Notes, cautions, and warnings

**NOTE:** A NOTE indicates important information that helps you make better use of your product.

**CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

**WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.
Introduction

Wyse Management Suite is the next generation management solution that lets you centrally configure, monitor, manage, and optimize your Dell Wyse thin clients. The new Suite makes it easier to deploy and manage thin clients with high functionality and performance, and ease of use. It also offers advanced feature options such as cloud versus on-premises deployment, manage-from-anywhere using a mobile application, enhanced security such as BIOS configuration and port lockdown. Other features include device discovery and registration, asset and inventory management, configuration management, operating system and applications deployment, real-time commands, monitoring, alerts, reporting, and troubleshooting of endpoints.

Editions

Wyse Management Suite is available in the following editions:

- **Standard (Free)** — The standard edition of the Wyse Management Suite is only available for an on-premise deployment. You do not require a license key to use the standard edition. The standard edition is suitable for small and medium businesses.

- **Pro (Paid)** — The pro edition of the Wyse Management Suite is available for both private and public cloud deployment. The pro edition uses subscription-based licensing and requires a license key. With the Pro solution, organizations are able to adopt a hybrid model and float your licenses between on-premises and cloud. The pro on-premise edition is suitable for small, medium, and large businesses. For a cloud deployment, the pro edition can manage your devices on non-corporate networks (home office, third party, partners, mobile thin clients, and so on). The pro edition of the Wyse Management Suite also provides:
  - A mobile application to view critical alerts, notifications, and send commands in real time
  - Enhanced security through two-factor authentication and active directory authentication for role-based administration
  - Advanced app policy and reporting

**NOTE:**
- Cloud services are hosted in the US and Germany. Customers in countries with data residency restrictions may not be able to take advantage of the Wyse Management Suite pro cloud based service.
- The on-premise version of the Wyse management pro edition is a better solution for customers with data residency restrictions.

For more information on the features supported in standard and pro editions, see the Feature matrix.

Topics:

- Wyse Management Suite Feature Matrix

**Wyse Management Suite Feature Matrix**

The following table provides information about the features that are supported for each subscription type.

**Table 1. Feature matrix for each subscription type**

<table>
<thead>
<tr>
<th>Features</th>
<th>Wyse Management Suite Standard</th>
<th>Wyse Management Suite Pro-private cloud</th>
<th>Wyse Management Suite Pro-cloud edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly scalable solution to manage thin clients</td>
<td>Free up to 10,000 devices</td>
<td>Up to 120,000 devices</td>
<td>Up to 1 million devices</td>
</tr>
<tr>
<td>License key</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>Architecture</td>
<td>Private cloud</td>
<td>Private cloud</td>
<td>Public cloud</td>
</tr>
</tbody>
</table>
Table 1. Feature matrix for each subscription type (continued)

<table>
<thead>
<tr>
<th>Features</th>
<th>Wyse Management Suite Standard</th>
<th>Wyse Management Suite Pro-private cloud</th>
<th>Wyse Management Suite Pro-cloud edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible deployment or hybrid cloud</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Advanced installer</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Multi-tenancy</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Delegated Administration for permissions granularity</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Multiple repositories to support your distributed architecture</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Option to configure Wyse Management Suite server alias</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>High Availability reference architecture</td>
<td>X</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Dell ProSupport for Software included</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

Reporting and Monitoring

<table>
<thead>
<tr>
<th>Features</th>
<th>Wyse Management Suite Standard</th>
<th>Wyse Management Suite Pro-private cloud</th>
<th>Wyse Management Suite Pro-cloud edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localized management console</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Alerts, Events, and Audit log using email and mobile application</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Enterprise-Grade Reporting</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

The following table provides information about the Dell Hybrid Client management features supported for each subscription type.

Table 2. Dell Hybrid Client management feature matrix

<table>
<thead>
<tr>
<th>Dell Hybrid Client management features</th>
<th>Wyse Management Suite Standard</th>
<th>Wyse Management Suite Pro-private cloud</th>
<th>Wyse Management Suite Pro-cloud edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Asset Visibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatic device discovery</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Asset, Inventory, and systems management</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>View effective configuration at device Wyse Management Suite level after inheritance</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Security</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure communication (HTTPS)</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Multi-factor authentication</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Active Directory authentication for role-based administration</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Single-sign-on</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Lockdown settings (enable/disable ports of supported endpoints)</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>
Table 2. Dell Hybrid Client management feature matrix (continued)

<table>
<thead>
<tr>
<th>Dell Hybrid Client management features</th>
<th>Wyse Management Suite Standard</th>
<th>Wyse Management Suite Pro-private cloud</th>
<th>Wyse Management Suite Pro-cloud edition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehensive Management</strong></td>
<td>X</td>
<td>√</td>
<td>√ *</td>
</tr>
<tr>
<td>Operating system Patch and Image management</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Smart Scheduling</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Bundle applications to simplify deployment and minimize reboots</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Dynamic group creation and assignment based on device attributes</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Repository assignment to application policy and subnet mapping</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Advanced App Management and app policy</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>User Group inheritance</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>End-User Exception</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Dell Hybrid Client wizard configuration</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Multi-Monitor Support</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Follow-me Profile</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>File affiliation to prioritize application delivery mode</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>BIOS settings and configuration support</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Export or import policy configurations</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Default user group policy</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Browser configuration</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Configure cloud provider</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

**NOTE:** The asterisk indicates that for Dell Hybrid Client, an on-premise repository is required when you are using Wyse Management Suite public cloud environment.

The following table provides information about the Wyse thin clients and zero clients management features supported for each subscription.

Table 3. Wyse thin clients and zero clients management feature matrix

<table>
<thead>
<tr>
<th>Wyse thin clients and zero clients management features</th>
<th>Wyse Management Suite Standard</th>
<th>Wyse Management Suite Pro-private cloud</th>
<th>Wyse Management Suite Pro-cloud edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Asset Visibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wyse thin clients and zero clients management features</td>
<td>Wyse Management Suite Standard</td>
<td>Wyse Management Suite Pro-private cloud</td>
<td>Wyse Management Suite Pro-cloud edition</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-----------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Automatic device discovery</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Asset, Inventory, and systems management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>View effective configuration at device level after inheritance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Reporting and Monitoring</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote shadow using VNC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Configurable heartbeat and check-in interval</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure communication (HTTPS)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Two-factor authentication</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Active Directory authentication for role-based administration</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Domain join feature (Windows Embedded Standard)</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Lockdown settings (enable or disable ports of supported endpoints)</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Comprehensive Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating system Patch and Image management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Smart Scheduling</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bundle applications to simplify deployment and minimize reboots</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dynamic group creation and assignment based on device attributes</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Repository assignment to application policy and subnet mapping</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Advanced app policy</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wyse ThinOS 8.x wizard configuration</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Multi-Monitor Support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Wyse Easy Setup and Wyse Overlay Optimizer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Wyse thin clients and zero clients management features</td>
<td>Wyse Management Suite Standard</td>
<td>Wyse Management Suite Pro-private cloud</td>
<td>Wyse Management Suite Pro-cloud edition</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Scripting Support for customizing application installation</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>BIOS settings and configuration support</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Export/import policy configurations</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>RSP package support</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>WDM import tool</td>
<td>X</td>
<td>√</td>
<td>X</td>
</tr>
</tbody>
</table>

**NOTE:** **Double asterisk indicates that for ThinLinux and Windows 10 IoT Enterprise operating systems, an on-premise repository is required when you use the Wyse Management Suite public cloud environment.**
Getting started with Wyse Management Suite

This section provides information about the general features to help you get started as an administrator and manage thin clients from the Wyse Management Suite software.

Topics:
- Log in to Wyse Management Suite on public cloud
- Prerequisites to deploy Wyse Management Suite on the private cloud

Log in to Wyse Management Suite on public cloud

To log in to the Wyse Management Suite console, you must have a supported web browser that is installed on your system. To log in to the Wyse Management Suite console, do the following:

1. Access the public cloud (SaaS) edition of the Wyse Management Suite by using one of the following links:
   - US data center—us1.wysemanagementsuite.com/ccm-web
   - EU data center—eu1.wysemanagementsuite.com/ccm-web
2. Enter your username and password.
3. Click Sign In.

If you log in to the Wyse Management Suite console for the first time, if a new user is added, or if a user license is renewed, the Terms and Condition page is displayed. Read the terms and conditions, select the respective check boxes, and click Accept.

NOTE: You receive your login credentials when you sign up for the Wyse Management Suite trial on www.wysemanagementsuite.com or when you purchase your subscription. You can purchase the Wyse Management Suite subscription from the Dell Sales team or from your local Dell partner. For more details, see www.wysemanagementsuite.com.

NOTE: An externally accessible repository must be installed on a server with a DMZ while using the pro edition of Wyse Management Suite on the public cloud. Also, the Fully Qualified Domain Name (FQDN) of the server must be registered in the public DNS.

Changing your password

To change the login password, do the following:

1. Click the account link in the upper-right corner of the management console.
2. Click Change Password.

NOTE: It is recommended to change your password after logging in for the first time. The default username and password for additional administrators are created by the Wyse Management Suite account owner.

Logging out

To log out from the management console, do the following:

1. Click the account link at the upper-right corner of the management console.
2. Click Sign out.
Prerequisites to deploy Wyse Management Suite on the private cloud

Table 4. Prerequisites

<table>
<thead>
<tr>
<th>Description</th>
<th>10000 devices or less</th>
<th>50,000 devices or less</th>
<th>120,000 devices or less</th>
<th>Wyse Management Suite – Software repository</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum disk space</td>
<td>40 GB</td>
<td>120 GB</td>
<td>200 GB</td>
<td>120 GB</td>
</tr>
<tr>
<td>Minimum memory (RAM)</td>
<td>8 GB</td>
<td>16 GB</td>
<td>32 GB</td>
<td>16 GB</td>
</tr>
<tr>
<td>Minimum CPU requirements</td>
<td>4</td>
<td>4</td>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>
| Network communication ports      | The Wyse Management Suite installer adds Transmission Control Protocol (TCP) ports 443, 8080, and 1883 to the firewall exception list. The ports are added to access the Wyse Management Suite console and to send push notifications to the thin clients. Wire 443—HTTPS communication  
TCP 1883—MQTT communication  
TCP 3306—MariaDB (optional if remote)  
TCP 27017—MongoDB (optional if remote)  
TCP 11211—Memcached  
TCP 5172, 49159—End-User Management Software Development Kit (EMSDK)—optional and required only to manage Teradici devices  
The default ports that are used by the installer may be changed to an alternative port during installation. |
| Supported browsers                | Internet Explorer version 11  
Google Chrome version 58.0 and later  
Mozilla Firefox version 52.0 and later  
Edge browser on Windows—English only |

- The Overlay Optimizer version 1.0 and installation scripts are provided with the Wyse Management Suite Installer. Administrator must run the scripts to enable the Overlay Optimizer to be made available in Wyse Management Suite.
- The Dell Secure Client version 1.0 installation scripts will be provided with the Wyse Management Suite Installer. Administrator must run the scripts to enable the Dell Secure Client to be made available in Wyse Management Suite.

**NOTE:** WMS.exe and WMS_Repo.exe must be installed on two different servers. You must install the Wyse Management Suite remote repository for the public cloud. For private cloud, you must install the Wyse Management Suite remote repository and local repository. The software can be installed on a physical or a virtual machine. Also, it is not necessary that the software repository and the Wyse Management Suite server have the same operating system. For more information, see Accessing file repository.
Installing Wyse Management Suite on private cloud

To set up the Wyse Management Suite on a private cloud, the following requirements must be met:

● Obtain and configure all the required hardware and software. You can download the Wyse Management Suite software from downloads.dell.com/wyse/wms.
● Install a supported server operating system on one or more server machines.
● Ensure that the systems are up to date with current Microsoft service packs, patches, and updates.
● Ensure that the latest version of the supported browser is installed.
● Obtain administrator rights and credentials on all systems that are involved with the installations.
● For the Pro features, obtain a valid Wyse Management Suite license. Standard edition does not require a license.

A simple installation of Wyse Management Suite consists of the following:

● Wyse Management Suite server (includes repository for application and operating system images)
● Optional—Additional Wyse Management Suite repository servers (repositories for additional images, applications, and AD authentication)
● Optional—HTTPS certificate from a Certificate Authority such as www.geotrust.com/.

To install the Wyse Management Suite on a private cloud, do the following:

1. Double-click the installer package.
2. On the Welcome screen, read the license agreement and click Next.
3. On the Setup Type page, select the components that you want to install, and click Next. The available options are:
   ● Wyse Management Suite—There are two setup types available for Wyse Management Suite components.
     ○ Typical—Requires minimum user interaction and installs embedded databases.
     ○ Custom—Requires maximum user interactions and is recommended for advanced users. For more information, see Custom installation.
   ● Teradici EM SDK—Teradici EM SDK components are installed as a service.
   
   **NOTE:** A notification window is displayed, when the Internet Explorer Enhanced Security Configuration feature is enabled. To disable this feature, select the Turn off IE Enhanced Security Configuration check box on the Setup Type page.

   If EM SDK is installed on the server along with Wyse Management Suite from a previous installation, the Teradici EM SDK components are updated automatically.

4. Select Typical as the Setup Type. Enter the new Database Credentials for the embedded databases. Also, enter the new Administrator Credentials and click Next.
   
   **NOTE:** The administrator credentials are required to log in to the Wyse Management Suite web console after the installation.

5. On the Configuration page, configure the shared folder and access rights for the CIFS user. The available options are:
   ● Use an Existing user—Select this option to validate credentials for the existing user.
   ● Create a New user—Select this option and enter the credentials to create a new user.
   
   **NOTE:** If the Teradici EM SDK option is enabled on the Setup Type page, you can configure the port for the Teradici server on the Configuration page.

6. Select a path to install the software, and the path to install the local tenant file repository, and then click Next.
7. Click Next.
   The Pre-Installation Summary page is displayed.
8. Ensure to select all the appropriate versions of TLS based on the support criteria of the devices being managed.

![Figure 1. Configure Webserver TLS](image)

**NOTE:** The WDA version lower than WDA_14.4.0.135_Unified, Import tool, and the 32-bit Merlin image are not compatible with TLSv1.1 and later. Select TLSv1.0 if the Wyse Management Suite environment has devices with older version of WDA, Import tool, or devices installed with 32-bit Merlin image.

9. Click Next to install the software.
   The installer takes approximately 4 to 5 minutes to complete the installation. However, it may take longer if the dependent components such as VC-runtime are not installed on the system.
10. Click Launch to open the Wyse Management Suite web console.
11. On the web console, click Get Started.
12. Select your preferred license.

- If you select the license type as **Standard**, and then click **Next** to proceed with the standard Wyse Management Suite installation.
- If you select the license type as **Pro**, you must import a valid Wyse Management Suite license. To import the Wyse Management Suite license, enter the requested information to import license if your server has Internet connectivity. Also, you can generate the license key by logging in to Wyse Management Suite public cloud portal and entering the key into the license key field.
To export a license key from the Wyse Management Suite cloud portal, do the following:

a. Log in to the Wyse Management Suite cloud portal by using one of the following links:
   - US data center—us1.wysemanagementsuite.com/ccm-web
   - EU data center—eu1.wysemanagementsuite.com/ccm-web

b. Go to Portal Administration > Subscription.
c. Enter the number of thin client seats.
d. Click **Export**.

![Figure 5. Portal administration](image)

**NOTE:** To export the license, select **WMS 1.1** or **WMS 1.0** from the drop-down list.

The summary page shows the details of the license after the license is successfully imported.

13. Enter your SMTP server information, and click **Save**.

**NOTE:** You can skip this screen and make changes later in the console.
NOTE: You must enter valid SMTP server information to receive email notifications from the Wyse Management Suite.

14. Import your SSL certificate to secure communications with the Wyse Management Suite server. Enter the public, private, and Apache certificate and click the **Import** button. Importing the certificate takes three minutes to configure and restart Tomcat services. You can skip this screen and complete this setup or make changes later in the console by logging in to the Wyse Management Suite private cloud and importing from the **Portal Administration** page.

**NOTE:**

By default, the Wyse Management Suite imports the self-signed SSL certificate that is generated during the installation to secure communication between the client and the Wyse Management Suite server. If you do not import a valid certificate for your Wyse Management Suite server, a security warning message is displayed when you access the Wyse Management Suite from a machine other than the server where it is installed. This warning message is displayed because the self-signed certificate that is generated during installation is not signed by a Certificate Authority such as **geotrust.com**. You can either import a .pem or .pfx certificate.
15. In the **Device** page, you can enable **Enrollment Validation** to enable administrators to control the manual and auto registration of thin clients to a group.

16. Click **Save** and then click **Next**.
17. Click **Sign in to WMS**.

   The **Dell Management Portal** login page is displayed.
NOTE: Licenses can be upgraded or extended at a later point from the Portal Administration page.

Topics:
Logging in to Wyse Management Suite

To log in to the management console, do the following:

1. If you are using Internet Explorer, disable the Internet Explorer Enhanced Security and the Compatibility View setting.
2. Use a supported web browser on any machine with access to the internet, and access the private cloud edition of the Wyse Management Suite from https://<FQDN>/ccm-web. For example, https://wmsserver.domain.com/ccm-web, where, wmsserver.domain.com is the qualified domain name of the server.
3. Enter your user name and password.
4. Click Sign In.

Functional areas of management console

The Wyse Management Suite console is organized into the following functional areas:

- The Dashboard page provides information about each functional area of the system.
- The Groups & Configs page employs a hierarchical group policy management for device configuration. Optionally, subgroups of the global group policy can be created to categorize devices according to corporate standards. For example, devices may be grouped based on job functions, device type, bring-your-own-device, and so on.
- The Devices page enables you to view and manage devices, device types, and device-specific configurations.
- The Apps & Data page provides management of device applications, operating system images, policies, certificate files, logos, and wallpaper images.
- The Rules page enables you to add, edit, and enable or disable rules such as auto grouping and alert notifications.
- The Jobs page enables you to create jobs for tasks such as reboot, WOL, and application or image policy that need to be deployed on registered devices.
- The Events page enables you to view and audit system events and alerts.
- The Users page enables local users, and users imported from the Active Directory to be assigned global administrator, group administrator, and viewer roles to log in to Wyse Management Suite. Users are given permissions to perform operations based on the roles assigned to them.
- The Portal Administration page enables administrators to configure various system settings, such as local repository configuration, license subscription, active directory configuration, and two-factor authentication. For more information, see Dell Wyse Management Suite Administrator’s Guide at support.dell.com.

Configuring and managing thin clients

Configuration management—Wyse Management Suite supports a hierarchy of groups and subgroups. Groups can be created manually or automatically based on rules defined by the system administrator. You can organize based on the functional groups, for example marketing, sales, and engineering, or based on the location hierarchy, for example, country, state, and city.

**NOTE:**

In the pro edition, system administrators can add rules to create groups. They can also assign devices to an existing group depending on the device attributes such as subnet, time zone, and location.

You can also configure the following:

- Settings or policies that apply to all devices in the tenant account which are set at the Default Policy group. These settings and policies are the global set of parameters that all groups and subgroups inherit from.
• Settings or parameters that are configured at lower-level groups take precedence over the settings that were configured at the parent or higher-level groups.

• Parameters that are specific to a particular device which can be configured from the Device Details page. These parameters, like lower-level groups, take precedence over the settings configured in the higher-level groups.

Configuration parameters are deployed to all devices in that group and all the subgroups, when the administrator creates and publishes the policy.

After a configuration is published and propagated to the devices, the settings are not sent again to the devices until the administrator makes a change. New devices that are registered, receive the configuration policy that is effective for the group to which it was registered. This includes the parameters inherited from the global group and intermediate level groups.

Configuration policies are published immediately, and cannot be scheduled for a later time. Few policy changes, for example display settings, may force a reboot.

**Application and operating system image deployment**—Applications and operating system image updates can be deployed from the Apps & Data tab. Applications are deployed based on the policy groups.

**NOTE:** Advanced application policy allows you to deploy an application to the current and all subgroups based on your requirement. Operating system images can be deployed to the current group only.

Wyse Management Suite supports standard and advanced application policies. A standard application policy allows you to install a single application package. You need to reboot the device before and after each application installation. With an advanced application policy, multiple application packages can be installed with only two reboots. This feature is available only in the pro edition. Advanced application policies also support execution of pre and post installation scripts that may be needed to install a particular application.

You can configure standard and advanced application policies to be applied automatically when a device is registered with Wyse Management Suite or when a device is moved to a new group.

Deployment of application policies and operating system images to thin clients can be scheduled immediately or later based on the device time zone or any other specified time zone.

**Inventory of devices**—This option can be located by clicking the Devices tab. By default, this option displays a paginated list of all the devices in the system. The administrator can choose to view a subset of devices by using various filter criteria, such as groups or subgroups, device type, operating system type, status, subnet, and platform or time zone.

To navigate to the Device Details page for that device, click the device entry listed on this page. All the details of the device are displayed.

The Device Details page also displays all the configuration parameters that are applicable to that device, and also the group level at which each parameter is applied.

This page also enables the administrators to set configuration parameters that are specific to that device by enabling the Device Exceptions button. Parameters configured in this section override any parameters that were configured at the groups and/or global level.

**Reports**—Administrators can generate and view canned reports based on the predefined filters. To generate canned reports, click the Reports tab on the Portal Administration page

**Mobile application**—Administrator can receive alert notifications and manage devices using mobile application available for the Android devices. To download the mobile application and the quick start guide, click the Alerts and Classification tab on the Portal Administration page.

---

**Creating policy group and updating configuration**

To create a policy and to update the configuration, do the following:

1. Log in as an administrator.
2. To create a policy group, do the following:
   a. Select Groups & Configs, and click the + button on the left pane.
   b. Enter the group name and description.
   c. Select the Enabled check-box.
   d. Enter the group token.
To update or edit a policy group, do the following:

a. Click **Edit Policies**, and select the operating system that the policy is intended to manage.

b. Select the policies to be modified, and complete the configuration.

c. Click **Save and Publish**.

**NOTE:**

- For more details on various configuration policies supported by Wyse Management Suite, see *Dell Wyse Management Suite Administrator’s Guide* at support.dell.com.
- You can create a rule to automatically create a group and/or assign a device to a group based on specific attributes such as subnet, time zone, and location.

### Registering new thin client

**NOTE:** For information on customer security environment, see *Wyse Device Agent*.

A thin client can be registered with Wyse Management Suite manually through the Wyse Device Agent (WDA). You can also register a thin client automatically by configuring appropriate option tags on the DHCP server or configuring appropriate DNS SRV records on the DNS server.

If you want devices in different subnets to automatically check into different Wyse Management Suite groups with multiple subnets, use the DHCP option tags to register a thin client. For example, devices in TimeZone_A can check into ProfileGroup configured for TimeZoneA.

If you want to enter the Wyse Management Suite server information at TLD, and if you have installed Wyse Management Suite Pro to allow automatic group assignment based on device rules, use the DNS SRV records on the DNS server to register a thin client. For example, if the device checks in from TimeZoneA, assign it to the ProfileGroup configured for TimeZoneA.

For the Wyse Management Suite on a private cloud with self-signed certificates, the thin clients must have the following versions of Wyse Device Agents or firmware installed for secure communication:

- Windows Embedded Systems—13.0 or later versions
- Thin Linux—2.0.24 or later versions
- ThinOS—8.4 firmware or later versions

- You can register a device with an older version agent using HTTP URL instead of HTTPS. After the agent or firmware is upgraded to the latest version, communication with the Wyse Management Suite will automatically switch to https.
- You can download the latest version WDA at downloads.dell.com/wyse/wda.
- For Wyse Management Suite installed on a private cloud, go to Portal Adminstration > Setup and select the Certification Validation check box, if you have imported certificates from a certificate authority such as www.geotrust.com. This checkbox should not be selected if you have not imported certificates from a well-known certificate authority. This option is not available for Wyse Management Suite on a public cloud as the certificate validation in public cloud is always enabled.

### Registering ThinOS device manually

To register the ThinOS devices manually, do the following:

1. From the desktop menu, go to System Setup > Central Configuration.
   The Central Configuration window is displayed.
2. Click the WDA tab.
   WMS is selected by default.

**NOTE:** WDA service automatically runs after the client boot up process is complete.
3. Select the **Enable Wyse Management Suite** check box to enable Wyse Management Suite.

4. Enter the **Group Registration Key** as configured by your administrator for the desired group.

5. Select the **Enable WMS Advanced Settings** option, and enter the WMS server or MQTT server details.

6. Enable or disable CA validation based on your license type—public cloud or private cloud.
   - Public cloud—Select the **Enable CA Validation** check box if the device is registered with Wyse Management Suite in public cloud.
   - Private cloud—Select the **Enable CA Validation** check box if you have imported certificates from a well-known certificate authority into your Wyse Management Suite server.

   **NOTE:**
   For the pro cloud version of Wyse Management Suite in USA, do not change the default WMS server and MQTT server details. For the pro cloud version of Wyse Management Suite in Europe, use the following:
   - CCM Server—eu1.wysemanagementsuite.com
   - MQTT Server—eu1-pns.wysemanagementsuite.com:1883

7. To verify the setup, click **Validate Key**. The device automatically restarts after the key is validated.

   **NOTE:** If the key is not validated, verify the credentials which you have provided. Ensure that ports 443 and 1883 are not blocked by the network.

8. Click **OK**.
   The device is registered to the Wyse Management Suite console.

For information on how to register the Windows Embedded Standard devices and the Linux devices, see [Registering Windows Embedded Device manually](#) and [Registering Linux device manually](#).

### Registering ThinOS devices using INI files

If you want to configure the ThinOS devices using wnos.ini, or xen.ini, then the additional information can be published in the .ini files to inform the devices to check in to a Wyse Management Suite server.

Examples:
- **Example for ThinOS 8.5:**
  
  WDAService=yes \ 
  Priority=WMS
Example for ThinOS 8.4:
WDAService=yes  
Priority=CCM  
CCMEnable=yes  
CCMServer=<Server URL>  
GroupPrefix=< Prefix >  
GroupKey=< Key >  
MQTTServer=<Server URL>  
Override=yes  
CAValidation=no

NOTE:
- For ThinOS 8.3 (ThinOS Lite 2.3) and later versions, a WDA Service Priority command allows you to specify the management protocol. This command is used to discover the management server.
- The CCM tags for ThinOS version 8.3, 8.4, and 8.5 are different.

Registering devices by using DHCP option tags

**NOTE:**
- For detailed instructions on how to add DHCP option tags on the Windows server, see [*Creating and configuring DHCP option tags*](#). For information about customer security environment, see [*Wyse Device Agent*](#).

You can register the devices by using the following DHCP option tags:

<table>
<thead>
<tr>
<th>Option Tag</th>
<th>Description</th>
</tr>
</thead>
</table>
| Name—WMS  
Data Type—String  
Code—165  
Description—WMS Server FQDN | This tag points to the Wyse Management Suite server URL. For example, `wmsserver.acme.com:443`, where `wmsserver.acme.com` is fully qualified domain name of the server where Wyse Management Suite is installed. For links to register your devices in Wyse Management Suite in public cloud, see [*Getting started with Wyse Management Suite on public cloud*](#). |

**NOTE:** Do not use `https://` in the server URL, or the thin client will not register under Wyse Management Suite. Use `https://` if you cannot register the ThinOS 9.x device to Wyse Management Suite.

<table>
<thead>
<tr>
<th>Option Tag</th>
<th>Description</th>
</tr>
</thead>
</table>
| Name—MQTT  
Data Type—String  
Code—166  
Description—MQTT Server | This tag directs the device to the Wyse Management Suite Push Notification server (PNS). For a private cloud installation, the device gets directed to the MQTT service on the Wyse Management Suite server. For example, `wmsservername.domain.com:1883`. To register your devices in Wyse Management Suite public cloud, the device should point to the PNS (MQTT) servers in public cloud. For example, `US1:us1-pns.wysemanagementsuite.com`  
`EU1:eu1-pns.wysemanagementsuite.com` |
Table 5. Registering device by using DHCP option tags (continued)

<table>
<thead>
<tr>
<th>Option Tag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>You must enter the MQTT server details when you configure Wyse Device Agent details in the older version of ThinOS and Windows Embedded devices. MQTT is a component of WMS which is required to notify the thin clients. The URLs—with and without MQTT details—must be added to the allowlist in the Wyse Management Suite public cloud environment. <strong>NOTE:</strong> You cannot use the MQTT URLs to log in to Wyse Management Suite.</td>
<td></td>
</tr>
<tr>
<td>Name—CA Validation</td>
<td>This tag is required if Wyse Management Suite is installed on your system in your private cloud. Do not add this option tag if you are registering your devices with Wyse Management Suite on public cloud. Enter <strong>True</strong>, if you have imported the SSL certificates from a well-known authority for https communication between the client and Wyse Management Suite server. Enter <strong>False</strong>, if you have not imported the SSL certificates from a well-known authority for https communication between the client and Wyse Management Suite server.</td>
</tr>
<tr>
<td>Name—GroupToken</td>
<td>This tag is required to register the ThinOS devices with Wyse Management Suite on public or private cloud. This tag is optional to register the Windows Embedded Standard or ThinLinux devices with Wyse Management Suite on private cloud. If the tag is not available, then the devices are automatically registered to the unmanaged group during on-site installation.</td>
</tr>
</tbody>
</table>

Registering devices by using DNS SRV record

**NOTE:** For information about customer security environment, see Wyse Device Agent.

DNS-based device registration is supported with the following versions of Wyse Device Agent:

- Windows Embedded Systems—13.0 or later versions
- Thin Linux—2.0.24 or later versions
- ThinOS—8.4 firmware or later versions

You can register devices with the Wyse Management Suite server if the DNS SRV record fields are set with valid values. **NOTE:** For detailed instructions on how to add DNS SRV records on the Windows server, see Creating and configuring DNS SRV record.

The following table lists the valid values for the DNS SRV records:

Table 6. Configuring device by using DNS SRV record

<table>
<thead>
<tr>
<th>URL/Tag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Name—_WMS_MGMT</td>
<td>This record hovers over the Wyse Management Suite server URL. For example, wmsserver.acme.com:443, where wmsserver.acme.com is fully qualified domain name of the server where Wyse Management Suite is installed. For links to register your devices in Wyse Management Suite in public cloud, see Getting started with Wyse Management Suite on public cloud. <strong>NOTE:</strong> Do not use https:// in the server URL, or the thin client will not register under Wyse Management Suite. Use</td>
</tr>
</tbody>
</table>
### Table 6. Configuring device by using DNS SRV record (continued)

<table>
<thead>
<tr>
<th>URL/Tag</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Record Name**— _WMS_MQTT** Record FQDN**— _WMS_MQTT._tcp.<Domainname>  **Record Type**—SRV | This record directs the device to the Wyse Management Suite Push Notification server (PNS). For a private cloud installation, the device gets directed to the MQTT service on the Wyse Management Suite server. For example, wmsservername.domain.com:1883.  

**NOTE:** MQTT is optional for the latest version of Wyse Management Suite.  
To register your devices in Wyse Management Suite public cloud, the device should hover over the PNS (MQTT) servers in public cloud. For example,  
US1— us1-pns.wysemanagementsuite.com  
EU1— eu1-pns.wysemanagementsuite.com  
You must enter the MQTT server details when you configure Wyse Device Agent details in the older version of ThinOS and Windows Embedded devices. MQTT is a component of WMS which is required to notify the thin clients. The URLs—with and without MQTT details—must be added to the allowlist in the Wyse Management Suite public cloud environment.  

**NOTE:** You cannot use the MQTT URLs to log in to Wyse Management Suite. |
| **Record Name**— _WMS_GROUPTOKEN** Record FQDN**— _WMS_GROUPTOKEN.<Domain>  **Record Type**—TEXT | This record is required to register the ThinOS devices with Wyse Management Suite on public or private cloud.  
This record is optional to register the Windows Embedded Standard or ThinLinux devices with Wyse Management Suite on private cloud. If the record is not available, then the devices are automatically registered to the unmanaged group during on-premises installation.  

**NOTE:** Group Token is optional for the latest version of Wyse Management Suite. |
| **Record Name**— _WMS_CAVALIDATION** Record FQDN**— _WMS_CAVALIDATION.<Domain>  **Record Type**—TEXT | This record is required if Wyse Management Suite is installed on your system in your private cloud. Do not add this optional record if you are registering your devices with Wyse Management Suite on public cloud.  
Enter **True**, if you have imported the SSL certificates from a well-known authority for https communication between the client and Wyse Management Suite server.  
Enter **False**, if you have not imported the SSL certificates from a well-known authority for https communication between the client and Wyse Management Suite server.  

**NOTE:** CA Validation is optional for the latest version of Wyse Management Suite. |
Deploying applications to thin clients

The standard application policy allows you to install a single application package and requires reboot before and after installing each application. Using the advanced application policy, you can install multiple application packages with only two reboots. The advanced application policy also supports execution of pre and post installation scripts that may be needed to install a particular application. For more information, see Appendix B.

Topics:
- Uploading and deploying ThinOS firmware image inventory
- Creating and deploying standard application policy to thin clients

Uploading and deploying ThinOS firmware image inventory

To add a file to the ThinOS image inventory, do the following:

1. In the Apps & Data tab, under OS Image Repository, click ThinOS.
2. Click Add Firmware File.
   The Add File screen is displayed.
3. To select a file, click Browse and navigate to the location where your file is located.
4. Enter the description for your file.
5. Select the check box if you want to override an existing file.
6. Click Upload.

NOTE: The file is added to the repository when you select the check box but it is not assigned to any of the groups or devices. To assign the file, go to the respective device configuration page.

Creating and deploying standard application policy to thin clients

To deploy a standard application policy to thin clients, do the following:

1. In the local repository, go to thinClientApps, and copy the application to the folder.
2. Ensure that the application is registered by navigating to the Apps & Data tab and selecting Thin Client under App Inventory.

   NOTE: The App Inventory interface takes approximately two minutes to populate any recently added programs.
4. Click Add Policy.
5. To create an application policy, enter the appropriate information in the Add Standard App Policy window.
   a. Select Policy Name, Group, Task, Device Type, and TC Application.
   b. To deploy this policy to a specific operating system or a platform, select either OS Subtype Filter or Platform Filter.
      Timeout displays a message on the client which gives you time to save your work before the installation begins. Specify the number of minutes the message dialog should be displayed on the client.
   c. To automatically apply this policy to a device that is registered with Wyse Management Suite, select Apply the policy to new devices from the Apply Policy Automatically drop-down list.
NOTE:

- The app policy is applied, when any device is moved to the defined group or registered directly to the group.
- If you select **Apply the policy to devices on check in**, the policy is automatically applied to the device at check-in to the Wyse Management Suite server.

6. To allow a delay in execution of the policy, select the **Allow delay of policy execution** check box. If this option is selected, the following drop-down menus are enabled:
   - From the **Max Hours per Delay** drop-down menu, select the maximum hours (1–24 hours) you can delay execution of the policy.
   - From the **Max delays** drop-down menu, select the number of times (1–3) you can delay the execution of the policy.

7. To stop the installation process after a defined value, specify the number of minutes in the **Application Installation Timeout** field.

8. Click **Save** to create a policy.

A message is displayed to allow the administrator to schedule this policy on devices based on group.

9. Select **Yes** to schedule a job on the same page.

The app/image policy job can run:
   a. **Immediately** — Server runs the job immediately.
   b. **On device time zone** — Server creates one job for each device time zone and schedules the job to the selected date/time of the device time zone.
   c. **On selected time zone** — Server creates one job to run at the date/time of the designated time zone.

10. To create the job, click **Preview** and schedules are displayed on the next page.

11. You can check the status of the job by navigating to the **Jobs** page.
To uninstall Wyse Management Suite, do the following:

1. Double-click the **WMS** icon.
   
The uninstaller wizard is initiated, and the **Wyse Management Suite uninstaller** screen is displayed.

2. Click **Next**. By default, the **Remove** radio button is selected that uninstalls all the Wyse Management Suite installer components.
Troubleshooting Wyse Management Suite

This section provides troubleshooting information for Wyse Management Suite.

Problems with accessing Wyse Management Suite web console

- Problem: When you attempt to connect to the Wyse Management Suite console, authentication GUI is not displayed and an HTTP Status 404 page is displayed.
  Workaround: Stop and start the services in the following order:
  1. Dell WMS: MariaDB
  2. Dell WMS: memcached
  3. Dell WMS: MongoDB
  4. Dell WMS: MQTT broker service
  5. Dell WMS: Tomcat Service

- Problem: When you attempt to connect to the Wyse Management Suite console, the authentication GUI is not displayed, and the following error message is displayed:
  
  **This page can't be displayed**

  Workaround: Restart the Dell WMS: Tomcat Service

- Problem: Wyse Management Suite Web Console does not respond, or the information on the web page is not displayed correctly when using Internet Explorer.
  Workaround:
  - Ensure that you are using the supported version of Internet Explorer.
  - Ensure that the Internet Explorer Enhanced Security is disabled.
  - Ensure that the compatibility view settings are disabled.

Registering devices with Wyse Management Suite

**NOTE:** For information on customer security environment, see Wyse Device Agent.

- Problem: Unable to register devices with Wyse Management Suite in public cloud
  Workaround:
  - Ensure that ports 443 and 1883 are open.
  - Check your network connectivity, and access to the Wyse Management web application from the browser for public cloud.
  - If **Automatic Discovery** is enabled, check if DHCP or DNS SVR records are configured correctly. Also, check the server URL and the group tokens.
  - Check if you can register the device manually.

- Problem: Unable to register devices with Wyse Management Suite in private cloud.
  Workaround:
○ Ensure that the ports 443 and 1883 are open.
○ Check the internet connectivity, and if you can access the Wyse Management web application from the browser.
○ If automatic discover is enabled, check if DHCP or DNS SRV records are configured correctly. Also, check the server URL and the group tokens.
○ Check if you can register the device manually.
○ Check if you are using self-signed or well known certificates.

**NOTE:** By default Wyse Management Suite installs self-signed certificates. CA validation must be disabled for devices to communicate with the Wyse Management Suite server.

### Error while sending commands to the device

**Problem:** Not able to send commands such as package update, reboot to device and so on.

**Workaround:**
- Ensure that the Dell WMS: MQTT broker service is running on the Wyse Management Suite server.
- Check if port 1883 is open.
- Ensure that the device is not shutdown or in sleep state before sending a command.
The Wyse Device Agent (WDA) is a unified agent for all thin client management solutions. If you install WDA, you can manage thin clients using Wyse Management Suite.

The following three types of customer security environments are supported by the Wyse Device Agent:

- **Highly secured environments**—To mitigate the risk against rouge DHCP or DNS server for new device discovery, administrators must log in to each device individually and configure the Wyse Management Suite server URL. You can use either CA-signed or self-signed certificates. However, Dell recommends that you use a CA-signed certificate. In Wyse Management Suite private cloud solution with self-signed certificate, the certificate should be manually configured in every device. Also, the certificate must be copied to the Agent Configuration folder to preserve the certificate and mitigate the risk against rouge DHCP or DNS server even after you reimage the device.

  The Agent Configuration folder is available at the following location:
  - Windows Embedded Standard devices—%SYSTEMDRIVE%\Wyse\WCM\ConfigMgmt\Certificates
  - ThinLinux devices—/etc/addons.d/WDA/certs
  - ThinOS devices—wnos/cacerts/

  **NOTE:** You must import the certificate to a thin client running ThinOS operating system using a USB drive or FTP paths.

- **Secured environments**—To mitigate the risk against rouge DHCP or DNS server for new device discovery, administrators must configure Wyse Management Suite server using CA-signed certificates. The device can fetch the Wyse Management Suite server URL from the DHCP/DNS records and perform the CA validation. Wyse Management Suite private cloud solution with self-signed certificate requires the certificate to be pushed to the device after first registration if the device does not have the certificate before registration. This certificate is preserved even after you reimage or restart the device to mitigate the risk against rouge DHCP or DNS server.

- **Normal environments**—The device obtains the Wyse Management Suite server URL from the DHCP/DNS records for Wyse Management Suite private cloud that is configured with CA-signed or self-signed certificate. If CA validation option is disabled on the device, Wyse Management Suite administrator is notified after you register the device for the first time. In this scenario, Dell recommends that the administrators perform a certificate push to the device where the server is configured with self-signed certificate. This environment is not available for public cloud.
For video tutorials about:

- Installing Wyse management suite, see Installation of Wyse Management Suite.
- Automatic configuration of ThinOS clients using Wyse Management Suite On-Premise with DHCP option tags, see Configuring ThinOS devices using Wyse Management Suite.
Remote database

A remote or cloud database (DB) is a database that is built for a virtualized environment, such as hybrid cloud, public cloud, or private cloud. In Wyse Management Suite, you can configure either the Mongo database (MongoDB) or the Maria database (MariaDB) or both databases based on your requirement.

Topics:
- Configure Mongo database
- Configure Maria database

Configure Mongo database

Mongo database (MongoDB) operates on the Transmission Control Protocol (TCP) port number 27017.

NOTE: Replace any value that is boldfaced with your environment variables, as applicable.

To configure MongoDB, do the following:

1. Install the MongoDB version 4.2.1.
2. Copy the MongoDB files to your local system—C:\Mongo.
3. Create the following directories if they do not exist:
   - C:\data
   - C:\data\db
   - C:\data\log
4. Go to the Mongo folder (C:\Mongo), and create a file named mongod.cfg.
5. Open the mongod.cfg file in a notepad, and add the following script:

   ```
   systemLog:
   destination: file
   path: C:\data\log\mongod.log
   storage:
   dbPath: C:\data\db
   ```

6. Save and close the mongod.cfg file.
7. Open command prompt as an administrator, and run the following command:

   ```
   mongod.exe --config "C:\Program Files\MongoDB\Server\4.2\mongod.cfg" --install or
   sc.exe create MongoDB binPath=""C:\ProgramFiles\MongoDB\Server\3.2\bin\mongod.exe"" --service
   --config=""C:\ProgramFiles\MongoDB\Server\4.2\mongod.cfg"" DisplayName="Dell WMS:
   MongoDB" start="auto"
   ```

   MongoDB is installed.
8. To start the MongoDB services, run the following command:

   ```
   net start mongoDB
   ```
9. To start the Mongo database, run the following command:

   ```
   mongo.exe
   ```
10. To open the default admin db, run the following command:

    ```
    use admin;
    ```
11. After the MongoDB sheet is displayed, run the following commands:

    ```
    db.createUser(
    {
    user: "wmsuser",
    pwd: "PASSWORD",
    ```
12. To switch to the stratus database, run the following command:
   
   use stratus;

13. To stop the MongoDB services, run the following command:
   
   net stop mongoDB

14. Add an authentication permission to the admin DB. Modify the mongod.cfg file to the following:

   systemLog:
   destination: file
   path: c:\data\log\mongod.log
   storage:
   dbPath: c:\data\db
   security:
   authorization: enabled

15. To restart the MongoDB service, run the following:
   
   net Start mongoDB;

In the Wyse Management Suite installer, the administrator must use the same user name and password that was created to access the stratus databases in MongoDB. For information about setting the MongoDB on the Wyse Management Suite installer, see Custom installation.

Configure Maria database

Maria database (MariaDB) operates on the Transmission Control Protocol (TCP) port number 3306.

**NOTE:**
- The IP address displayed here belongs to the Wyse Management Suite server that hosts the web components.
- Replace any value that is boldfaced with your environment variables, as applicable.

To configure MariaDB, do the following:

1. Install the MariaDB version 10.2.29.
2. Navigate to the MariaDB installation path—C:\Program Files\MariaDB 10.2\bin>mysql.exe -u root –p.
3. Provide the root password which was created during installation
4. Create the database stratus—DEFAULT CHARACTER SET utf8 DEFAULT COLLATE utf8_unicode_ci;
5. Create user 'stratus'@'localhost';
6. Create user 'stratus'@'IP ADDRESS';
7. Set a password for 'stratus'@'localhost'=password('PASSWORD');
8. Set a password for 'stratus'@'IP ADDRESS'=password('PASSWORD');
9. Provide all privileges on *.* to 'stratus'@'IP ADDRESS' identified by 'PASSWORD' with a grant option.
10. Provide all privileges on *.* to 'stratus'@'localhost' identified by 'PASSWORD' with a grant option.

**NOTE:** To configure custom port for MariaDB, navigate to C:\Program Files\MariaDB 10.2\bin>mysql.exe -u root -p -P<custom port> in the second step.

In the Wyse Management Suite installer, the administrator must use the same user name and password that was created to access the stratus databases in MariaDB. For information about setting the MariaDB on the Wyse Management Suite installer, see Custom installation.
In custom installation, you can select a database to set up Wyse Management Suite, and you must know the basic technical working knowledge of Wyse Management Suite. Dell recommends custom installation only for advanced users.

1. Select the Setup Type as Custom, and click Next.

![Figure 13. Setup type](image)

The Mongo Database Server page is displayed.

2. Select either Embedded MongoDB or External MongoDB as the Mongo database server.

   - If Embedded MongoDB is selected, then provide your password, and click Next.

   **NOTE:** User name and database server details are not required if the Embedded Mongo database is selected, and the respective fields are grayed out.
Figure 14. Embedded Mongo Database Server

- If External MongoDB is selected, then provide user name, password, database server details, and the port details, and click Next.

**NOTE:** The port field populates the default port which can be changed.
The **MariaDB Database Server** page is displayed.

3. Select either **Embedded MariaDB** or **External MariaDB** as the MariaDB database server.
   - If **Embedded MariaDB** is selected, provide user name and password, and click **Next**.

```
  Figure 16. Embedded MariaDB
  - If **External MariaDB** is selected, provide user name, password, database server details and the port details, and click **Next**.
```

The port field populates the default port which can be changed.
4. The **Port** page is displayed which allows you to customize the ports for the following databases:

- Apache Tomcat
- MySQL database
- Mongo database
- MQTT v3.1 Broker
- Memcached
NOTE: Wyse Management Suite uses the Maria database and Mongo database for the following:
- Maria database—Relational database for data that requires well-defined structure and normalization
- Mongo database—No-SQL database for performance and scalability

To complete the installation, follow the steps in the section Installing WMS on-premise and initial setup.
Access Wyse Management Suite file repository

File repositories are places where files are stored and organized. Wyse Management Suite has two types of repositories:

- **Local Repository**—During the Wyse Management Suite private cloud installation, provide the local repository path in the Wyse Management Suite installer. After the installation, go to **Portal Admin > File Repository** and select the local repository. Click the **Edit** option to view and edit the repository settings.

- **Wyse Management Suite Repository**—Log in to Wyse Management Suite public cloud, go to **Portal Admin > File Repository** and download the Wyse Management Suite repository installer. After the installation, register the Wyse Management Suite repository to Wyse Management Suite Management server by providing the required information.

You can enable the **Automatic Replication** option to replicate files that are added to any of the file repositories to other repositories. When you enable this option, an alert message is displayed. You can select the **Replicate existing files** check box to replicate the existing files to your file repositories.

**Replicate existing file** option is applicable if the repository is already registered. When a new repository is registered, then all the files are copied to the new repository. You can view the file replication status in the **Events** page.

The Image Pull templates are not replicated automatically to other repositories. You must copy these files manually.

File Replication feature is supported only on repositories from Wyse Management Suite 2.0 and later versions.

You cannot import self-signed certificate of the remote repository to the Wyse Management Suite server. If the CA Validation is enabled for remote repository, then the replication of files from the remote repository to the local repository fails.

The selected TLS version must be same or higher than the TLS version configured on the Wyse Management Suite server. Make sure to select all the appropriate versions of TLS based on the support criteria of the devices being managed.
To use Wyse Management Suite repository, do the following:

1. Download the Wyse Management Suite repository from the public cloud console.
2. After the installation process, start the application.
3. On the Wyse Management Suite Repository page, enter the credentials to register the Wyse Management Suite repository to Wyse Management Suite server.
4. If you enable the Register to Public WMS Management Portal option, you can register the repository to Wyse Management Suite public cloud.
5. Click the Sync Files option to send the sync file command.
6. Click Check In and then click Send Command to send the device information command to the device.
7. Click the Unregister option to unregister the on-premises service.
8. Click Edit to edit the files.
9. From the drop-down list of Concurrent File Downloads option, select the number of files.
10. Enable or disable Wake on LAN option.
11. Enable or disable Fast File Upload and Download (HTTP) option.
   - When HTTP is enabled, the file upload and download occurs over HTTP.
   - When HTTP is not enabled, the file upload and download occurs over HTTPS.
12. Select the Certificate Validation check box to enable the CA validation for public cloud.

**NOTE:** When CA Validation from Wyse Management Suite server is enabled, the certificate should be present in the client. All the operations such as, Apps and Data, Image Pull/Push is successful. If certificate is not present in the client, the Wyse Management Suite server provides one generic audit event message Failed to Validate Certificate Authority under Events page. All the operations such as, Apps and Data, Image Pull/Push is not successful. Also, when CA Validation from Wyse Management Suite server is disabled, the communication from server and client happens in secure channel without Certificate Signature validation.
13. Add a note in the provided box.
14. Click **Save Settings**.
Create and configure DHCP option tags

**NOTE:** For information on customer security environment, see Wyse Device Agent.

To create a DHCP option tag, do the following:

1. Open the Server Manager.
2. Go to **Tools**, and click **DHCP option**.
3. Go to **FQDN > IPv4** and right-click **IPv4**.

4. Click **Set Predefined Options**. The **Predefined Options and Values** window is displayed.

5. From the **Option class** drop-down list, select the **DHCP Standard Option** value.
6. Click **Add**.
   The **Option Type** window is displayed.

   **Figure 21. Predefined Options and Values**

   The options must be either added to the server options of the DHCP server or scope options of the DHCP scope.

   **Configuring the DHCP option tags**
   - To create the 165 Wyse Management Suite server URL option tag, do the following:
     1. Enter the following values, and click **OK**.
        - Name—WMS
        - Data type—String
        - Code—165
        - Description—WMS_Server
     2. Enter the following value, and then click **OK**.
        - String—WMS FQDN
For example, WMSServerName.YourDomain.Com:443

To create the MQTT server URL option tag, do the following:

1. Enter the following values, and click OK.
   - Name—MQTT
   - Data type—String
   - Code—166
   - Description—MQTT Server

2. Enter the following value, and click OK.
   - String—MQTT FQDN

   For example, WMSServerName.YourDomain.Com:1883
To create the Wyse Management Suite CA Validation server URL option tag, do the following:

1. Enter the following values, and click **OK**.
   - Name—CA Validation
   - Data type—String
   - Code—167
   - Description—CA Validation

2. Enter the following values, and click **OK**.
   - String—TRUE/FALSE

**Figure 24. 166 Wyse Management Suite server URL option tag**

- To create the 167 Wyse Management Suite CA Validation server URL option tag, do the following:
  1. Enter the following values, and click **OK**.
     - Name—CA Validation
     - Data type—String
     - Code—167
     - Description—CA Validation
  2. Enter the following values, and click **OK**.
     - String—TRUE/FALSE
To create the Wyse Management Suite Group Token server URL option tag, do the following:

1. Enter the following values, and click **OK**.
   - Name—Group Token
   - Data type—String
   - Code—199
   - Description—Group Token

2. Enter the following values, and click **OK**.
   - String—defa-quarantine

**Figure 25. 167 Wyse Management Suite server URL option tag**
Figure 26. 199 Wyse Management Suite server URL option tag
Create and configure DNS SRV records

**NOTE:** For information on customer security environment, see Wyse Device Agent.

To create a DNS SRV record, do the following:

1. Open the Server Manager.
2. Go to **Tools**, and click **DNS option**.
3. Go to **DNS > DNS Server Host Name > Forward Lookup Zones > Domain > _tcp** and right-click the **_tcp option**.

   ![Figure 27. DNS manager](image)

4. Click **Other New Records**.
   The **Resource Record Type** window is displayed.
5. Select the **Service Location (SRV)**, click **Create Record**, and do the following:
To create Wyse Management Suite server record, enter the following details and click OK.

- Service — WMS_MGMT
- Protocol — tcp
- Port number — 443
- Host offering this service — FQDN of WMS server
b. To create MQTT server record, enter the following values, and then click OK.
- Service—_WMS_MGMT
- Protocol—_tcp
- Port number—1883
- Host offering this service—FQDN of MQTT server
6. Go to DNS > DNS Server Host Name > Forward Lookup Zones > Domain and right-click the domain.
7. Click Other New Records.
8. Select Text (TXT), click Create Record, and do the following:
Figure 31. Resource Record Type

a. To create Wyse Management Suite Group Token record, enter the following values, and click **OK**.
   - Record name—_WMS_GROUPTOKEN
   - Text—WMS Group token
b. To create Wyse Management Suite CA validation record, enter the following values, and then click **OK**.

- **Record name** — _WMS_CAVALIDATION_
- **Text** — TRUE/FALSE
Create and configure DNS SRV records
Creating and deploying standard application policy to thin clients

To deploy a standard application policy to thin clients, do the following:

1. In the local repository, go to thinClientApps, and copy the application to the folder.
2. Ensure that the application is registered by going to the Apps & Data tab and selecting Thin Client under App Inventory.
   
   [NOTE]: The App Inventory interface takes approximately two minutes to populate any recently added programs.

4. Click Add Policy.
5. To create an application policy, enter the appropriate information in the Add Standard App Policy window.
   - Select Policy Name, Group, Task, Device Type, and TC Application.
   - To deploy this policy to a specific operating system or a platform, select either OS Subtype Filter or Platform Filter. Timeout displays a message on the client which gives you time to save your work before the installation begins. Specify the number of minutes the message dialog should be displayed on the client.
   - To automatically apply this policy to a device that is registered with Wyse Management Suite, select Apply the policy to new devices from the Apply Policy Automatically drop-down list.
   
   [NOTE]: The app policy is applied, when any device is moved to the defined group or registered directly to the group. If you select Apply the policy to devices on check in, the policy is automatically applied to the device at check-in to the Wyse Management Suite server.

6. To allow a delay in execution of the policy, select the Allow delay of policy execution check box. If this option is selected, the following drop-down menus are enabled:
   - From the Max Hours per Delay drop-down menu, select the maximum hours (1–24 hours) you can delay execution of the policy.
   - From the Max delays drop-down menu, select the number of times (1–3) you can delay the execution of the policy.
7. To stop the installation process after a defined value, specify the number of minutes in the Application Installation Timeout field.
8. Click Save to create a policy.
   A message is displayed to allow the administrator to schedule this policy on devices based on group.
9. Select Yes to schedule a job on the same page. The app/image policy job can run:
   - Immediately—Server runs the job immediately.
   - On device time zone—Server creates one job for each device time zone and schedules the job to the selected date/time of the device time zone.
   - On selected time zone—Server creates one job to run at the date/time of the designated time zone.
10. To create the job, click Preview and schedules are displayed on the next page.
11. You can check the status of the job by going to the Jobs page.
Register Dell Hybrid Client manually

Before registering the device, ensure that your device has network connectivity to contact the Wyse Management Suite server.

**NOTE:** You can register or unregister the device only from the guest user account.

1. Log in to the hybrid client as a guest user.
2. On the top bar, click the **Dell Client Agent** icon.

   ![DCA icon](image)

   **Figure 34. DCA icon**

3. Click **Dell Client Agent**.
   The **Dell Client Agent** dialog box is displayed.

4. Click **Registration**.
   The default status is displayed as **Discovery In Progress**.

5. To register manually, click the **Cancel** button.

6. In the **WMS Server** field, enter the URL of the Wyse Management Suite server.

7. In the **Group Token** field, enter your group registration key. The group token is a unique key for registering your devices to groups directly.

   **NOTE:** If the tenant and group fields are empty, the device is registered to the unmanaged group. However, the group token is mandatory for registering the device to a public cloud.

8. Click the **ON/OFF** button to enable or disable the **Validate Server Certificate CA** option. Enable this option to perform the server certificate validation for all device-to-server communication.
   The CA Validation option is enabled automatically and cannot be disabled if a public cloud URL is entered.

9. Click **Register** to register your hybrid client on the Wyse Management Suite server.

   When your hybrid client is successfully registered, the status is displayed as **Registered** with the green color tick next to the **Registration Status** label. The caption of the **Register** button changes to **Unregister**.
### Dell Client Agent (WMS)

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMS Server</td>
<td>[Enter]</td>
</tr>
<tr>
<td>Group Token</td>
<td>[Enter]</td>
</tr>
<tr>
<td>Validate Server Certificate CA</td>
<td>[On]</td>
</tr>
<tr>
<td>Registration status</td>
<td>Registered</td>
</tr>
</tbody>
</table>

*If the tenant and group is empty, the device will get registered to the unmanaged group.*

---

**Figure 35. Dell Client Agent**
Registering Windows Embedded Standard device manually

Windows Embedded Standard devices can be registered manually by launching the WDA UI icon on the taskbar.

1. Select **Wyse Management Suite-WMS** as the management server.
2. Enter an appropriate tenant and group name. If this field is left blank, devices are registered to an unmanaged group. (Optional)
3. Click **Register**.

![Figure 36. Device registration](image)

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Registering Windows Embedded Standard device manually

60  Registering Windows Embedded Standard device manually
Register ThinOS 8.x device manually

1. From the desktop menu of the thin client, go to System Setup > Central Configuration. The Central Configuration window is displayed.

2. Enter the Group Registration Key as configured by your administrator for the wanted group.

3. Select the Enable WMS Advanced Settings check box.

4. In the WMS server field, enter the Wyse Management Server URL.

5. Enable or disable CA validation based on your license type. For public cloud, select the Enable CA Validation check box. For private cloud, select the Enable CA Validation check box if you have imported certificates from a well-known certificate authority into your Wyse Management Suite server.

   To enable the CA validation option in the private cloud, you must install the same self-signed certificate on the ThinOS device as well. If you have not installed the self-signed certificate in the ThinOS device, do not select the Enable CA Validation check box. You can install the certificate to the device by using Wyse Management Suite after registration, and then enable the CA validation option.

6. To verify the setup, click Validate Key.

   **NOTE:** If the key is not validated, verify the group key and WMS server URL which you have provided. Ensure that ports mentioned are not blocked by the network. The default ports are 443 and 1883.

7. Click OK.

   **NOTE:** When the Enrollment Validation option is enabled, the manual or auto-discovered devices are in Enrollment Validation Pending state in the Devices page. The tenant can select a single device or multiple devices in the Devices page and validate the enrollment. The devices are moved to the intended group after they are validated.

The device is registered to Wyse Management Suite.
Register ThinOS 9.x device manually

1. From the desktop menu of the thin client, go to System Setup > Central Configuration. The Central Configuration window is displayed.

2. Enter the Group Registration Key as configured by your administrator for the wanted group.

3. Select the Enable WMS Advanced Settings check box.

4. In the WMS server field, enter the Wyse Management Server URL.

5. Enable or disable CA validation based on your license type. For public cloud, select the Enable CA Validation check box, and for private cloud, select the Enable CA Validation check box if you have imported certificates from a well-known certificate authority into your Wyse Management Suite server.

   To enable the CA validation option in the private cloud, you must install the same self-signed certificate on the ThinOS device as well. If you have not installed the self-signed certificate in the ThinOS device, do not select the Enable CA Validation check box. You can install the certificate to the device by using Wyse Management Suite after registration, and then enable the CA validation option.

6. To verify the setup, click Validate Key.

   **NOTE:** If the key is not validated, verify the group key and WMS server URL which you have provided. Ensure that ports mentioned are not blocked by the network. The default ports are 443 and 1883.

   An alert window is displayed.

7. Click OK.

8. Click OK in the Central Configuration window.

   **NOTE:** When the Enrollment Validation option is enabled, the manual or auto-discovered devices are in Enrollment Validation Pending state in the Devices page. The tenant can select a single device or multiple devices in the Devices page and validate the enrollment. The devices are moved to the intended group after they are validated.

The device is registered to Wyse Management Suite.
Registering Linux device manually

Linux devices can be registered manually by launching the **WDA UI** icon from **System Settings**.

1. Enter the **WMS Server** details.
2. Enter an appropriate tenant and group name. If this field is left blank, devices are registered to an unmanaged group. (Optional)
3. Click **Register**.

The device is registered to the Wyse Management Suite console.

---

**Figure 37. Device registration**
The following table lists the terms that are used in this document and their definitions:

Table 7. Terms and definitions

<table>
<thead>
<tr>
<th>Terminology</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private cloud</td>
<td>Wyse Management Suite server installed on the cloud that is private to your parent data center.</td>
</tr>
<tr>
<td>WDA</td>
<td>Wyse Device Agent which resides in the device and acts as an agent for communication between server and client.</td>
</tr>
<tr>
<td>Local repository</td>
<td>Wyse Device Agent which resides in the device and acts as an agent for communication between server and client.</td>
</tr>
<tr>
<td>Remote repository</td>
<td>Application, operating system image, and file repositories that can be optionally installed for scalability and reliability across geographies to transfer content.</td>
</tr>
<tr>
<td>Public cloud</td>
<td>Wyse Management Suite hosted on a public cloud with the convenience and cost savings of not having to set up and maintain the infrastructure and software.</td>
</tr>
<tr>
<td>Add-on/App</td>
<td>Any component or package that is not a part of the base build and is provided as an optional component. The component or package can be deployed from the management software. For example—Latest connection brokers from VMware and Citrix.</td>
</tr>
<tr>
<td>On-premise</td>
<td>Wyse Management Suite server installed on-premises that is private to your organization's data center.</td>
</tr>
<tr>
<td>Tenant</td>
<td>A group of users who share a common access with specific privileges to the Wyse Management Suite. It is a unique key assigned to specific customers to access the management suite.</td>
</tr>
<tr>
<td>Users</td>
<td>Users can be local administrators, global administrators, and viewers. Group users and users imported from Active Directory can be assigned global administrator, group administrator, and viewer roles to log in to the Wyse Management Suite. Users are given permissions to perform operations based on roles that are assigned to them.</td>
</tr>
</tbody>
</table>