

Dell Wyse ThinOS 2205

Migration Guide



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.

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Introduction

This guide contains instructions to migrate from Ubuntu 20.04 and ThinOS 9.1.3129 or later versions to ThinOS 2205 or later versions using Wyse Management Suite 3.7 or later versions.

The overall migration process includes the following tasks:

1. Register the thin client to the Wyse Management Suite server using the following method:
 - Automate the Wyse Management Suite server and Group Registration Token discovery using the DHCP or DNS records.
2. Download the ThinOS 2205 or later versions firmware from the www.dell.com/support site—see [Download the ThinOS firmware, BIOS, and application packages](#).
3. Configure the ThinOS 9.x-based device using Wyse Management Suite version 3.7 or later versions—see [Configuring a ThinOS 9.x client using Wyse Management Suite](#).

NOTE: Once the system is upgraded to ThinOS 2205 or later versions, if the BIOS password is set as default or if the password field is empty, the **Secure Boot** is enabled automatically. This setting takes effect after the next reboot. If the BIOS password is not set as default, you must enable **Secure Boot** through Wyse Management Suite or admin policy tool.

Supported platforms

- Wyse 3040 Thin Client
- Wyse 5070 Thin Client
- Wyse 5470 Thin Client
- Wyse 5470 All-in-One Thin Client
- OptiPlex 3000 Thin Client
- Latitude 3420

NOTE: Latitude 3420 supports conversion from Ubuntu 20.04 to ThinOS 2205 and later versions only.

Supported Wyse Management Suite versions

The following are the supported Wyse Management Suite versions:

- Wyse Management Suite 3.7 Standard and Pro

Wyse Management Suite default communications are handled over port 443. Wyse Management Suite server values must be defined in the ThinOS user interface or provided by DHCP or DNS services.

NOTE: For information about the Wyse Management Suite Standard download and Pro trial, go to www.dell.com/wyse/wms/trial. For information about Wyse Management Suite manuals, go to the Wyse Management Suite product page at www.dell.com/support.

Prerequisites before you upgrade to ThinOS 9.x

- If you are using ThinOS 8.6 or earlier versions of ThinOS 9.x, you must upgrade to ThinOS 9.1.3129 or later versions before upgrading to ThinOS 2205 or later versions. See Dell Wyse ThinOS 9.1.4234, 9.1.5067 and 9.1.6108 Migration Guide at www.dell.com/support
- Before upgrading from ThinOS 9.x to later versions, ensure that your system is powered on and the sleep mode is disabled on the system. If the system has entered the sleep mode, you must send the Wake-On-LAN command through Wyse Management Suite before using any real-time commands. To use the Wake-On-LAN command, ensure that the Wake-On-LAN option is enabled in BIOS.

Important notes

- You cannot boot into ThinOS 2205 or later versions when you perform the following operations:
 - Disable the onboard Network Interface Card (NIC), Trusted Platform Module (TPM), or Platform Trust Technology (PTT).
 - Clear TPM or PTT.
 - Reset BIOS to factory default settings.
- If the thin client is registered in Wyse Management Suite group 1 and you set Wyse Management Suite group 2 token in group 1 policy, the group 2 token is applied on UI but the thin client remains in group 1. You must reboot the thin client to change the thin client to Wyse Management Suite group 2.
 - **NOTE:** Dell Technologies recommends that you set both new ThinOS firmware and new application packages in group 1, so that thin client installs the files and automatically reboot and changes to group 2.
- ThinOS 2205 or later versions does not apply operating system firmware application package and BIOS firmware in the child select group.
- If the **Live Update** option is disabled, the thin client cannot download and install a firmware or package until the next reboot. However, the firmware or packages are downloaded in the following scenarios even when the **Live Update** option is disabled:
 - When you register the thin client to Wyse Management Suite manually.
 - When you power on the thin client from a power off state.
 - When you change the Wyse Management Suite group.
- When a new firmware or an application notification is displayed on your thin client, clicking **Next Reboot** will:
 - Not display a notification if you have changed the Wyse Management Suite group and if the files are downloaded from the new group.
 - Not display any notification from if the new firmware or application is downloaded in the same group.
 - Install the firmware or package after a reboot.
- The upgrade may fail if the event log fails to install. In such an event, you may reboot the device and upgrade again.
 - **NOTE:** After upgrading to ThinOS 2205, all old application packages are removed automatically and cannot be installed again. You must install the latest application packages.

Wyse Management Suite Environment Automation using DHCP and DNS

ThinOS automated deployment features can be used to create environments where units can be attached to your network. It also helps in receiving the required configurations and software updates that are defined by your management software or file servers. Wyse Management Suite automated deployment of ThinOS thin client devices is achieved by configuring the following environmental information:

NOTE: DHCP and DNS SRV configurations for Wyse Management Suite can only work after you reset your device to factory default settings.

NOTE: If you set both WMS server and secure WMS server, secure WMS server takes priority. If you set both unique group token key and secure unique group token key, secure unique group token key takes priority.

Table 1. DHCP and DNS configuration for Wyse Management Suite

Environment	Definition	DHCP User-Defined Option	DNS Resource Record
Wyse Management Suite Server	Specifies the Wyse Management Suite server.	Option 165 (String)	_ WMS_MGMT (SRV)
Wyse Management Suite Server	Specifies the secure Wyse Management Suite server.	Option 201 (String) NOTE: Supported from ThinOS 9.1.6108, do not set this value if your current version is earlier than 9.1.6108.	_WMS_MGMTV2 NOTE: Supported from ThinOS 9.1.5067, do not set this value if your current version is earlier than 9.1.5067.
Wyse Management Suite MQTT Server (optional)	Specifies the MQTT server.	Option 166 (String)	_ WMS_MQTT (SRV)
Wyse Management Suite CA Validation	Specifies whether the CA validation is required when you import certificates into your Wyse Management Suite server.	Option 167 (String)	_ WMS_CAVALIDATION (Text)
Wyse Management Suite Group Token	Specifies a unique key that is used by Wyse Management Suite to associate the ThinOS client to the desired Device Group Policy. From Wyse Management Suite 3.5, the group tokens are case sensitive. The DHCP and DNS values also have to be configured with case sensitive values.	Option 199 (String)	_ WMS_GROUPTOKEN (Text)
Wyse Management Suite Group Token	Specifies a secure unique key that is used by Wyse Management Suite to associate the ThinOS client to the desired Device Group Policy.	Option 202 (String) NOTE: Supported from ThinOS 9.1.6108, do not set this value if your current version is earlier than 9.1.6108.	_WMS_GROUPTOKENV2 NOTE: Supported from ThinOS 9.1.5067, do not set this value if your current version is earlier than 9.1.5067.

Dell Technologies recommends that you do not define more than one type of management or configuration delivery method.

NOTE: If the Group Token parameter is not specified, the device is moved to the unmanaged group or quarantine group. This is applicable for on-premises Wyse Management Suite.

Register ThinOS devices by using DHCP option tags

About this task

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

Table 2. Registering device by using DHCP option tags

Option Tag	Description
Name—WMS Data Type—String Code—165 Description—WMS Server FQDN	This tag points to the Wyse Management Suite server URL. For example, <code>wmsserver.acme.com</code> , where <code>wmsserver.acme.com</code> is fully qualified domain name of the server where Wyse Management Suite is installed. NOTE: HTTPS:// is not required in the Wyse Management Suite URL.
Name—WMS Data Type—String Code—201 Description— Secure WMS Server	This tag points to the secure Wyse Management Suite server.
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, <code>wmsservername.domain.com:1883</code> . WDA automatically fetches the MQTT details when devices check in for the first time. NOTE: MQTT is optional for Wyse Management Suite 2.0 and later versions.
Name—CA Validation Data Type—String Code—167 Description—Certificate Authority Validation	You can enable or disable CA validation option if you are registering your devices with Wyse Management Suite on private cloud. Enter True , if you have imported the SSL certificates from a well-known authority for https communication between the client and the 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 the Wyse Management Suite server. NOTE: CA Validation is optional for the latest version of Wyse Management Suite 2.0 and later versions. However, it is recommended to configure this option tag.
Name—Group Registration Key Data Type—String Code—199 Description—Group Registration Key	The tag directs the device to fetch the Group Registration Key for Wyse Management Suite. For example, in <code>SCDA-DTos91SalesGroup</code> , for the second part of the Group Registration Key, you must use 8-31 characters, with at least 1 upper, 1 lower, 1 number, 1 special character. However, special characters such as \ (backslash), " (double quotes), ' (single quote) are not allowed. The Group Registration Key is case sensitive. NOTE: Group Token is optional for Wyse Management Suite 2.0 and later versions on private cloud. However, there is a known issue that if you do not provide the group token, the device is not moved to unmanaged group. Therefore, It is recommended to configure the Group Token key.
Name— Group Token Data Type—String Code—202 Description— Secure Group Token	The tag directs the device to fetch the secure Group Registration Key for Wyse Management Suite.

To get the secure Wyse Management Suite server and secure Group Registration Key, do the following:

1. Go to **WMS server > Portal Administration > Console Settings > WMS Discovery**.
2. Enter the group token.
3. Select **DHCP** from the **Discovery Type** drop-down list.
4. Click **Generate Details**.

Configuring devices by using DNS SRV record

This section describes WMS Server, MQTT, Group Token, and CA Validation User-Defined Options defined using a DNS service.

Table 3. Configuring devices by using DNS SRV record

Option tag	Description
WMS server (_WMS_MGMT, Type SRV, Protocol _tcp, Port number 443)	This record points to the Wyse Management Suite server URL. For example, wmsserver.acme.com, where wmsserver.acme.com is the qualified domain name of the server. NOTE: There is a known issue that https:// is required in the Wyse Management Suite server URL. If you do not use https://, the device cannot automatically check in to Wyse Management Suite.
WMS server (_WMS_MGMTV2, Type Text)	This record points to secure Wyse Management Suite server.
(Optional) WMS MQTT Server	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 Wyse Management Suite 2.0 and later versions.
WMS Group Token (_WMS_GROUPTOKEN, Type Text)	This record is required to register the ThinOS device with Wyse Management Suite on public or private cloud. NOTE: Group Token is case sensitive. However, it is optional for Wyse Management Suite 2.0 and later versions on private cloud.
WMS Group Token (_WMS_GROUPTOKENV2, Type Text)	This record points to secure Group Registration Key for Wyse Management Suite.
WMS CA Validation (_WMS_CAVALIDATION, Type Text)	You can enable or disable CA validation option if you are registering your devices with Wyse Management Suite on private cloud. By default, the CA validation is enabled in the public cloud. You can also disable the CA validation in the public cloud. Enter True , if you have imported the SSL certificates from a well-known authority for https communication between the client and the 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 the Wyse Management Suite server. NOTE: CA Validation is optional for Wyse Management Suite 2.0 and later versions.

To get the secure Wyse Management Suite server and secure Group Registration Key, do the following:

1. Go to **WMS server > Portal Administration > Console Settings > WMS Discovery**.
2. Enter the group token.
3. Select **DNS** from the **Discovery Type** drop-down list.
4. Click **Generate Details**.

Register ThinOS devices using Wyse Device Agent

If you do not use DHCP or DNS as described in the previous section, you can configure the WDA agent from within the ThinOS GUI. This has to be configured on every thin client.

Steps

1. From the desktop menu of the thin client, go to **System Setup > Central Configuration**.
The **Central Configuration** window is displayed.
 **NOTE:** Privilege must be set to **High** or Admin Mode must be activated to gain access to the ThinOS Central Configuration menu.
2. Based on your current ThinOS version, do either of the following:
 - a. If you are using the ThinOS 9.x version, go to **WMS** tab, and 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 in the format `https://server.domain`.
This value represents the Wyse Management Suite server from which ThinOS clients are managed and the client configurations are obtained over SSL.
5. In the **Group Registration Key** field, enter the group registration key as configured by your Wyse Management Suite administrator for your group. To verify the setup, click **Validate Key**.
If the key is not validated, verify the group key and Wyse Management Suite server URL which you have provided. Ensure that ports mentioned are not blocked by the network. The default ports are 443 and 1883.
 **NOTE:** If the Group Token parameter is not specified, the device is moved to the unmanaged group or quarantine group.
6. 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. 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.
7. Validate the newly added devices enrollment in Wyse Management Suite, to become manageable. You can enable the **Enrollment Validation** option to allow administrators to control the manual and auto registration of thin clients to a group.
When the **Enrollment Validation** option is enabled, the manual or autodiscovered devices are in the Enrollment Validation Pending state on the **Devices** page. The tenant can select a single device or multiple devices on the **Devices** page and validate the enrollment. The devices are moved to the intended group after they are validated. For more information about how to validate the devices, see the *Wyse Management Suite 2.0 Administrator's guide* at www.dell.com/support.
8. Click **OK**.
The device checks in to the Wyse Management Suite and the policy settings are applied.

Install DCA-Enabler on Ubuntu 20.04

You can install DCA-Enabler on Ubuntu 20.04 devices manually or through Wyse Management Suite.

Install DCA-Enabler manually on Ubuntu 20.04

Prerequisites

- Download DCA-Enabler 1.5.0-14 from www.dell.com/support.
- Extract the file **DCA_Enabler_1.5.0-14.zip** to get **DCA_Enabler_1.5.0-14_amd64_signed.tar.gz** and **DCA_Enabler_Packages_1.5.0-14_amd64_signed.tar.gz**
- Extract **DCA_Enabler_1.5.0-14_amd64_signed.tar.gz** and **DCA_Enabler_Packages_1.5.0-14_amd64_signed.tar.gz** until you get the two files **dca-enabler_1.5.0-14_amd64.deb** and **dca-enabler-packages_1.5.0-14_amd64.deb**

Steps

1. Copy the two files to the **Downloads** folder on Ubuntu 20.04.
2. Press **Ctrl + Alt + T** on the keyboard to open the terminal window.
3. Run **cd Downloads** to enter the **Downloads** folder in the terminal.
4. Run **sudo dpkg -i dca-enabler-packages_1.5.0-14_amd64.deb** and enter the password to install this file first.
5. Run **sudo dpkg -i dca-enabler_1.5.0-14_amd64.deb** to install this file next.

Upgrade DCA-Enabler through WMS on Ubuntu 20.04

Prerequisites

- Download DCA-Enabler 1.5.0-14 from www.dell.com/support.
- Extract the file **DCA_Enabler_1.5.0-14.zip** to get **DCA_Enabler_1.5.0-14_amd64_signed.tar.gz** and **DCA_Enabler_Packages_1.5.0-14_amd64_signed.tar.gz**
- Create a group in Wyse Management Suite with a group token.
- The Ubuntu 20.04 devices must be registered to Wyse Management Suite as generic clients.

Steps

1. Go to **Apps & Data > App Inventory > Generic Client**, and click **Add Package file**.
2. Upload the file **DCA_Enabler_Packages_1.5.0-14_amd64_signed.tar.gz**.
3. Click **Add Package file** again and upload the file **DCA_Enabler_1.5.0-14_amd64_signed.tar.gz**
4. Go to **Apps & Data > App Policies > Generic Client**, and click **Add Advanced Policy**.
5. Enter the policy name, select the group in which Ubuntu 20.04 has been registered, and select **Generic Client** as OS type.
6. Click **Add app**, and select the file **DCA_Enabler_Packages_1.5.0-14_amd64_signed.tar.gz** that was uploaded before from the drop-down menu.
7. Click **Add app** again, and select the file **DCA_Enabler_1.5.0-14_amd64_signed.tar.gz** that was uploaded before from the drop-down menu.
8. Click **Save**.
9. In the next window, click **Yes** to schedule a job.
10. Select **Immediately** in the **Run** drop-down menu in the **App Policy Job** window and click **Preview**.
11. Click **Schedule**
The DCA-Enabler files download and install on Ubuntu 20.04 devices. You can check the job status from the Wyse Management Suite server Jobs page.

Register Ubuntu 20.04 + DCA as Generic Client to Wyse Management Suite

You can register Ubuntu 20.04 + DCA as a generic client to Wyse Management Suite manually or by using DHCP option tags or DNS SRV records.

Register Ubuntu 20.04 + DCA as Generic Client to WMS manually

Prerequisites

- Ensure that DCA-Enabler 1.5.0-14 is installed on Ubuntu 20.04.
- Create a group in Wyse Management Suite with a group token.

Steps

1. Create a .txt file and enter the following:

```
{
  "ccm": {
    "ccmserver": "WMS server",
    "ccmport": "443",
    "usessl": "true",
    "mqttserver": "",
    "mqttport": "1883",
    "grouptoken": "WMS group token",
    "isCaValidationOn": "true or false according to your WMS server setting"
  }
}
```

- Here is an example with Wyse Management Suite server **us1.wysemanagementsuite.com**, group token **thin-Ubuntu20.04** and CA validation **true**

```
{
  "ccm": {
    "ccmserver": "us1.wysemanagementsuite.com",
    "ccmport": "443",
    "usessl": "true",
    "mqttserver": "",
    "mqttport": "1883",
    "grouptoken": "thin-Ubuntu20.04",
    "isCaValidationOn": "true"
  }
}
```

2. Save the .txt file and rename it to **reg.json**

 **NOTE:** The file name is **reg** and the file extension is **json**.

3. Copy the file to the **Downloads** folder on Ubuntu 20.04.
4. Press **Ctrl + Alt + T** on the keyboard to open the terminal window.
5. Run **cd Downloads** to enter the **Downloads** folder in the terminal.
6. Run **sudo cp reg.json /etc/dcae/config** and enter the password to copy this file to the **/etc/dcae/config** folder.
7. Reboot the Ubuntu 20.04 device.
The device is registered to the Wyse Management Suite server.

Register Ubuntu 20.04 + DCA as Generic Client by using DHCP option tags or DNS SRV records

Prerequisites

- Ensure that DCA-Enabler 1.5.0-14 is installed on Ubuntu 20.04.
- Create a group in Wyse Management Suite with a group token.

The process to register Ubuntu 20.04 devices by using DHCP option tags or DNS SRV records is the same as registering ThinOS by using DHCP option tags or DNS SRV records. See [Wyse Management Suite Environment Automation using DHCP and DNS](#) section.

 **NOTE:** Registering Ubuntu 20.04 devices as generic clients by using DHCP option tags or DNS SRV records takes about 2 to 3 minutes.

Download the ThinOS firmware, BIOS, and application packages

This section describes the steps to download the ThinOS firmware from Dell support site.

Steps

1. Go to the www.dell.com/support site.
2. Locate the required ThinOS Image entry and click the download icon.

Table 4. ThinOS 2205 image

Scenario	ThinOS image title
Upgrade your ThinOS 9.1.3129 or later versions to 2205 (9.3.1129)	ThinOS 9.1.3129 or later to ThinOS 2205 (9.3.1129) Image file for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, and Dell OptiPlex 3000 Thin Client

3. If you want to use ThinOS packages, locate a package and click the download icon.

Table 5. ThinOS packages

ThinOS packages	ThinOS image title
Citrix Workspace app	ThinOS 2205 <version> Citrix package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
VMware Horizon	ThinOS 2205 <version> VMware Horizon package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Teradici PCoIP	ThinOS 2205 <version> Teradici PCoIP package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Microsoft AVD	ThinOS 2205 <version> Microsoft AVD package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Imprivata PIE	ThinOS 2205 <version> Imprivata package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Zoom Horizon	ThinOS 2205 <version> Zoom Horizon package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Zoom Citrix	ThinOS 2205 <version> Zoom Citrix package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Jabra	ThinOS 2205 <version> Jabra headsets package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
EPOS Connect	ThinOS 2205 <version> EPOS Connect package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Cisco WebEx VDI	ThinOS 2205 <version> Cisco Webex VDI package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Cisco WebEx Meetings	ThinOS 2205 <version> Cisco Webex Meetings package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Cisco Jabber	ThinOS 2205 <version> Cisco Jabber package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420

Table 5. ThinOS packages (continued)

ThinOS packages	ThinOS image title
HID Fingerprint Reader	ThinOS 2205 <version> HID Fingerprint Reader package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420
Identity Automation QwickAccess	ThinOS 2205 <version> Identity Automation QwickAccess package <version> for Dell Wyse 3040, 5070, 5470 and 5470 All-in-One Thin Clients, Dell OptiPlex 3000 Thin Client, and Dell Latitude 3420

- NOTE:** After you upgrade to the latest version of ThinOS, you can only downgrade to ThinOS 9.1.3129 or later versions using Wyse Management Suite. If you want to downgrade to any previous version, you must use the USB Imaging Tool with Merlin images posted on the www.dell.com/support site. After the system is upgraded to ThinOS 2205 or later versions, if the BIOS password is set as default or if the password field is empty, the **Secure Boot** is enabled automatically. If you want to downgrade to ThinOS 8.6, disable the secure boot option in the BIOS.
- NOTE:** For a given ThinOS release, you can install only the supported packages mentioned in the corresponding ThinOS Release Notes available at www.dell.com/support.

4. If you want to install the latest BIOS package, locate the package entry—ThinOS 2205<version> BIOS package <version>—for your thin client model and click the download icon.
- For information about BIOS installation, see [BIOS Installation](#).

File naming convention

ThinOS application packages, ThinOS firmware, and BIOS packages support the following characters in their file names:

- Uppercase letter
- Lowercase letter
- Numeric character
- Special characters—period (.), hyphen-minus (-), and underscores (_)

If you use other characters in file names, the package installation fails.

Upgrading ThinOS firmware

Upgrade from ThinOS 9.1.x to ThinOS 2205 (9.3.1129) using Wyse Management Suite

Prerequisites

- Ensure that you are running ThinOS 9.1.3129 or later version on your thin client.
- Create a group in Wyse Management Suite with a group token.
- The thin client must be registered to Wyse Management Suite.
- Download the ThinOS 2205 (9.3.1129) firmware to upgrade.

Steps

1. Go to the **Groups & Configs** page and select a group.
2. From the **Edit Policies** drop-down menu, click **ThinOS 9.x**. The **Configuration Control | ThinOS** window is displayed.
3. In the left pane, click **Standard**.
4. From the **Standard** menu, expand **Firmware**, and click **OS Firmware Updates**.

 **NOTE:** If you cannot locate the **OS Firmware Updates** option under the **Standard** tab, use the **Advanced** tab.

5. Click **Browse** and select the **ThinOS 2205** firmware to upload.
6. From the **Select the ThinOS Firmware to deploy** drop-down menu, select the uploaded firmware.
7. Click **Save & Publish**.

The thin client downloads the firmware to install and restarts. The firmware version is upgraded.

 **NOTE:** There are chances that the upgrade might fail with event log stating **Failed to install**. In such an event, you may reboot the device and upgrade again.

 **NOTE:** After upgrading to ThinOS 2205, all old application packages are removed automatically. You must install the latest application packages.

 **NOTE:** There are chances that the ThinOS background might be in blue color and some features may not work. In this case, you have to reboot the device.

Upload and push ThinOS application packages

ThinOS application packages must be installed on the thin client system to use the respective applications.

Prerequisites

- Create a group in Wyse Management Suite with a group token.
- Register the thin client to Wyse Management Suite.

Steps

1. Go to the **Groups & Configs** page, and select a group.
2. From the **Edit Policies** drop-down menu, click **ThinOS 9.x**. The **Configuration Control | ThinOS** window is displayed.
3. In the left pane, click **Standard**.
4. From the **Standard** menu, expand **Firmware**, and click **Application Package Updates**.

 **NOTE:** If you cannot locate the Application Package option under the Standard tab, use the Advanced tab.

5. Click **Browse** and select the application package to upload.

6. From the **Select ThinOS Package(s) to deploy** drop-down menu, select the package.

 **NOTE:** For a given ThinOS release, you can install only the supported packages mentioned in the corresponding ThinOS Release Notes available at www.dell.com/support.

7. Click **Save & Publish**.

 **NOTE:** After upgrading to ThinOS 2205, all old application packages are removed automatically. The old application packages can be downloaded but installation fails the first time. After this, the old application packages cannot be downloaded anymore. You must install the latest application packages.

Convert Latitude 3420 Ubuntu 20.04 with DCA to ThinOS 2205

Prerequisites

- If you have a Latitude 3420 device that is running Ubuntu 20.04 operating system, ensure that DCA-Enabler 1.5.0-14 is installed. For details on how to install DCA-Enabler in Ubuntu operating system and upgrade it, see Dell Wyse ThinOS Migration Guide at www.dell.com/support.
-  **NOTE:** The Latitude 3420 device must have a factory-installed Ubuntu 20.04 operating system. If you have custom installed the Ubuntu operating system, you cannot convert it to ThinOS 2205.
- Wyse Management Suite version 3.7 must be used to convert to ThinOS 2205.
- Ensure that you have connected the Latitude 3420 device to the external power source using the power adapter.
- Ensure you have enough ThinOS Activation devices licenses on Wyse Management Suite 3.7.
- Create a group in Wyse Management Suite with a group token.
- The ThinOS Activation devices license number of Wyse Management Suite must be larger than the Latitude 3420 device number. If it is not larger, you cannot create the Advanced Policy for conversion.
- The Latitude 3420 Ubuntu 20.04 devices must be registered to Wyse Management Suite as generic clients. For details on how to register the generic client to Wyse Management Suite, see Dell Wyse ThinOS Migration Guide at www.dell.com/support.
- Ensure you have downloaded the Ubuntu 20.04 to ThinOS 2205 conversion image.
- Extract the Ubuntu 20.04 to ThinOS 2205 conversion image to get the Conversion Installer file **DTOS_Ubuntu_Installer_1.0-dtos14-amd64_signed.tar.gz** and ThinOS image **ThinOS_2205_9.3.1129.pkg**.
-  **NOTE:** The ThinOS image **ThinOS_2205_9.3.1129.pkg** can be used for downgrade in the future.

Steps

1. Go to **Apps & Data > App Inventory > Generic Client**, and click **Add Package file**.
2. Upload the Conversion Installer file **DTOS_Ubuntu_Installer_1.0-dtos14-amd64_signed.tar.gz**
3. Go to **Apps & Data > OS Image Repository > ThinOS 9.x**, and click **Add Firmware file**.
4. Upload the ThinOS image **ThinOS_2205_9.3.1129.pkg**.
5. Go to **Apps & Data > App Policies > Generic Client**, and click **Add Advanced Policy**.
6. Enter the policy name, select the group in which Latitude 3420 has been registered, and select **Generic Client** as OS type.
7. Select all the four Latitude 3420 options in the **Platform Filter** drop-down menu.
8. Click **Add app**, and select the conversion installer file that was uploaded before from the drop-down menu.
9. Click **Add app** again, and select the ThinOS image file that was uploaded before from the drop-down menu.
10. Click **Save**.
-  **NOTE:** Ensure that the **Apply Policy Automatically** option is set to **Do not apply automatically**.
11. In the next window, click **Yes** to schedule a job.
12. Select **Immediately** in the **Run** drop-down menu in the **App Policy Job** window and click **Preview**.
13. Click **Schedule**.

The Conversion Installer file downloads and installs first followed by the ThinOS image on Latitude 3420. After installation, the device restarts automatically.

NOTE: After you register the Latitude 3420 ThinOS device to Wyse Management Suite, the ThinOS activation devices license is consumed automatically.

NOTE: After conversion, ThinOS 2205 is in the factory default status. ThinOS 2205 must be registered to Wyse Management Suite manually or using DHCP/DNS discovery.

NOTE: If the conversion has failed, you can see the error log table below and reschedule the job. Go to **Jobs > Schedule APP Policy** to reschedule the job.

If there is a **/usr/dtos** folder in your Latitude 3420 Ubuntu 20.04 device, you can use the command **cat /var/log/dtos_dca_installer.log** to get the error log.

If there is no **/usr/dtos folder** in your Latitude 3420 Ubuntu 20.04 device, go to the **WMS Server Jobs** page to check the error messages.

Table 6. Error Log table

Error Log	Resolution
No AC plugged in	Plug in power adapter, reschedule job
Platform Not Supported	This hardware platform is not supported
Error mounting recovery partition	The Ubuntu image is not a factory image. Reinstall the factory image.
No DHC/ThinOS package in recovery partition	Cannot find the ThinOS image, reschedule job
Error in extracting DHC/ThinOS Future packages	Failed to extract the ThinOS image, reschedule job
Error copying the DHC/ThinOS Future packages to recovery partition	Failed to copy the ThinOS image, reschedule job
ThinOS package verification failed	ThinOS image is not correct, reschedule job with the correct ThinOS image
Not enough space in Recovery Partition	Clear the recovery partition
The free space of Recovery Partition is not enough	Clear the recovery partition

Configuring a ThinOS 9.x client using Wyse Management Suite

It is recommended to optimize centralized configuration server groups for better performance and manageability by maximizing the number of unique customer device configuration groups. A minimal number of Wyse Management Suite groups and settings should be used to maximize the unique customer device configurations groups. This is applicable to both multitenant and on-premises scenarios.

When you change the group in Wyse Management Suite, the ThinOS 9.x-based thin client displays a message prompting you to restart the thin client immediately or postpone it to the next reboot for applying latest configurations.

When you deploy a new firmware or package using Wyse Management Suite, the thin client displays a message prompting you to start the installation immediately or postpone it to the next reboot.

Configuration comparison between ThinOS 8.6 and ThinOS 9.x

The following is an overview of the major device configuration changes between ThinOS 8.6 and ThinOS 9.x that simplifies the configuration process:

Table 7. Configuration comparisons between ThinOS 8.6 and ThinOS 9.x

ThinOS 8.6	ThinOS 9.x
ThinOS 8.6 requires INI files with complex parameter syntax to configure devices.	ThinOS 9.x configuration is completely menu driven.
ThinOS 8.6 user interface is a subset of all possible client configurations and is primarily designed for piloting devices.	ThinOS 9.x administrative user interface supports all client commands.
ThinOS 8.6 user interface menu configurations differed from Wyse Management Suite ThinOS menu-based profile configurations.	ThinOS 9.x shares a common administrative user interface with the Wyse Management Suite ThinOS 9.x profile. Hence all client configurations are identical when run from either interface.

ThinOS configuration grouping overview

During the deployment process, you must evaluate various needs of your users to determine all the client configurations that are mandatory to meet the requirements. Few configurations such as monitor resolution or VNC password applies to the device, while others such as broker configurations may only apply to specific users of the device.

Redundant configurations may result in performance issues and makes it difficult to manage environmental changes since each device configuration requires to be updated. This issue can be resolved by grouping configurations.

ThinOS configuration grouping determines the parameters inheritance. The child group inherits the settings from its parent group. The following table lists the common device configuration criteria that must be considered when creating groups:

Table 8. ThinOS configuration grouping overview

Group Types	Configurations
Global device configurations	Privilege Settings including Admin Mode Security Policy Settings Remote Control Settings (VNC)

Table 8. ThinOS configuration grouping overview (continued)

Group Types	Configurations
	Management Settings All other global configurations
Device configurations for a group of clients	Group-based Broker Configurations Group-based Printer Settings Group-based Time Zone Settings
Device configurations for a single device	Client-based Terminal Name Client-based Location Client-based Location and Custom 1, 2, 3
Device configurations dynamically selected	ThinOS 8.6 Select Group with device configurations
Device configurations for an AD user group	ThinOS 8.6 SignOn=NTLM (AD.INI) with user configurations
User configurations for a single user	ThinOS 8.6 SignOn=Yes or NTLM with user configurations

ThinOS system variables

ThinOS uses system variables or part of a system variable when defining command values. System variables are often used to define unique values for fields such as terminal name or default user. For example, if the client has an IP address 123.123.123.022, ACC&Right(\$FIP,3) results in a value of ACC022. Using system variables makes it easier to manage groups of devices that require a unique terminal name or default user.

The following are the ThinOS system variables:

Table 9. ThinOS system variables

Variable	Description
\$IP	IP address
\$IPOCT4	The fourth octet of the IP Address, for example: if the IP address is 10.151.120.15, then the value is 15.
\$MAC	Mac address
\$CMAC	Mac address with colon.
\$UMAC	Mac address with uppercase letters is used.
\$DHCP (extra_dhcp_option)	Extra DHCP options for Windows CE unit, including 169, 140, 141, 166, 167. For example, set a string test169 for option tag 169 in DHCP server, and set TerminalName=\$DHCP(169) in wnos.ini. Check terminal name in GUI, and the terminal name will be test169. 166 and 167 is default for CCM MQTT Server and CCM CA validation in ThinOS. You must remap the options from GUI or INI if you want to use \$DHCP(166) or \$DHCP(167).
\$DN	Sign on domain name
\$TN	Terminal name
\$UN	Sign on username
\$SUBNET	For subnet notation, the format is {network_address}_{network_mask_bits}. For example, if the IP address is 10.151.120.15, the network mask is 255.255.255.0, and 10.151.120.0_24 is used.
\$FIP	IP address is used in fixed format with 3 digits between separators. For example, 010.020.030.040.ini. Using it in conjunction with the left or right modifier helps to

Table 9. ThinOS system variables (continued)

Variable	Description
	define policy for subnet. For example, include=&Left(\$FIP,11).ini is specified to include file 010.020.030.ini for subnet 010.020.030.xxx.
\$SN	Serial number or Service tag
\$VN	Version number
Right(\$xx, i) or and Left(\$xx, i)	Specifies that the variable is to be read from left or right. The \$xx is any of above parameters and the parameter i specifies the digits for the offset of right or left.
&Right(\$xx, i) or &Left(\$xx, i)	Specifies whether the variable is read from left or right. The \$xx refers to any of the above System Variables. The option “i” specifies left or right offset digits. For example, the parameter TerminalName=CLT-\$SN\$RIGHT\$07. If the Serial Number (or Service Tag number) of the thin client is MA00256, the terminal name of the thin client is assigned as below: • First four characters—CLT- • The rest—The last right-most seven digits of the thin client serial number. The resulting terminal name is displayed as CLT-MA00256.

Relationship between INI and Wyse Management Suite group based configurations

This section describes the relationship between INI file parameter–based configurations, and Wyse Management Suite group based configurations. Both INI files and Wyse Management Suite configuration processes have similar functionality. However, the implementation differs. Understanding this concept should greatly reduce the number of redundant configurations and help migrating devices from a file server with INI files to Wyse Management Suite.

Table 10. Relationship between INI and Wyse Management Suite group-based configurations

Configuration	ThinOS 8.6 with INI	ThinOS 9.x with Wyse Management Suite
Global configurations applied at boot to all clients —When using Wyse Management Suite, client configuration policies that applies to all devices should be defined using a Wyse Management Suite Device Policy Parent Group. This is similar to wnos.ini configurations when using a file Server.	Global Configuration File (wnos.ini)	Groups and Config Device Policy Parent Group
Configurations applied at boot to a group of clients —When using Wyse Management Suite, client configuration policies that apply to a group of device should be defined using Wyse Management Suite Device Policy Child Groups. This is similar to an INCLUDE file statement with part of a system variable that enables more than one client device to obtain the defined configurations. The advantage of Wyse Management Suite is that it enables multiple Child Group levels, hence allowing nesting of configurations.	Include parameter (wnos\INC)	Groups and Config Device Policy Child Groups
Configurations applied at boot to a single client device —When using Wyse Management Suite, client configuration policies that apply to a specific device can be completed using Wyse Management Suite Device Exceptions. This is similar to an INCLUDE file statement using a full system variable that allows only the selected client to obtain the defined configurations. <i>i</i> NOTE: Device exceptions must be used when required and should be kept to a minimal number of configurations. Excessive use of Device Exceptions or Device Exception configurations can affect performance and manageability.	Include parameter (WNOS\INC)	Devices Device Exception

Table 10. Relationship between INI and Wyse Management Suite group-based configurations (continued)

Configuration	ThinOS 8.6 with INI	ThinOS 9.x with Wyse Management Suite
Device configurations dynamically selected from the ThinOS Login menu—The Select Group feature in ThinOS enables you to dynamically select and load configurations and is often used to access multiple virtual environments. In Wyse Management Suite 2.0, this feature is supported only on ThinOS 9 devices. The Select Group feature can be enabled under Wyse Management Suite PRO Groups & Configs Device Policy Group when creating a Parent Group. Select Group feature is not supported by Wyse Management Suite Device Policy Child Groups. NOTE: The Select Group feature is not available when using Wyse Management Suite Standard. A Wyse Management Suite Pro license is required to enable this feature.	SelectGroup parameter (WNOS\INI\GROUPS)	Groups and Configs Device Policy Parent Group with Select Group Enabled
User configurations applied at Login based on Active Directory Domain—When using Wyse Management Suite, ThinOS configurations for a group of users can be defined by use of the Wyse Management Suite User Policy Group. This feature is similar to AD.INI functionality used by ThinOS 8.6 that dynamically applies configurations to ThinOS at SignOn (NTLM) based on the Active Directory Group Name. NOTE: ThinOS 9.x Login type (under Login Experience > Login Settings and go to Login Type) must be set to Authenticate to domain controller at the Default Device Policy Group level for Active Directory Domain based configuration to function. If you are using the Active Directory group policy, the login type must be configured in the child group level of the device policies.	SignOn=NTLM, (WNOS\INI\ AD.INI)	Groups and Configs User Policy Group
User configurations applied at Login based on Username—When using Wyse Management Suite, ThinOS configurations for a single user is defined by use of Wyse Management Suite User Exceptions. It is similar to Username.INI functionality used by ThinOS 8.6 that dynamically applies configurations to ThinOS at Login (NTLM or Yes) based on username. NOTE: User Exceptions should only be used when required and should be kept to a minimal number of configurations. Excessive use of User Exceptions or User Exception configurations can affect performance and manageability.	SignOn=Yes or NTLM (WNOS\INI\username.ini)	Users User Exceptions

Wyse Management Suite can define device and user configurations for ThinOS and during boot ThinOS receives a device configuration payload from Wyse Management Suite. Additionally, a user configuration payload is received at Login.

For example, consider a scenario with device policies configured as shown in the following screenshot:

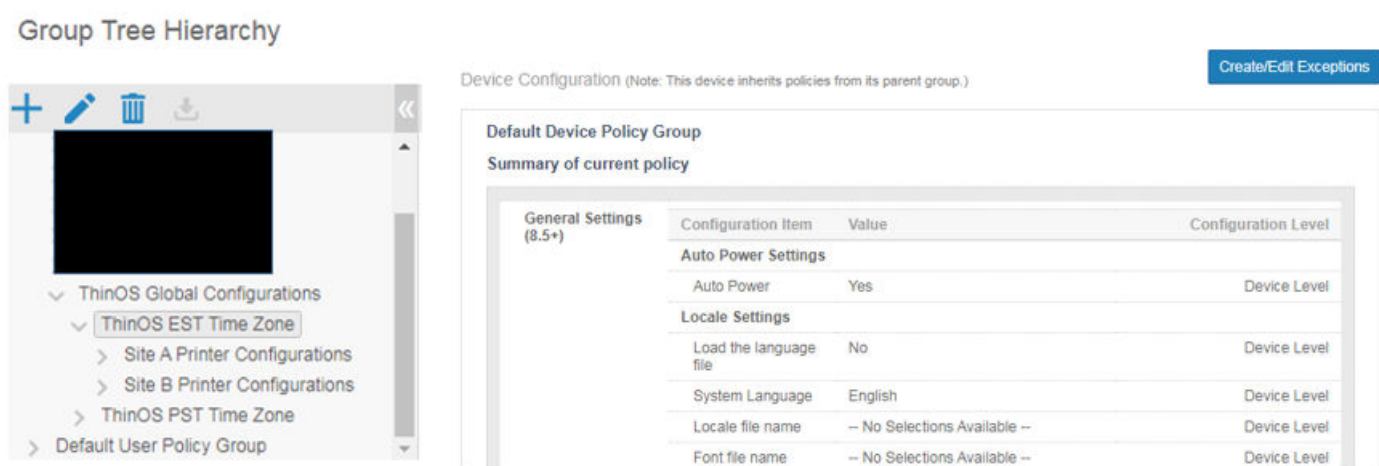


Figure 1. Device policy

In this scenario, a client that is assigned to Site B Printer Configurations receives a device payload based on the following:

- ThinOS global configurations
- ThinOS EST time zone configurations
- Site B printer configurations
- Device exception configurations

Similarly, at Login, Wyse Management Suite applies user policies based on the Active Directory Group Name or User Exception Policies based on username information.

For more information on how to configure active directory group settings and user exceptions, see the Wyse Management Suite Administrators Guide at www.dell.com/support.

BIOS Installation

Upgrade BIOS

Prerequisites

- Download the BIOS file from www.dell.com/support to your device.
- If you are upgrading BIOS using Wyse Management Suite, register the thin client to Wyse Management Suite.

About this task

- NOTE:** On thin clients that run ThinOS versions earlier than ThinOS 9.1.6108, you must upgrade the OS image first, and then upgrade the BIOS after the OS image is successfully upgraded. Do not upgrade the BIOS and the OS image together. If you upgrade the BIOS and the OS image together, the BIOS upgrade is ignored, and you cannot upgrade the BIOS to the ignored version anymore. You must upgrade the BIOS to another version.

Steps

1. Open the Admin Policy Tool on the thin client or go to the ThinOS 9.x policy settings on Wyse Management Suite.
 2. On the **Configuration Control | ThinOS** window, click the **Advanced** tab.
 3. Expand **Firmware** and click **BIOS Firmware Updates**.
 4. Click **Browse** and select the BIOS file to upload.
 5. From the **Select the ThinOS BIOS to deploy** drop-down list, select the BIOS file that you have uploaded.
 6. Click **Save & Publish**.
The thin client restarts. BIOS is upgraded on your device.
- NOTE:** For more information about the latest BIOS version, see the latest Dell Wyse ThinOS Operating System Release Notes at www.dell.com/support.
- NOTE:** Ensure that you connect the power adapter to the Wyse 5470 Thin Client before updating the BIOS. If you do not connect the power adapter, the BIOS update fails. In this event, you must connect an external power source and reboot the device twice to install BIOS.
- NOTE:** Do not downgrade the BIOS on Wyse 5470 Thin Client. If you downgrade, a BIOS downgrade failure message is displayed whenever you reboot your client.
- NOTE:** If you are upgrading BIOS on the Latitude 3420 Thin Client, ensure that you have connected the device to the external power source using the power adapter. If you do not connect the power adapter, BIOS update fails. In this event, you cannot reinstall the BIOS package.

Edit BIOS settings

Prerequisites

- If you are using Wyse Management Suite, ensure that you have registered the thin client and synchronize the BIOS admin password. The WDA stores the current BIOS password to unlock the BIOS and apply the required changes. For more information about using the **Sync BIOS Admin Password** option, see the *Dell Wyse Management Suite v2.1 Administrator's Guide* at www.dell.com/support.
- **NOTE:** If you have not synced the BIOS password in the WMS server, you can input the current BIOS password in BIOS policy to publish BIOS settings. If you have synced the BIOS password in WMS server, the **Current BIOS Admin password** option in BIOS policy is ignored. WMS server uses the synced BIOS password to publish BIOS settings.
- If you are using the Admin Policy Tool, ensure that you enter the current BIOS admin password in the **Advanced > BIOS** section.

Steps

1. Open the Admin Policy Tool on the thin client or go to the ThinOS 9.x policy settings on Wyse Management Suite.
2. In the **Configuration Control | ThinOS** window, click the **Advanced** tab.
3. Expand **BIOS** and select your preferred platform.
4. In the **System Configuration** section, modify the USB ports and audio settings.
5. In the **Security** section, modify the administrator-related configurations.
6. In the **Power Management** section, modify the power-saving options.
7. In the **POST Behavior** section, enable or disable the MAC Address Pass-Through feature. This option is applicable only for Mobile Thin Clients.
8. Click **Save & Publish**.
 - NOTE:** If the BIOS does not have a password and if you are setting a new password, and then the password is applied after the first reboot. Other setting changes are applied after the second reboot.
 - NOTE:** If you change the BIOS password using a select group, it requires a reboot to take effect.
 - NOTE:** If you enable **Set Admin Password**, set new BIOS password and then reboot the thin client, the new BIOS password is synced to WMS server automatically.
 - NOTE:** If you first enable **Set Admin Password**, set the new BIOS password, and then disable **Set Admin Password**, the BIOS password is cleared to empty.
 - NOTE:** On ThinOS clients, the **Current BIOS Admin Password** option is always blank, and the **Set Admin Password** option is always disabled. These options do not have any impact on the functionality.

Downgrade to previous versions of ThinOS

You can only downgrade to ThinOS 9.1.3129 or later versions using Wyse Management Suite. If you want to downgrade to any version prior to ThinOS 9.1.3129, you must use Merlin images posted on the www.dell.com/support site.

-  **NOTE:** If you want to downgrade to ThinOS 9.0, you must clear TPM or PTT in the BIOS and then use the USB imaging tool and Merlin images to downgrade.
-  **NOTE:** You cannot downgrade to ThinOS 8.6_606 or previous versions, if you are running the systems with SSD devices.
-  **NOTE:** You must install the application packages after you downgrade to ThinOS 8.6 using Merlin Image.

Delete ThinOS application packages

You can use the ThinOS local UI or the Wyse Management Suite to delete one or more ThinOS packages.

About this task

This section describes steps to delete ThinOS packages using the ThinOS local UI.

Steps

1. Log in to the ThinOS client.
2. From the system menu, go to **System Tools > Packages**.
All the installed ThinOS packages are listed.
3. Select a package that you want to delete and click **Delete**.

 **NOTE:** To delete all the packages, click Delete all.

4. Click **OK** to save your settings.

For information about how to delete packages using Wyse Management Suite, see the latest *Dell Wyse Management Suite Administrator's Guide* at www.dell.com/support.

Resources and support

Accessing documents using the product search

1. Go to www.dell.com/support.
2. In the **Enter a Service Tag, Serial Number, Service Request, Model, or Keyword** search box, type the product name.
For example, **Wyse 3040 thin client** or **Wyse ThinOS**. A list of matching products is displayed.
3. Select your product.
4. Click **Documentation**.

Accessing documents using product selector

You can also access documents by selecting your product.

1. Go to www.dell.com/support.
2. Click **Browse all products**.
3. Click **Thin Clients**.
4. Click the desired category, either **Wyse Hardware** or **Wyse Software**.
5. Click the desired product.
6. Click **Documentation**.

Contacting Dell

Prerequisites

 **NOTE:** If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

About this task

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell sales, technical support, or customer service issues:

Steps

1. Go to www.dell.com/support.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.