped
networks:
  ldfm-network:
    driver: bridge

volumes:
  redis-data:
```

If port 443 is occupied, change it to 580. This modification should be applied not only to the docker-compose.yml file but also to the data/nginx/html/config.js file in the current directory. Append :580 after the IP address or domain name, as shown in the figure:
Before modification:

```
window.serverIp = 'https://192.168.55.58/ldfm/';
```

After modification:

```
window.serverIp = 'https://192.168.55.58:580/ldfm/';
```

After all ports are configured, you can execute the startup command. First, switch to the directory where `docker-compose.yml` is located, and then run the following command:

```
sh ./sh/start.sh
```

After the execution is successful, use the following command to view the service.

```
docker ps -a
```

The results are as follows: if the status of all three services is "Up", it indicates that the startup was successful.

```
STATUS       PORTS                                                NAMES
Up 4 hours   80/tcp, 0.0.0.0:443->443/tcp, :::443->443/tcp   ldfm_nginx
Up 4 hours   0.0.0.0:8099->8099/tcp, :::8099->8099/tcp       ldfm_server
Up 4 hours   0.0.0.0:6379->6379/tcp, :::6379->6379/tcp       ldfm_redis
```

To stop the service, execute the following command in this directory:

```
sh ./sh/down.sh
```

7.4. Access the LDFMServer service

Startup Waiting:
The service takes approximately 30 seconds to fully start up. Please be patient.
Access Verification:
After 30 seconds, open a browser and enter the address https://Server IP

address (if using a domain name, ensure it is resolved to this IP). If port 443 is changed to another port (e.g., 550), enter https://192.168.23.89:550 (replace the IP with the actual one).

Deployment Success Criteria:

The login interface appears, and no error messages are displayed after entering the account and password.

Firewall Configuration (Critical Step):

If the Linux system firewall is enabled, you need to manually allow the HTTPS service port (default is 443; if modified, use the actual port). For Ubuntu systems, you can use the following commands:

```
sudo ufw allow 443
```

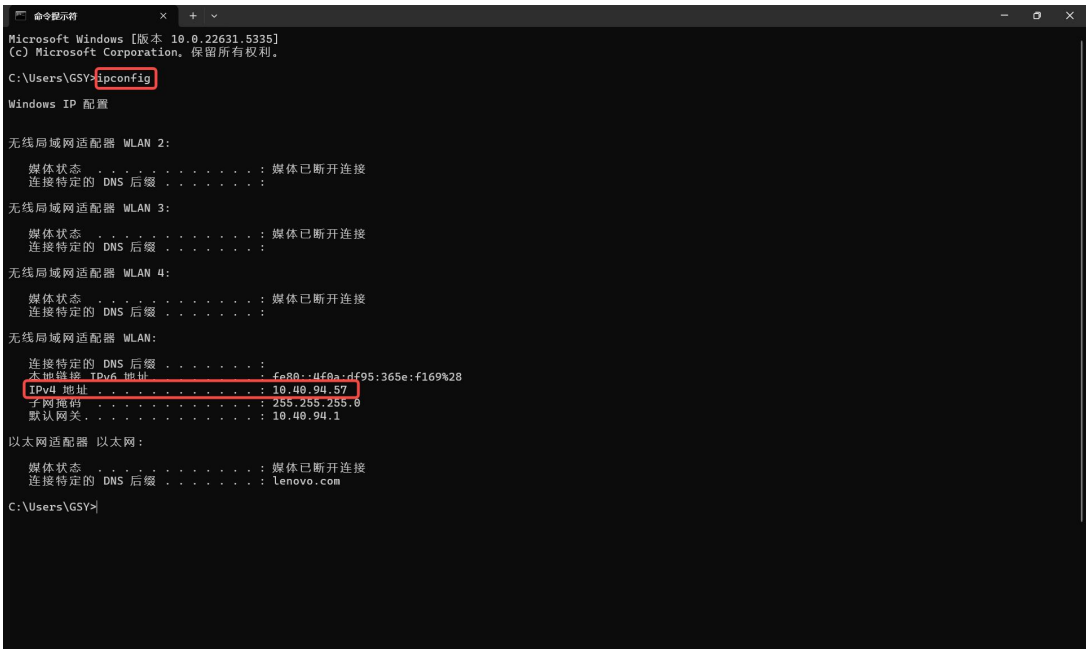
8. IP Change

If you need to switch IP for login, you need to make modifications according to the following steps.

8.1. Modify LDFM Server IP

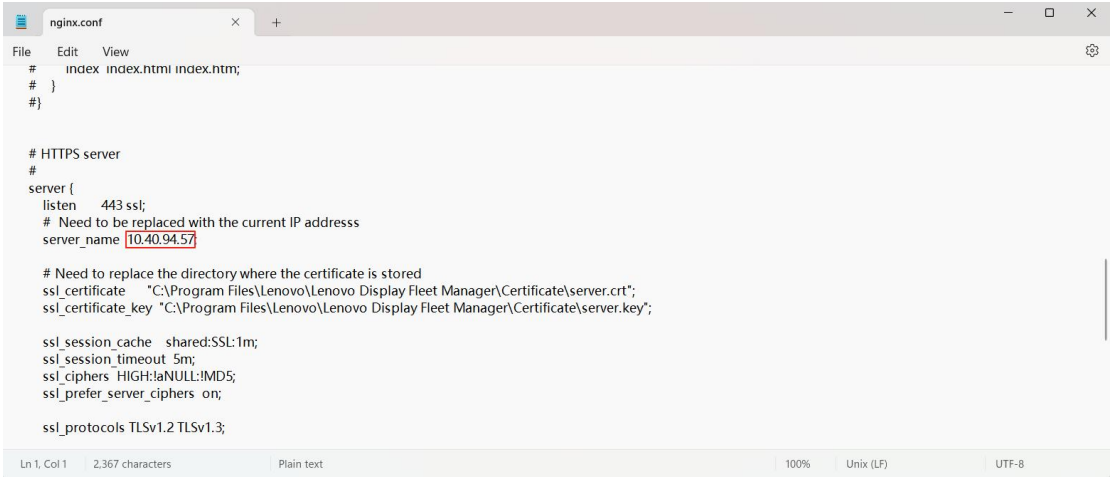
8.1.1. Find the IP address that needs to be modified

Through Command Prompt: Press Win + R, type "cmd" and press Enter to open the Command Prompt window. Enter the "ipconfig" command, and after pressing Enter, find "IPv4 Address" or "IPv6 Address" in the output result. The numbers following it are the local IP address.



8.1.2. Modify the nginx configuration file

Find the following path: C:\Users\Admin\AppData\Local\Lenovo\Lenovo Display Fleet Manager\nginx\nginx-1.26.2\conf\nginx.conf, and change the IP address in the figure as shown:



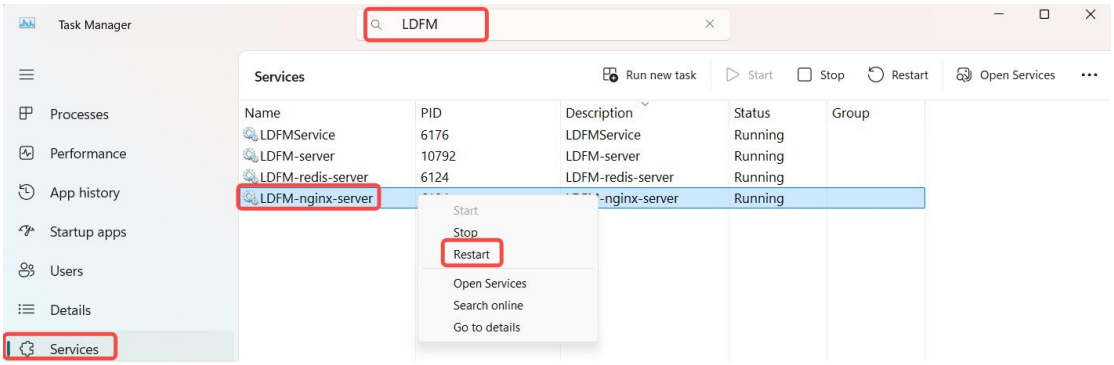
8.1.3. Modify the Server configuration file

Find the following path: C:\Users\Admin\AppData\Local\Lenovo\Lenovo Display Fleet Manager\nginx\nginx-1.26.2\html\config.js, and change the IP address in the figure as shown:

8.1.4. Restart the nginx service

Open Task Manager, find Services, search for LDFM, locate LDFM-nginx-server, right-click it, and select Restart, as shown in the figure:

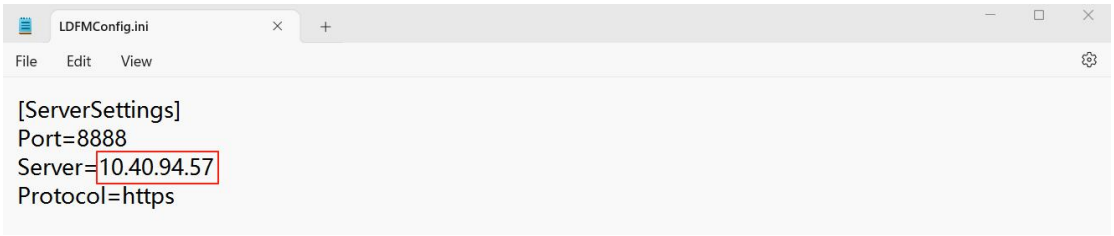
Note: This modification requires administrator privileges. If you don't have the privileges, press Win + R, type "taskmgr", then press Ctrl + Shift + Enter. In the User Account Control prompt, select "Yes" to open it.



8.2. Modify Client IP (Windows)

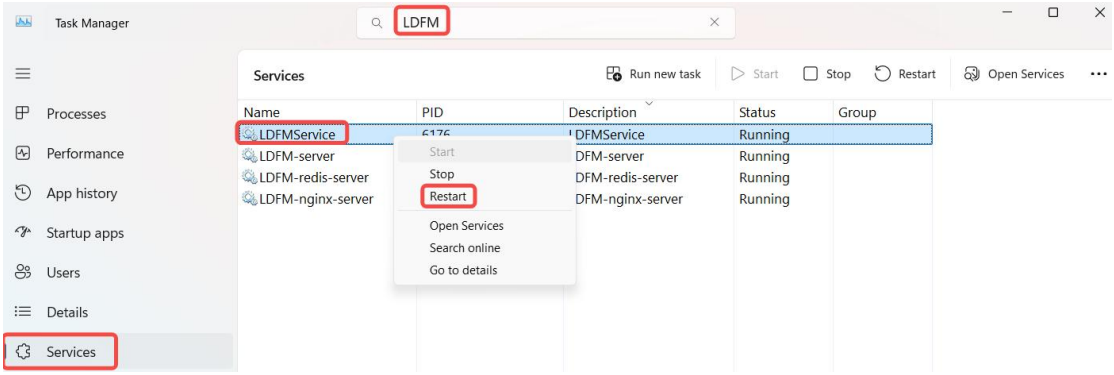
8.2.1. Find LDFMConfig.ini

Find the following path: C:\ProgramData\Lenovo\LDFM Client\LDFMConfig.ini, and change the IP address in the figure as shown:



8.2.2. Restart the Client service

Open the Task Manager, find Services, search for LDFM, locate LDFMService, right-click it, and select Restart, as shown in the figure:
Note: This modification requires administrator privileges. If you don't have the privileges, press Win + R, type "taskmgr", then press Ctrl + Shift + Enter. In the User Account Control prompt, select "Yes" to open it.



8.3. Modify Client IP (MacOs)

8.3.1. Modify IP

If you need to modify the server address and port information, you can edit the LDFMConfig.mobileconfig file.

The content of the file is as shown in the figure:

```
<?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>PayloadContent</key>
    <array>
     <!-- this is the server parameters -->
        <dict>
            <key>PayloadDisplayName</key>
            <string>LDFM Server Configuration</string>
            <key>PayloadIdentifier</key>
            <string>com.lenovo.LDFM.server</string>
            <key>PayloadType</key>
            <string>com.lenovo.LDFM.server</string>
            <key>PayloadUUID</key>
            <string>E23F5A6B-1234-5678-9ABC-DEF123456789</string>
            <key>PayloadVersion</key>
            <integer>1</integer>
            <key>Server</key>
            <string>10.40.94.57</string>
            <key>Port</key>
            <string>443</string>
            <key>Protocol</key>
            <string>https</string>
        </dict>
    </array>
    <key>PayloadDescription</key>
    <string>Configuration settings for LDFM Client</string>
    <key>PayloadDisplayName</key>
    <string>LDFM Client Configuration</string>
    <key>PayloadIdentifier</key>
    <string>com.lenovo.LDFMClient.config</string>
    <key>PayloadOrganization</key>
    <string>Lenovo</string>
    <key>PayloadType</key>
    <string>Configuration</string>
    <key>PayloadUUID</key>
    <string>A1B2C3D4-E5F6-A7B8-C9D0-E1F2A3B4C5D6</string>
    <key>PayloadVersion</key>
    <integer>1</integer>
</dict>
</plist>
```

8.3.2. Execute in Terminal

Press the Command + Space key combination to bring up Spotlight Search, type "Terminal" and press Enter.

Navigate to the root directory of the installation package, and execute the script updateLDFMServerIP.sh as an administrator.

sudo bash ./updateLDFMServerIP.sh

8.4. Open the LDFM management system

Enter https://IP/#/login in the address bar to access, as shown in the figure: