

Terminal Emulation

Wavelink's TE Client for iOS User Guide

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Chapter 1: Installing and Licensing

The Terminal Emulation (TE) Client is an application installed on a mobile device or tablet that connects to IBM 5250/3270, VT100/220, and XTERM hosts. The Client uses the Telnet or SSH protocols to connect to the remote host and emulates the terminal.

The TE Client uses host profiles to configure the host information. Emulation parameters define how the Client acts during the emulation session, such as the beep volume or what to do if the scanned data is larger than the entry field. The TE Client for iOS does not have the same options as TE Clients for Windows operating systems.

The TE Client for iOS has been optimized for iOS devices, and includes the capability to configure the Client from the device. Client menus and keyboards have been tailored for iOS. The Client screen zooms, pans, and reorients based on device orientation. This manual introduces the options and tasks available with a TE Client for iOS.

The TE Client is licensed either manually for each device, or by using a Wavelink license server. Contact Wavelink Customer Support to obtain licenses.

This section has instructions for installing and licensing the TE Client:

- [Installing the TE Client on iOS](#)
- [Licensing the TE Client](#)



Installing the TE Client on iOS

The Terminal Emulation Client for iOS is available for iOS version 6.1 or newer. It is supported on the following devices:

- iPad, 3rd & 4th generation
- iPad Mini
- iPhone 4, 4S, 5
- iPod, Touch 4th & 5th generation

Before you install the TE Client for iOS, you must rebuild the IPA file using a distribution profile and certificate associated with an Apple developer account. If you want to distribute the TE Client to more than 100 devices, you **must** have an iOS Developer Enterprise account.

The instructions below include information about creating a distribution certificate, app ID, and provisioning profile using the Apple Developer website, and then how to use the script provided by Wavelink to rebuild the IPA.

NOTE: The tasks for creating the distribution certificate, app ID, and provisioning profile only need to be done once. After these tasks are complete, newer versions of the TE Client IPA files can be signed using the same certificate, ID, and profile.

You must build the IPA file on a computer running OS X. Your account on the machine must have administrative rights, and you must have Xcode installed, including the Command Line Tools. If you are replacing the icons for the app, the icons should be stored on the same computer, and should be 114 x 114 pixels and 57 x 57 pixels in PNG format.

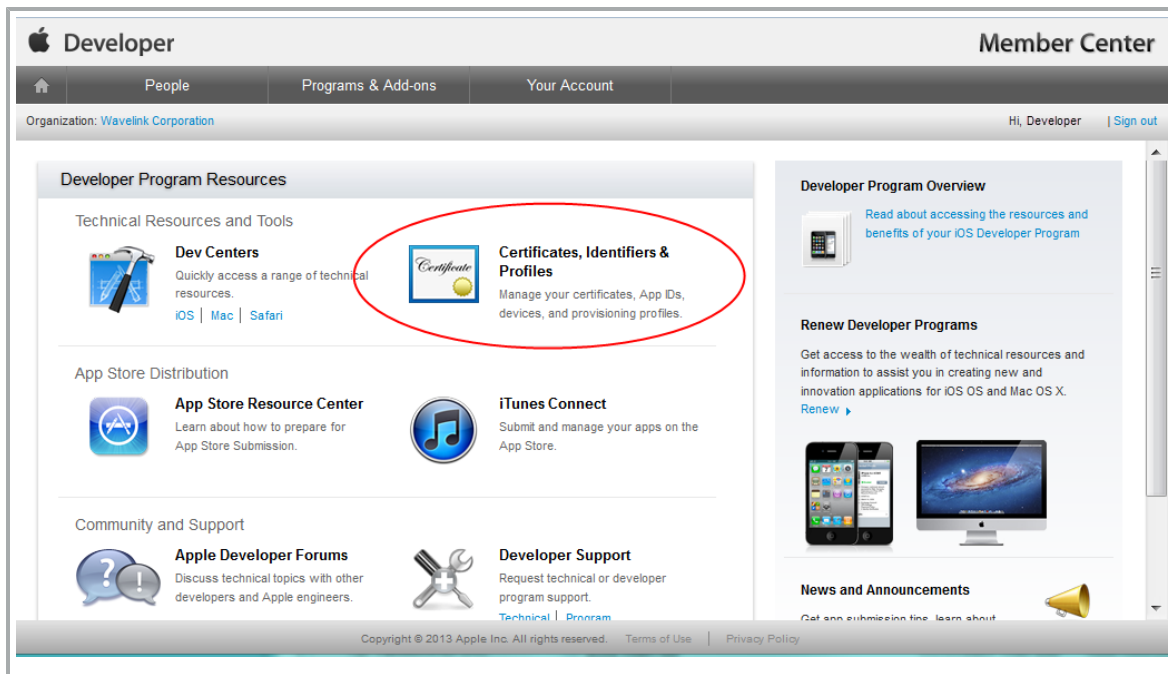
- [Rebuilding the IPA File with an iOS Developer Enterprise Account](#) (recommended)
- [Rebuilding the IPA File with an iOS Developer Account](#)

Rebuilding the IPA File with an iOS Developer Enterprise Account

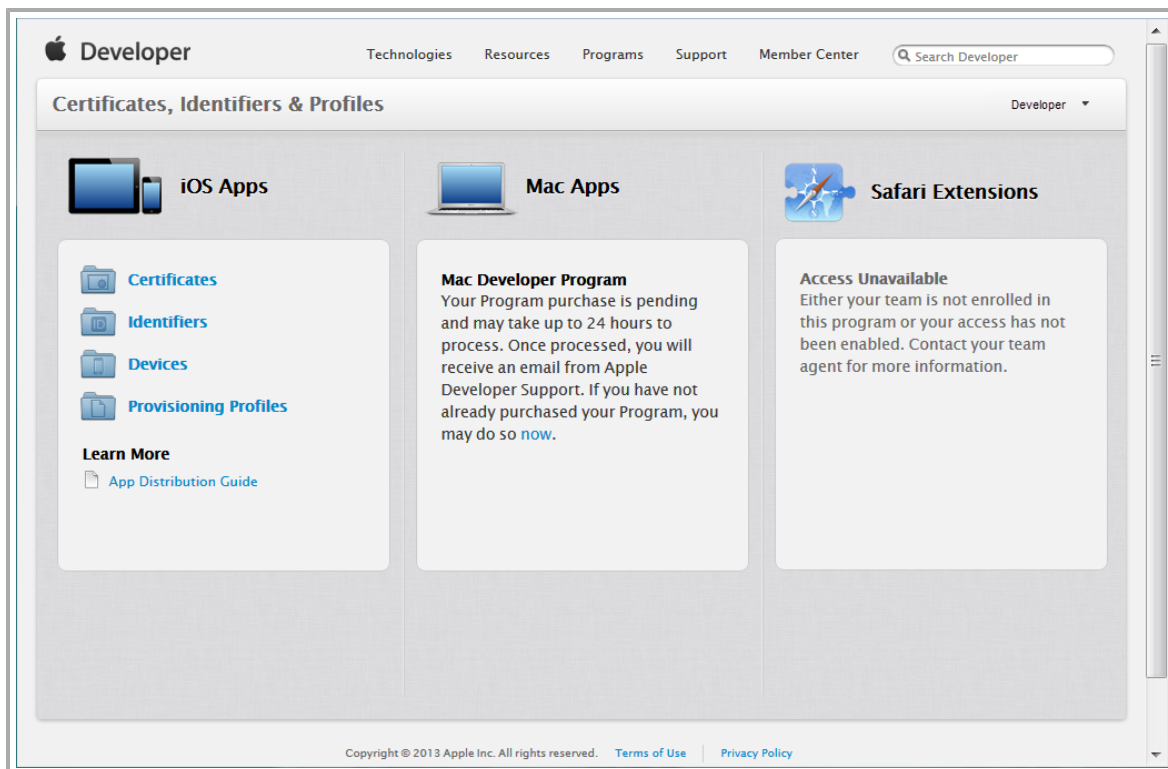
To create a distribution certificate:

- 1 Log in to your Apple Developer account and navigate to the Member Center.
- 2 In the Developer Program Resources section, click **Certificates, Identifiers & Profiles**.





3 Click on **Certificates**.



4 Create a new distribution certificate by clicking on the [+] button.

5 Select the **In-House and Ad Hoc** type.



- 6 Follow the onscreen instructions for creating and uploading a CSR.
- 7 Generate the distribution certificate and download it.
- 8 Open the Keychain Access application on the computer.
- 9 Import the distribution certificate by clicking **File > Import Items** and selecting the certificate. The name of the file should be `ios_distribution.cer`. When the certificate has been imported, it shows up in Keychain Access as "iPhone Distribution: [Company Name]".

To create a new App ID:

- 1 From the Member Center, create a new App ID.
- 2 Create a description that helps you identify the app. For the type of ID:
 - If you choose Explicit App ID, use `com.landesk.te`
 - If you choose a Wildcard App ID, use `com.landesk.*`

To create a new provisioning profile:

- 1 From the Member Center, click **Certificates, Identifiers & Profiles**.
- 2 Click on **Provisioning Profiles**.
- 3 Select **In House** as the profile type.
- 4 Select the App ID that you created.
- 5 Choose the distribution certificate you created and generate the provisioning profile, then download it.

To create the signed IPA file:

- 1 Open a terminal window and navigate to the location of the `TE_iOS_unsigned.ipa` file.
- 2 (Optional) If you are replacing the icons for the app, ensure they are saved locally.
- 3 Run the shell script `ldresign_te.sh` with the following command:

```
./ldresign_te.sh -a <path to unsigned IPA> -m <path to
provisioning profile> -c <name of the certificate> -114 <path to
114x114 icon> -57 <path to 57x57 icon>
```

For example:

```
./ldresign_te.sh -a "TE_iOS_unsigned.ipa" -m "My_TE_Provisioning_
Profile.mobileprovision" -c "iPhone Distribution: Company Name
```



```
Here" -114 "My_Replacement_Icon_114.png" -57 "My_Replacement_Icon_57.png"
```

Or, if you are not replacing the icons:

```
./ldresign_te.sh -a "TE_iOS_unsigned.ipa" -m "My_TE_Provisioning_Profile.mobileprovision" -c "iPhone Distribution: Company Name Here"
```

The shell script creates `TE_iOS.resigned.ipa`.

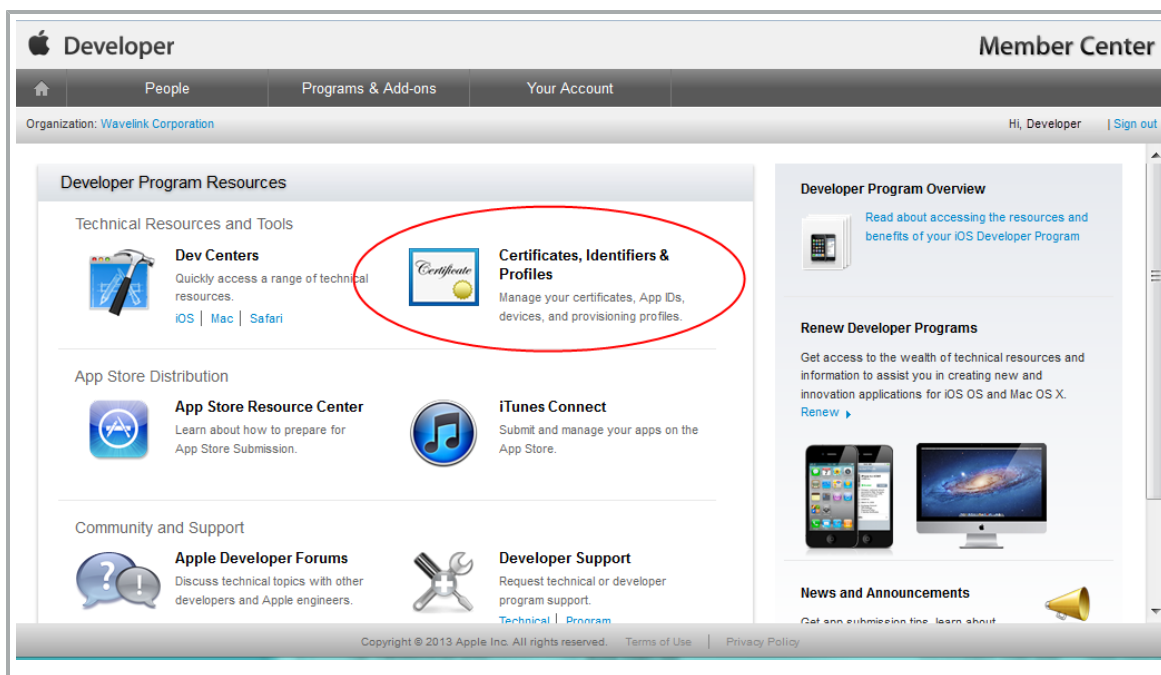
Once you have the rebuilt IPA, you can distribute it using Wavelink Avalanche or another distribution method.

Rebuilding the IPA File with an iOS Developer Account

If you plan to manage fewer than 100 devices, you have the option to rebuild the IPA using an iOS developer account. If you will be managing more than 100 devices, this method is not recommended.

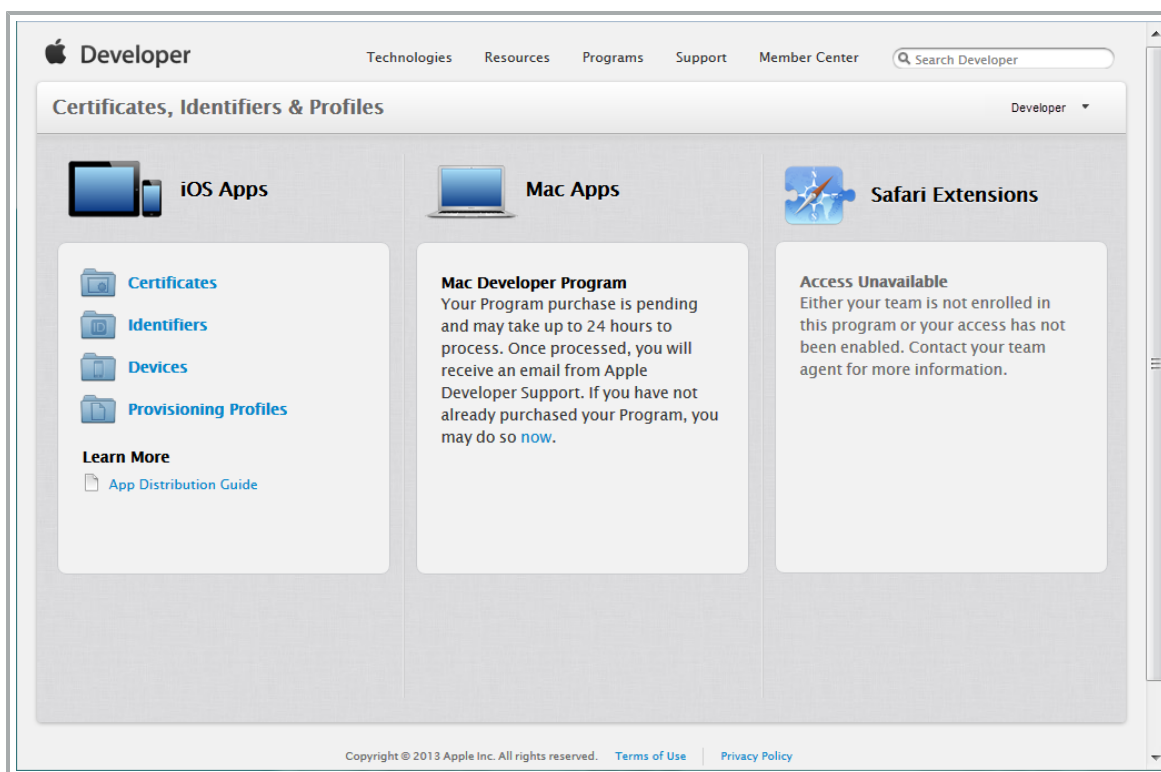
To create a distribution certificate:

- 1 Log in to your Apple Developer account and navigate to the Member Center.
- 2 In the Developer Program Resources section, click **Certificates, Identifiers & Profiles**.



- 3 Click on **Certificates**.



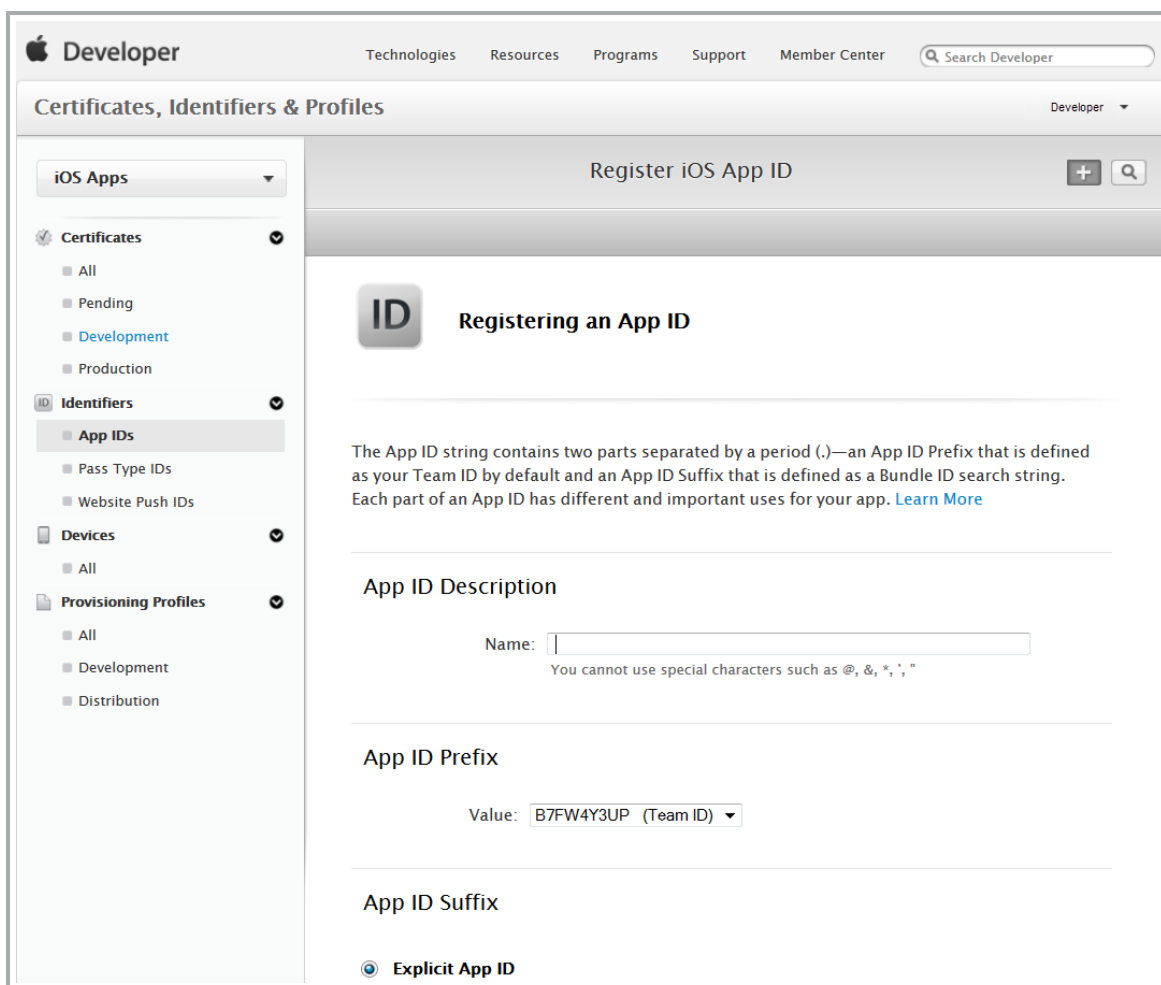


- 4 Create a new distribution certificate by clicking on the [+] button.
- 5 Select the **App Store and Ad Hoc** type.
- 6 Follow the onscreen instructions for creating and uploading a CSR.
- 7 Generate the distribution certificate and download it.
- 8 Open the Keychain Access application on the computer.
- 9 Import the distribution certificate by clicking **File > Import Items** and selecting the certificate. The name of the file should be `ios_distribution.cer`. When the certificate has been imported, it shows up in Keychain Access as "iPhone Distribution: [Company Name]".

To create a new App ID:

- 1 From the Member Center, create a new App ID.





2 Create a description that helps you identify the app. For the type of ID:

- If you choose Explicit App ID, use `com.landesk.te`
- If you choose a Wildcard App ID, use `com.landesk.*`

To create a new provisioning profile:

- 1 From the Member Center, click **Certificates, Identifiers & Profiles**.
- 2 Click on **Provisioning Profiles**.
- 3 Select **Ad Hoc** as the profile type.
- 4 Select the App ID that you created, then select the devices that can use the app. If no devices appear in the list, you must add them to the account. You are limited to 100 devices for a developer account.
- 5 Choose the distribution certificate you created and generate the provisioning profile, then download it.



To create the signed IPA file:

- 1 Open a terminal window and navigate to the location of the `TE_iOS_unsigned.ipa` file.
- 2 (Optional) If you are replacing the icons for the app, ensure they are saved locally.
- 3 Run the shell script `ldresign_te.sh` with the following command:

```
./ldresign_te.sh -a <path to unsigned IPA> -m <path to
provisioning profile> -c <name of the certificate> -114 <path to
114x114 icon> -57 <path to 57x57 icon>
```

For example:

```
./ldresign_te.sh -a "TE_iOS_unsigned.ipa" -m "My_TE_Provisioning_
Profile.mobileprovision" -c "iPhone Distribution: Company Name
Here" -114 "My_Replacement_Icon_114.png" -57 "My_Replacement_Icon_
57.png"
```

Or, if you are not replacing the icons:

```
./ldresign_te.sh -a "TE_iOS_unsigned.ipa" -m "My_TE_Provisioning_
Profile.mobileprovision" -c "iPhone Distribution: Company Name
Here"
```

The shell script creates `TE_iOS.resigned.ipa`.

Once you have the rebuilt IPA, you can distribute it to the devices that are specified in the provisioning profile.

Licensing the TE Client

The TE Client requires a license for full functionality. Emulation licenses may be specific to an emulation type (for example, a license can be issued for VT emulation or IBM emulation).

There are two types of TE Client licenses: platform licenses and maintenance licenses.

- **Platform licenses.** A platform (or base) license authorizes you to use a version of the TE Client and any builds associated with that version. For example, if you purchased a 1.0 TE Client license, then you are entitled to use 1.00-xx builds. If you want to upgrade beyond a version 1.0 TE Client, then you must either buy a new platform license or purchase a maintenance license. Platform licenses do not expire, but they do not allow you to upgrade to a newer version of the TE Client.
- **Maintenance licenses.** A maintenance license allows you to upgrade your TE Client when new major versions of the TE Client become available. For example, a maintenance



license would allow you to upgrade from TE Client 1.x to TE Client 2.x. You must have a base license for each maintenance license in use.

Maintenance licenses are valid only through a specific date. After the expiration date, if you upgrade the TE Client, it will revert to operating in demo mode.

You can use the Client without a license, but you will be limited to the demo mode without full functionality. When you attempt to initiate a terminal emulation session, the TE Client will begin broadcasting in an attempt to locate a license server. At that point, you are prompted to either enter a license or to initiate the session in demo mode. While in demo mode, you may initiate terminal emulation sessions with hosts. However, each terminal emulation session that you initiate will automatically disconnect after one hour.

There are two ways to license the TE Client:

- **Manual licensing.** Use the TE Client interface on the mobile device to manually input licensing information.
- **License Server.** Use a License Server to automatically provide TE Client licenses to the mobile devices on your network.

NOTE: To obtain Terminal Emulation licenses, please contact Wavelink customer service.

This section provides the following information:

- [Manually Licensing the TE Client](#)
- [Using the License Server to License the TE Client](#)

Manually Licensing the TE Client

You may key in your authorization information manually through the TE Client interface on the mobile device. When you manually assign licenses, each device is associated with a unique User Number. For example, to license 50 devices, Wavelink would issue a license with a user limit of 50. Each of the 50 devices would have a different User Number, from 1 to 50.

When you manually configure the licensing information, you must have the following information:

Platform	The emulation type.
Licensee Name	The name of the person or company for which the Client is licensed.
Serial Number	The serial number for the license.
Expiration Date	The expiration date of the license in the format of MMDDYYYY.



Authorization Code	The authorization code for the license.
User Number	A number unique to the device. It can be any number between 1 and the maximum number of users for which the license provides.
User Limit	The maximum number of users for the license.

To manually license a TE Client:

- 1 On the device, launch the TE Client.
- 2 Press and hold on the main screen until the menu appears. Tap **More > Authorization**.
- 3 Tap **Add New License**.
- 4 Provide the license information in the text boxes.
- 5 Tap **Done**.

Using the License Server to License the TE Client

The client license server is a Wavelink application that is responsible for supplying licenses to mobile devices that are using the TE Client.

NOTE: The client license server should not be confused with the Avalanche license server. They are separate Wavelink applications.

For information about installing and configuring the client license server, see the *Terminal Emulation License Server Reference Guide* on the Wavelink Web site.

When you use the device to attempt to initiate an emulation session with a host, an unlicensed Client automatically attempts to obtain a license from a license server.

To use the license server to obtain a license:

- 1 When you attempt to connect to a host using the TE Client, it broadcasts a request for a license on the local IP network. Or, if you have configured the license server address, the Client sends a request to the specified license server.
- 2 License servers with an available license respond by offering a license.
- 3 The TE Client accepts the first license that it receives and sends a reply to the license server.



Chapter 2: Using the TE Client

Once the TE Client has been installed, the Terminal Emulation app will appear in the list of installed apps. To launch the Client, tap the Terminal Emulation icon. The TE Client works with either the device's camera or a sled with a built-in camera. When you scan data, it appears in the currently selected field.

- To connect to a host, tap the main screen. You will be able to select the host profile from the list that appears.
- To access the main menu, press and hold on the main screen.
- To disconnect an emulation session, press and hold on the main screen. When the menu appears, tap **Disconnect**.
- To exit the Client, disconnect any current sessions and then press and hold on the main screen. When the menu appears, tap **Exit**.
- To use a camera scanner, tap the **Scan** button on the keyboard. When you have scanned the barcode, the camera interface closes and the emulation screen reappears.
- To delete a host profile, navigate to the Host Profiles screen and tap **Delete**. Then tap on the red circle next to the name of the profile you want to delete. Then tap the **Delete** that appears on the line of the profile you want to delete.



Chapter 3: Configuring the TE Client

You can configure the TE Client either through Wavelink Avalanche or through the installed Client on the device. You do not need to have Avalanche licenses in order to use Avalanche to configure the TE Client.

For details about the host profile options and emulation parameters available, see the sections below.

- [Configuring the TE Client using Avalanche](#)
- [Configuring Host Profiles](#)
- [Configuring Emulation Parameters](#)

Configuring the TE Client using Avalanche

Use an Avalanche payload to configure host profiles or emulation parameters for an iOS device. You can configure multiple host profile payloads for each device, but only one emulation parameters payload.

To configure the TE Client using Avalanche, you do not need to have Avalanche licenses.

[To configure the TE Client when the device has an Avalanche license:](#)

- 1 Log in to the Avalanche Console.
- 2 Navigate to the folder where you want the payload created.
- 3 From the Profiles tab, click **Add Payload** in the Available Payloads panel.
- 4 The *Payload* dialog box appears. Select the **All** option, and then the type of payload you want to create.
- 5 Configure the options as desired and click **Save**.
- 6 From the Profiles tab, click **Add Profile** in the Available Profiles panel.
- 7 The *New Profile* dialog box appears. Click **Application Configuration**.
- 8 Create a name for the profile, then select the payload or payloads you want to associate with the profile. Save your changes.
- 9 Select the checkbox next to the name of the profile and click **Apply** in the Available Profiles panel.
- 10 Deploy your changes.

The next time the device checks in, the payload is downloaded. When the TE Client is launched, the new settings are applied and the host profiles are available.



To configure the TE client when the device does not have an Avalanche license:

- 1 Log in to the Avalanche Console.
- 2 Navigate to the folder where you want the payload created.

NOTE: In the Avalanche navigation tree, there is a Default device folder. If all of your devices are using the same configuration, you may want to use the Default folder. However, if you have devices using different configurations, create a separate folder for each configuration.

- 3 From the Profiles tab, click **Add Payload** in the Available Payloads panel.
- 4 The *Payload* dialog box appears. Select the **All** option, and then the type of payload you want to create.
- 5 Configure the options as desired and click **Save**.
- 6 From the Profiles tab, click **Add Profile** in the Available Profiles panel.
- 7 The *New Profile* dialog box appears. Click **Application Configuration**.
- 8 Create a name for the profile, then select the payload or payloads you want to associate with the profile. Save your changes.
- 9 Select the checkbox next to the name of the profile and click **Apply** in the Available Profiles panel.
- 10 Deploy your changes.
- 11 In the Navigation Tree, click the **View** button to view the folder details.
- 12 On the Folder Details page, click **Print QR Code**.
- 13 The QR code for the payloads applied to the folder appears in the browser.
- 14 On the device, launch the TE Client.
- 15 If the TE Client prompts you to scan the QR code, click **OK** and scan the QR code. Otherwise, tap and hold on the main screen. When the main menu appears, tap **More > Scan Server Address** and then scan the QR code.

The device connects to the Avalanche server and pulls the configuration information associated with the folder.

Configuring Host Profiles

A host profile defines the settings that the TE Client should use when it attempts to initiate a connection with a specific host. The host profile may include the emulation type, IP address of



the host, IP address of the TermProxy/ConnectPro server, or other settings. You may configure an unlimited number of host profiles.

When a device user attempts to initiate a session with a host, the TE Client displays a list of available host profiles. The user selects the host he wants to connect to, and the TE Client uses the host profile settings to connect to the host.

Depending on the emulation type, there are different options available when configuring a host profile. The following options may be available when you configure a host profile:

Profile Name	
Profile name	The name of the host profile.

Basic Settings	
Type	The emulation type that the mobile device uses when connected to the host system.
Address	The IP address or host name of the host system to which the mobile device will connect.
Port	The TCP port number on which the host system is listening for emulation requests from Clients.
Use SSH encryption	Uses SSH to encrypt the information sent to the host. There is no additional software for SSH on the device, but the host must be configured for SSH.
Width of telnet window (columns)	The number of columns to display on the device screen.
Height of telnet window (rows)	The number of rows to display on the device screen.
Display in black and white	Uses white text on a black background for the display.
Special	Not currently implemented.

NOTE: The TermProxy and SSL/TLS options are visible in the host profile, but have not been implemented yet for iOS.



SSH Settings	
Tunnel Telnet using SSH Local Port Forwarding	Sets whether or not to use tunneling. If you are using 5250 emulation with SSH, you must use SSH tunneling.
Address	The IP address or host name for SSH tunneling.
Port	The TCP port number for SSH tunneling.
User Name	The username for SSH.
Password	The password for SSH.

IBM Settings	
Workstation ID (5250) -Or- LU or Pool Name (3270)	<p>An ID for mobile devices connecting to an IBM host. The ID may include static characters and the following switches, which are used to capture dynamic data specific to each mobile device:</p> <ul style="list-style-type: none"> • %a - %d. Captures specific octets of the IP address of the mobile device. For example, use <code>%a%b%c%d</code> to capture all four IP octets of the address of the mobile device, or use <code>%d</code> to capture only the last octet of the IP address of the mobile device. • %m - %r. Captures specific octets of the MAC address of the mobile device. For example, use <code>%p%q%r</code> to capture the last three octets of the MAC address of the mobile device. • %s. Captures the session number. • %t. Captures the Avalanche terminal ID of the mobile device. (If the mobile device does not have an Avalanche Enabler, then this parameter is not valid.) <p>A workstation ID can be 1-20 alphanumeric characters plus switches, but IBM hosts usually truncate workstation IDs that are more than 10 characters. The workstation ID should not begin with a numeric character.</p>



VT Settings	
Telnet Negotiation String	A Telnet negotiation string for the host connection. A Telnet negotiation string is used to identify a mobile device to a host system and to present a Client with the appropriate emulation options. The host system can then supply information to the mobile device based on Telnet negotiation string (for example, menus or display options). The string can be 1-20 alpha-numeric characters.

Autologin with IBMHOST	
User Name	The user name the Client should use when connecting to the host.
Password	The password the Client should use when connecting to the host.
Program/Procedure	A program/procedure that should run when the Client connects.
Menu	The name of the menu you want displayed when the Client connects.
Current Library	The name of a library the Client should navigate to when it connects.

Autologin with VT		
	Prompts	Responses
Name	The user name prompt that the host system uses. Possible Values: 0 - 60 alpha-numeric characters	The response that the mobile device should send to the login prompt. Possible Values: 0 - 30 alpha-numeric characters
Password	The password prompt that the host system uses. Possible Values: 0 - 60 alpha-numeric characters	The password that the mobile device should send to the host system at the password prompt. Possible Values: 0 - 30 alpha-numeric characters
Command	The command prompt that the host system sends to the TE Client after the login is complete. Possible Values: 0 - 60 alpha-numeric characters	The command that the mobile device should send the host system at the command prompt. Possible Values: 0 - 30 alpha-numeric characters

Autolaunch	
AutoLaunch Session	The Client attempts to connect to the specified host each time the Client is launched. Only one host profile on the device should have autolaunch set.



To configure a host profile from the device:

- 1 From the TE Client, tap **Menu > Host Profiles**.
- 2 If the password is required, type the password in the text box and tap **OK**. (The default password is `system`.)
- 3 Click **Add New** to create a new host profile, or tap the name of the existing host profile that you want to edit.
- 4 Configure the options as desired and tap **Save**.
- 5 Press the **Back** button to return to the main Client screen.

Configuring Emulation Parameters

Emulation parameters define how the TE Client behaves while it is connected to a host. This includes sounds and special key functions, as well as the passwords for configuring the Client.

Depending on the emulation type, there are different options available when configuring emulation parameters. The following options may be available:

5250 and 3270 Options	
Enter Key Swapped	Uses the Enter key as Send instead of Field Exit. This option does not affect the keys on the TE virtual keyboards.
Enabler Free Cursor	Allows the user to move the cursor into protected areas of the screen after they use the keyboard to toggle Free Cursor mode.
Oversized Scanning	Determines what to do if scanned data is too large for the entry field.
Retry Workstation ID	Allows the TE Client to retry the workstation ID with a letter appended to it.
Use Enter as Reset	Uses the Enter key as a Reset key if the terminal is in an error state.
Initial Caps Lock state	Sets the keyboard to open with Caps lock on when enabled.

VT Options	
Backspace Key Sends Delete	Sends a delete <7F> instead of a backspace <08> when the backspace key is pressed.
Ignore 8-bit Received Control Codes	Treats 8-bit control codes as extended characters.



VT Options	
New Answer Back	<p>Displays a string on the mobile device when it receives an ENQ from the host. It supports the following variables:</p> <ul style="list-style-type: none"> • %m - %r representing the six octets of the MAC address. • %a - %d representing the four octets of the IP address. • %s representing the session number. • %t representing the terminal ID (Avalanche only). <p>For example, if you want the response to an ENQ to be the full MAC address, use: %m%n%o%p%q%r</p>
VT Line Mode	Simulates line mode behavior for hosts that do not support it.
Initial Caps Lock State	Sets the keyboard to open with Caps lock on when enabled.
Handle Telxon Sequences	Supports Telxon escape sequences from the host.
Local Echo	Specifies whether the terminal uses local echo to reflect what is sent to the host.
Scan Terminator	Sets information appended each time scanned data is entered.

Authorization Settings	
License Server Address	The address of the License Server.
License Server Port	The port the License Server will be using to provide licenses.
License Server Site ID	The Site ID to use when requesting licenses from the License Server.

Key Macros	
Add New Key Macro	Allows you to use a macro to replace a key with another key.



Network Settings	
Use Timing Mark Heartbeat	Sends timing marks to the host to determine if the session is still alive.
Log Network Activity	Creates a log of network activity for the session. The log is stored in the first listed mounted storage on the device (not part of the root file system). This may be either internal storage or an SD card.
Log File Max Size (kB)	The maximum size of the session log file. When the log reaches its max file size, the current contents are written to a backup log file and a new log file is started. If a backup log file currently exists, it is overwritten.

Passwords Settings	
Advanced Password	Sets the password for configuring host profiles.
Configuration Password	Sets the password for configuring emulation parameters.

Scanner Setting	
Auto Send Scans	Automatically sends to the host after a barcode is scanned. This option is for 5250 and 3270 emulation only.

Screen Settings	
Lock Screen to Portrait	Locks the screen to portrait orientation.
Fixed Screen Mode	Each time a screen is received from the host, the screen is set to display row 1, column 1 in the upper left corner.
Default Font Size	Sets the zoom level when connected to the host. When this is set to 0, the Client will calculate an optimum size.
Disable pan and zoom	Disables the ability to pan and zoom when connected to a host.
Disable keyboard minimizing	Disables the option to minimize the keyboard.



Screen Settings	
Keyboard Height (portrait)	Sets the height of the onscreen keyboard as a percentage of the screen when the device is in portrait orientation.
Keyboard Height (landscape)	Sets the height of the onscreen keyboard as a percentage of the screen when the device is in landscape orientation.

Sounds Settings	
Key Clicks	Produces a click sound each time a key is pressed.
Beep Volume	Sets the volume of the beeper.
Incoming Screen Beep	Beeps when a new screen is sent from the host. This option is for 5250 and 3270 emulation only.
Silent Mode	Disables all TE Client beeping.

To configure a host profile from the device:

- 1 From the TE Client, tap and hold on the main screen. When the menu appears, tap **Emulation Parameters**.
- 2 If the password is required, type the password in the text box and tap **OK**. (The default password is `config`.)
- 3 Press the **Console** button at the top to return to the main Client screen.



Wavelink Contact Information

For product downloads or documentation, go to the Wavelink downloads page:

<http://www.wavelink.com/download-software>

For information on contacting Wavelink, please go to:

<http://www.wavelink.com/Customer-Care-Contact-Customer-Care>

