

AirWatch Connector



ZEBRA

User Guide

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Publication Date

July 10, 2019

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Introduction

The Zebra AirWatch Connector partners with the AirWatch server to manage your Zebra Link-OS™ printers. Zebra AirWatch Connector will:

- Monitor printers and report issues to the AirWatch system
- Monitor printer alerts
- Enable administrators to send files and operating system updates to the printer via the AirWatch server console

What the AirWatch Connector Does

Zebra AirWatch Connector sends alerts to AirWatch, watches printers coming online, monitors the status of the printers, and sends files and settings to the printers.

Supported Printers

- iMZ220, iMZ320
- QLn220, QLn320, QLn420
- ZD410, ZD420
- ZD500, ZD500R
- ZD620
- ZQ310, ZQ320
- ZQ510, ZQ520
- ZR638
- ZT210, ZT220, ZT230
- ZT410, ZT420
- ZT510
- ZT610, ZT620

Supported Operating Systems

The Zebra AirWatch Connector supports the 32-bit or 64-bit versions of the following:

- Windows® Server 2008
- Windows Server 2008 R2 (also known as Windows 7 Server)
- Windows Server 2016 x64 bit

SGD Commands

For information about Set/Get/Do commands, parameters, and values that are available with Zebra AirWatch Connector, see the Zebra Programming Guide.

To send SGD commands to a printer, use the [Zebra Setup Utilities](#).

Installation in a Windows Operating System

Minimum System Requirements

The Zebra AirWatch Connector supports the 32-bit or 64-bit versions of the following:

- Windows Server 2008
- Windows Server 2008 R2 (also known as Windows 7 Server)
- Windows Server 2016 x64 bit



NOTE: This system should be installed on a “clean” Windows Server. A clean system is one that does not already include Apache Tomcat TM or any other server software installation.

Tomcat will be installed as part of this installation procedure and must be the only Tomcat version resident on this system. Multiple versions of Tomcat will encounter conflicts.

Installation Steps

Step 1: Install an AirWatch Server

1. Contact AirWatch.
 - i. Contact AirWatch Customer Support to obtain an AirWatch version 7.0 or later installation.
 - ii. Obtain the AirWatch Endpoint URL from your AirWatch support representative.



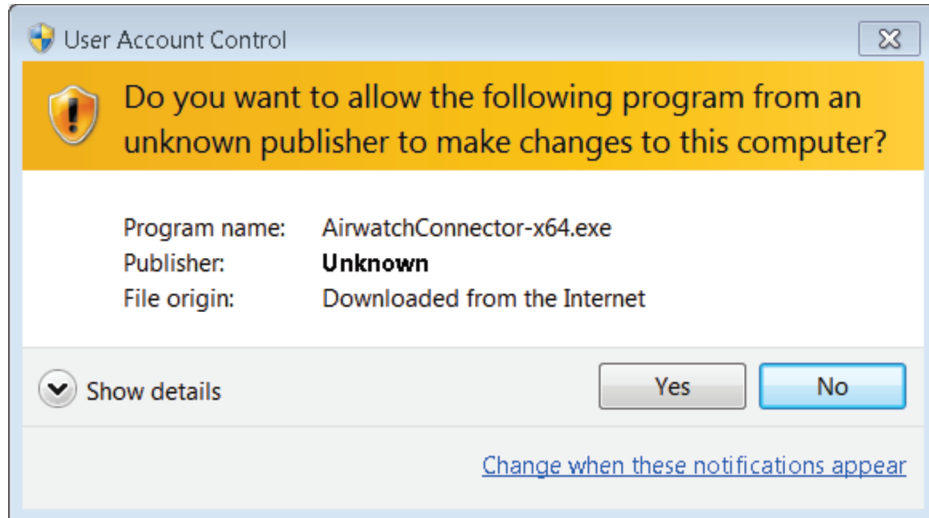
NOTE: The URL you will be searching for usually starts with the deviceservices server. Ask for the Zebra printer management URL.

<https://airwatchportals.com/deviceservices/peripheralservice/v1/register>

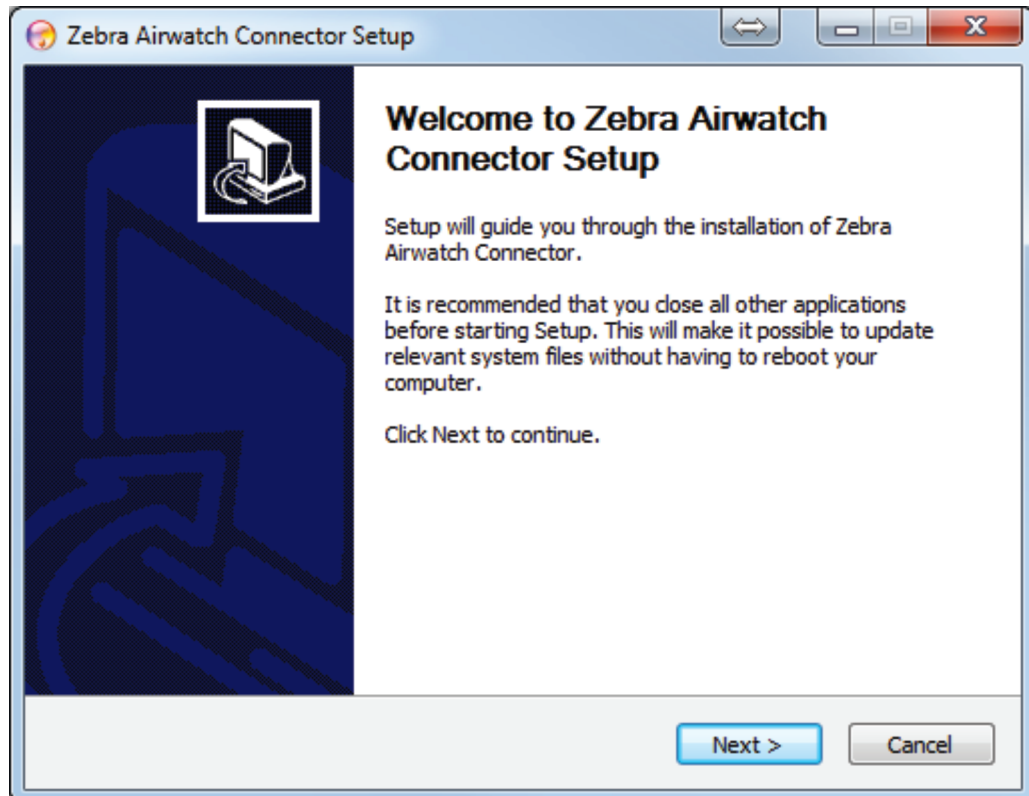
Step 2: Install Wizard

1. Run **AirwatchConnector-x-64.exe**.

Depending on your account security settings, you may see the following dialog box.

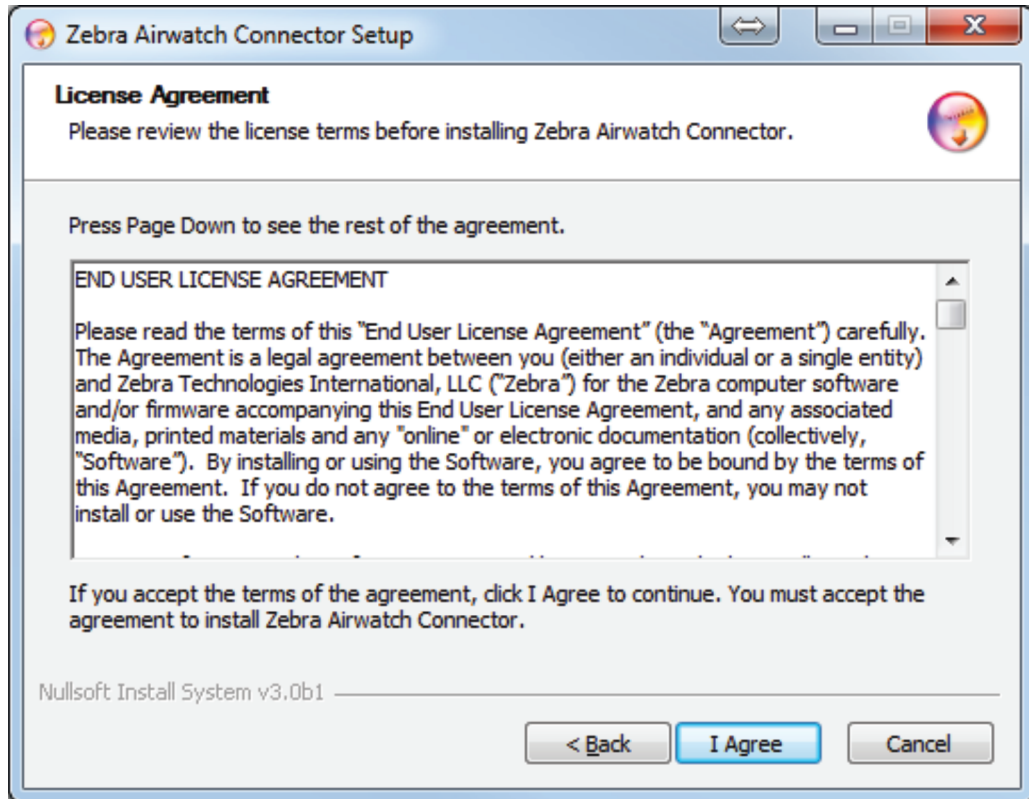


- i. Click **Yes** to begin installing AirWatch Connector.

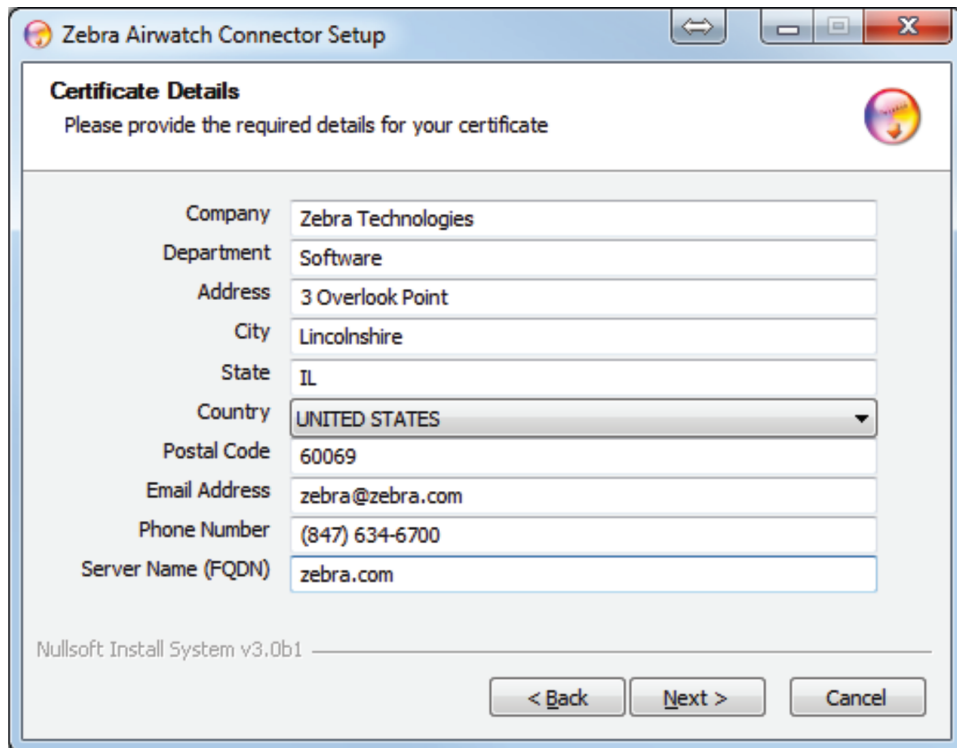


- ii. Click **Next** to continue.
- iii. You must accept the terms of the License Agreement to continue.

- iv. Click **I Agree**.

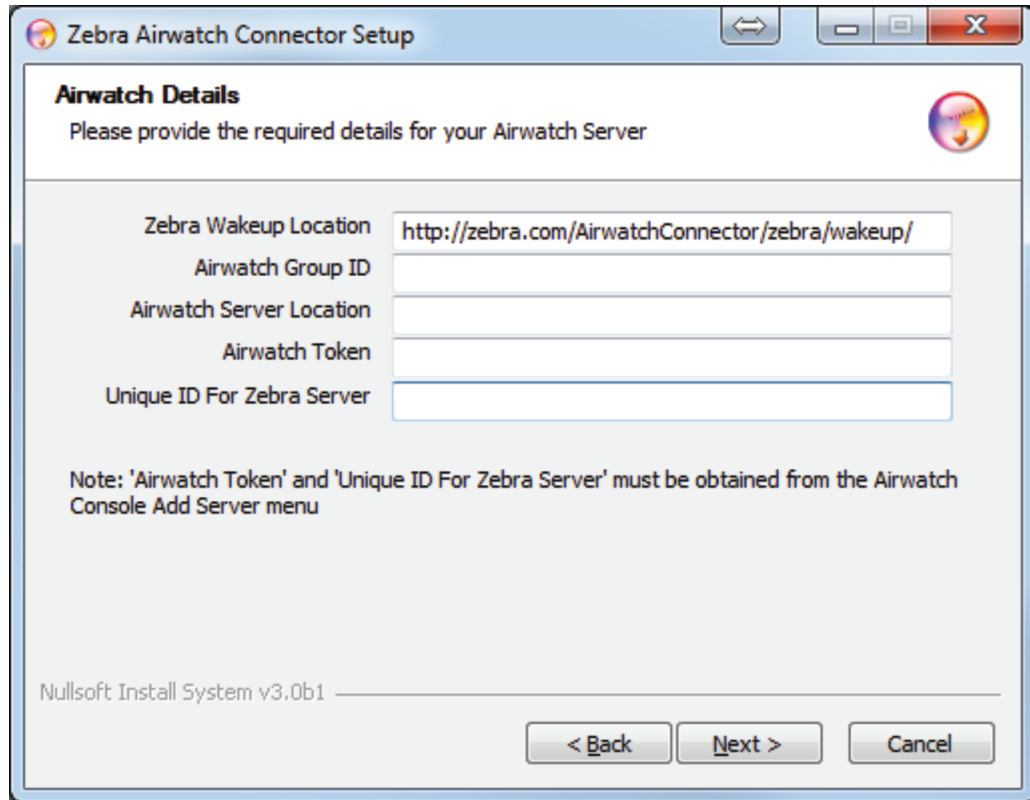


- 2. Enter the information associated with your certificate.



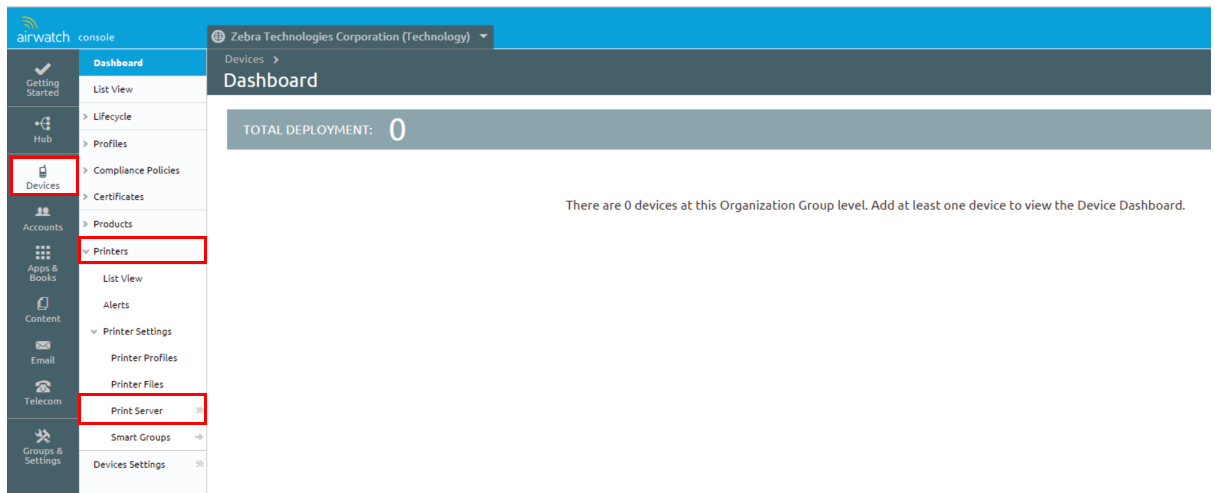
3. Click **Next**.

The installer will fill in the Zebra Wakeup Location.

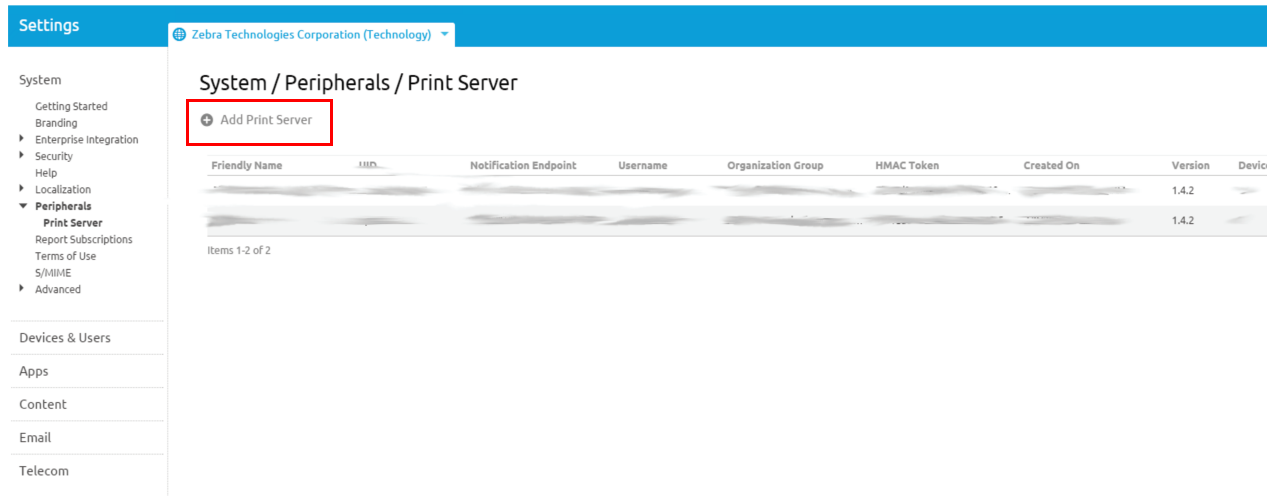


4. Log into AirWatch.

i. Click on **Devices > Printers > Print Server**.



5. Click **Add Print Server** (at the top of the right pane).



6. Fill in your **Friendly Name**.

7. Select your **User Id**.

8. Fill in your **Service UID**.

The 'Add Print Server' form contains the following sections and fields:

- Friendly Name***: A text input field.
- HMAC TOKEN**: A section containing a note: 'The HMAC key auto-generated below will be used to associate the print server to the appropriate Organization Group in AirWatch. This key will need to be entered into the relevant Print Server configuration file.' Below this is a text field for the 'HMAC Token' with the value 'dec7fe5f-9cab-4c4e-aed8-9590424fa09d'.
- USER**: A section with the instruction: 'Select the appropriate enrollment user that will be associated to the Print Server. This user may be associated to multiple Print Servers.' Below this is a dropdown menu for 'User Id*' with a 'Select' option.
- UID**: A section with a text input field for 'Service Uid*'.

At the bottom of the form, there are 'Save' and 'Cancel' buttons.

9. Click **Save**.

10. Re-open the Zebra AirWatch Connector Setup dialog box.

11. Enter the **base Group ID** for your company from your AirWatch installation.

12. Enter the **AirWatch Server Location**.



NOTE: The URL starts with the device services server. Ask for the Zebra printer management URL.

<http://airwatchportals.com/deviceservices/peripheralservice/v1/register>

1. Copy and paste the HMAC Token (from the AirWatch Add Print Server dialog box) into the **Airwatch Token** field on the Setup dialog box (below).

Zebra Airwatch Connector Setup

Airwatch Details
Please provide the required details for your Airwatch Server

Zebra Wakeup Location	<input type="text" value="http://zebra.com/AirwatchConnector/zebra/wakeup/"/>
Airwatch Group ID	<input type="text" value="Base Group ID"/>
Airwatch Server Location	<input type="text" value="URL for airwatch registration endpoint"/>
Airwatch Token	<input type="text" value="Generated UID from airwatch 'add print server' dialog"/>
Unique ID For Zebra Server	<input type="text" value="User created UID from airwatch 'add print server' dialog"/>

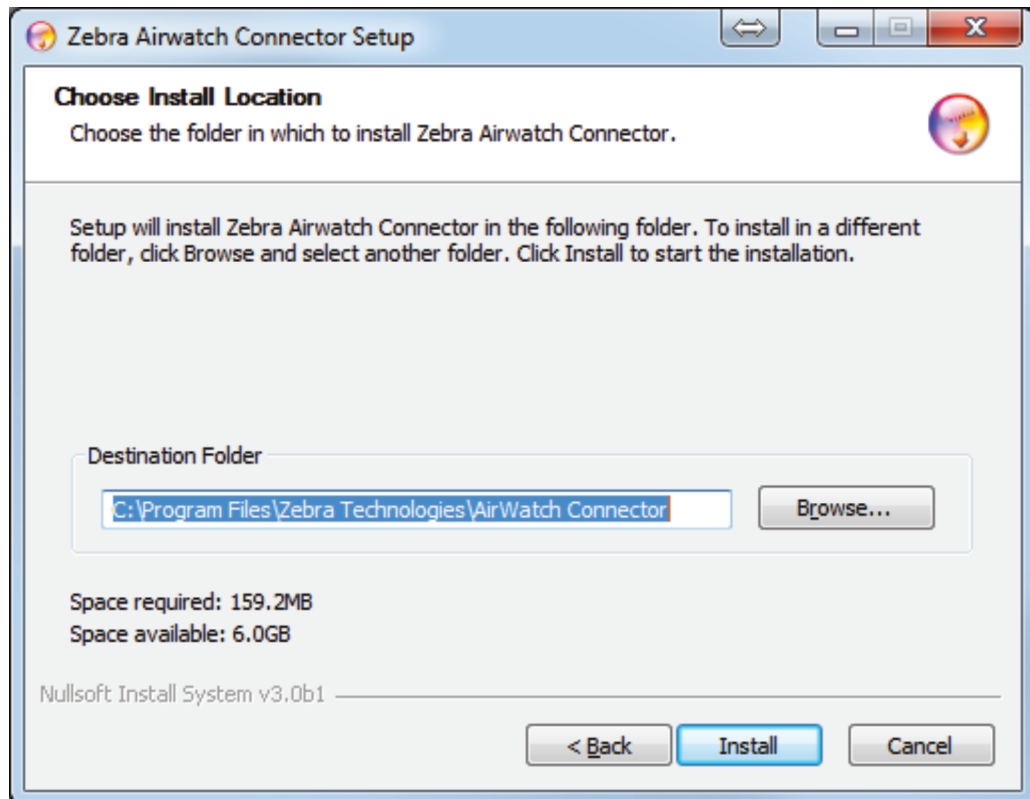
Note: 'Airwatch Token' and 'Unique ID For Zebra Server' must be obtained from the Airwatch Console Add Server menu

Nullsoft Install System v3.0b1

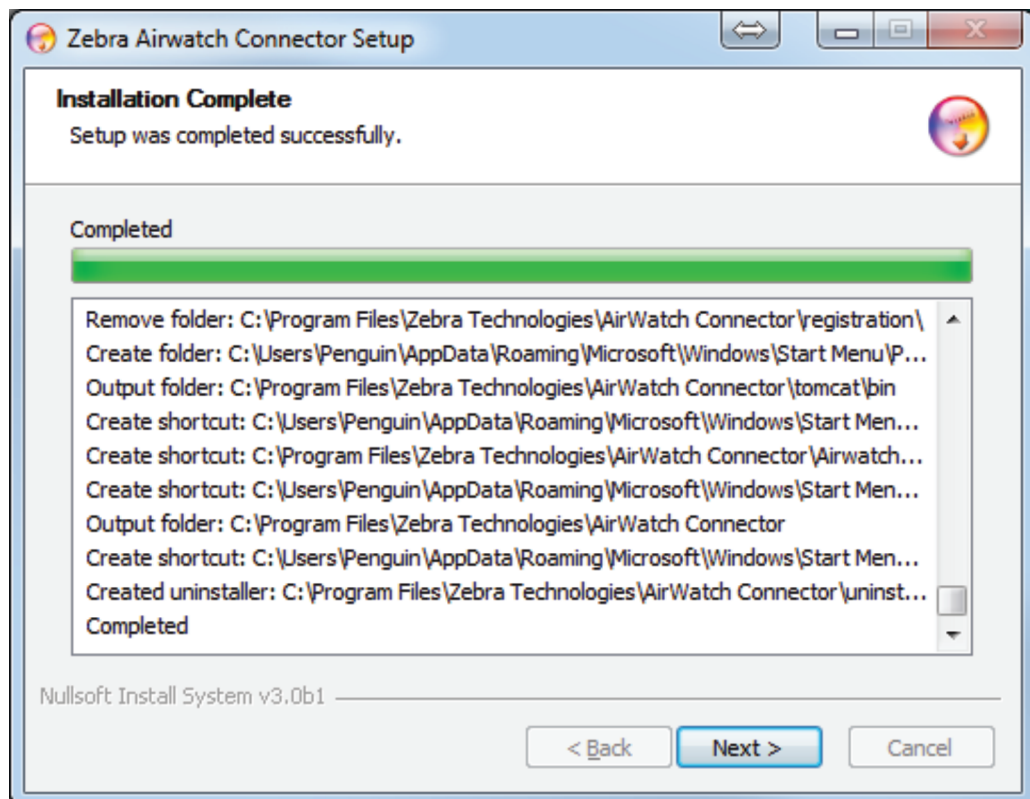
< Back Next > Cancel

2. Enter the Service UID (created in the Add Print Server dialog box on the AirWatch web site) in the **Unique ID for Zebra Server** field.
3. Click **Next**.

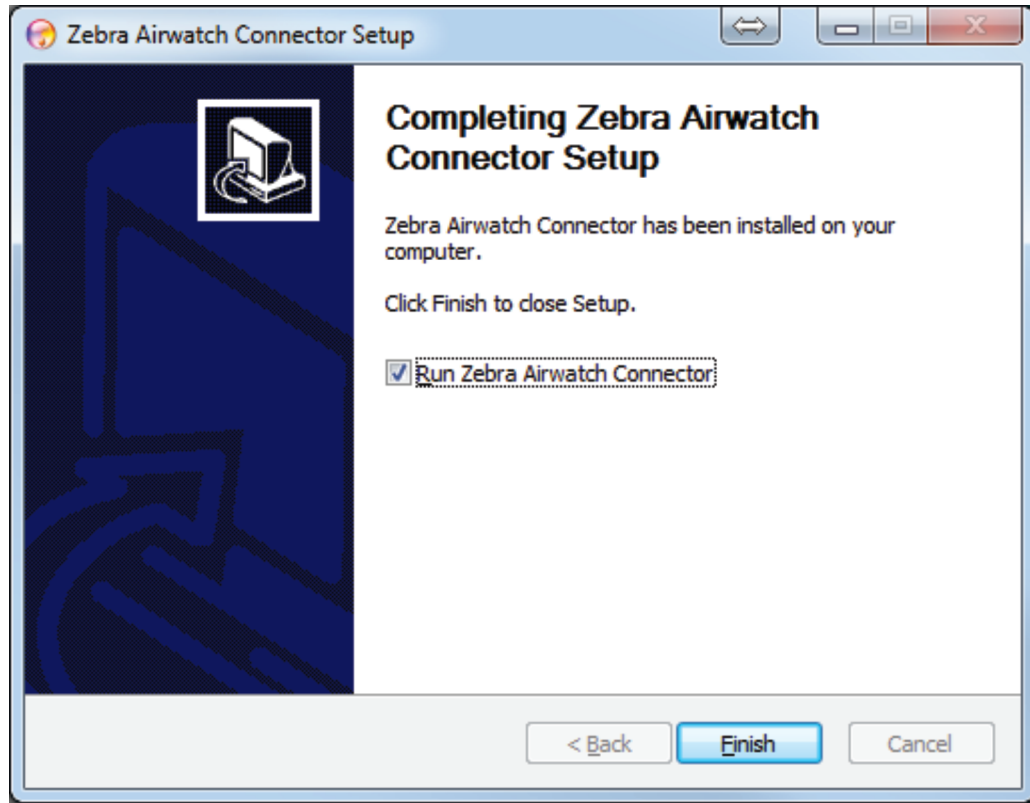
4. Choose the destination folder.



5. Click **Install**.



6. Click **Next**.



7. Click **Finish**.

Step 3: Set Up Printers

1. Set up your printers to communicate with AirWatch:
 - i. Download the latest operating system for your printers from <http://www.zebra.com>
 - ii. Using the ZDownloader Utility, install the firmware on your Zebra printers. (To obtain a copy of the ZDownloader Utility, go to www.zebra.com/utilities.)
 - iii. Using the [Zebra Setup Utilities](#), configure your printer on your network.
 - iv. Set up the printers based on the [Configuring Printers with WebLink on page 19](#).

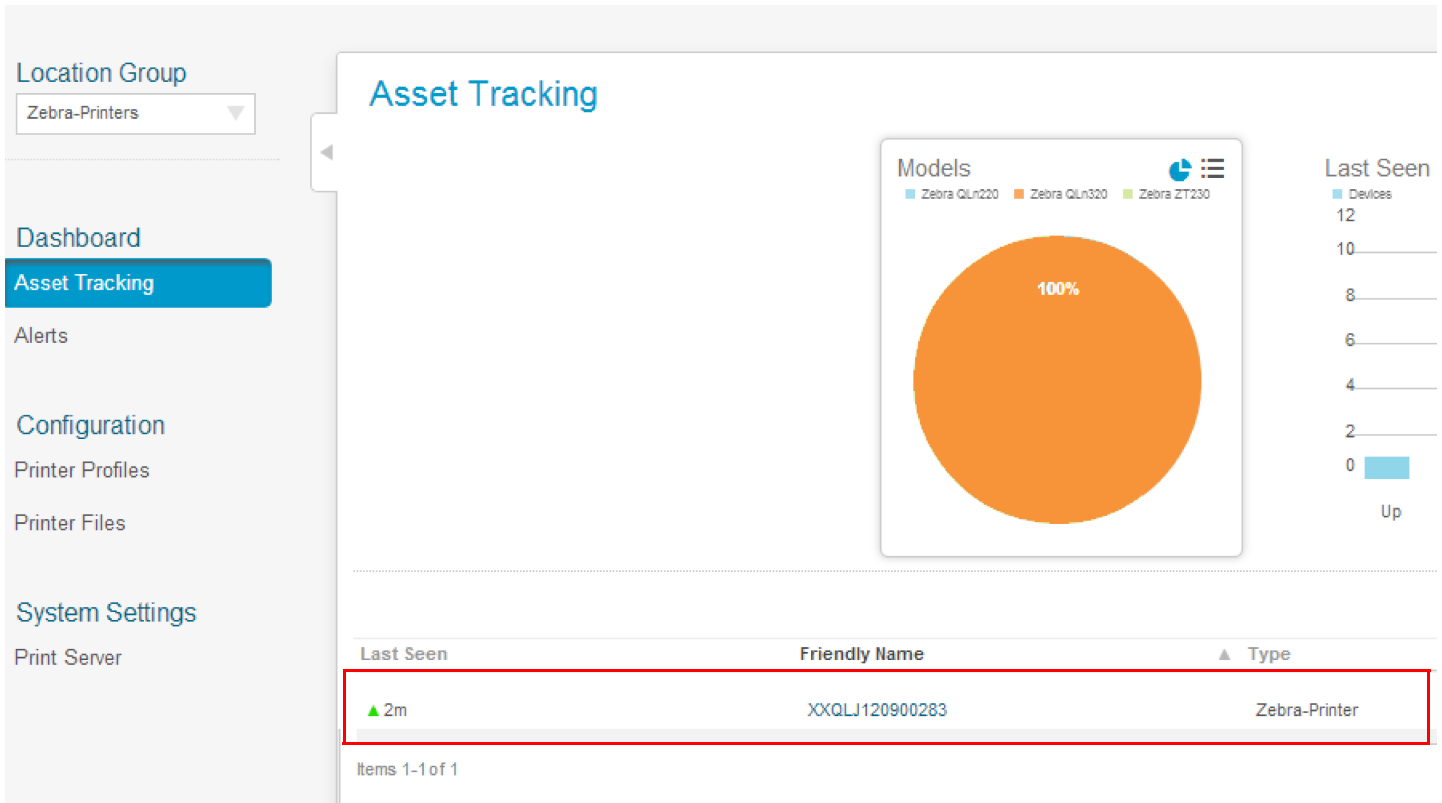
Step 4: Test a Printer

Request Settings from a Printer

In this section, you will test a printer to verify that the AirWatch console is able to request the current settings from the printer.

1. Turn on the printer.
2. Log into the AirWatch console, if necessary.


Once you are logged in, the printer appears on your console after approximately 60 seconds. (See figure below.)



- To see specific details about this printer, click on the **Friendly Name** of the printer.

The printer summary appears. If the printer settings appear on the screen, AirWatch is receiving settings from the printer.

XXQLJ120900283



Status
✔ Enrolled

Last Seen
▼ 1/3/2013 11:53:54 AM

Enrollment Date
 1/3/2013 3:27:39 PM

UDID
 XXQLJ120900283

Summary
Alerts
Profiles
Files
Event Log

Type	Printer-Zebra
Model	Zebra QLn320
Printer Name	XXQLJ120900283
Firmware Version	V68.19.0Z
IP Address	10.3.1.98
Gateway IP Address	10.3.4.1
Battery Percentage	100
Power Health	good
Print Mode	3
Print Method	2
Label Length	406
Print Width	406
Printer Darkness	


Receiving Alerts from a Printer

In this section, you will test that the AirWatch console receives alerts from the printer.

- Click the **Alerts** tab.
- Open the media door on the printer.
- Wait 10 seconds, and then refresh the AirWatch console display.

You should see the Head Open alert with the orange exclamation mark in the Status column.


Summary
Alerts
Profiles
Files
Event Log

Status	Sample Time	Alert Type	Severity
	1/10/2013 3:10:00 PM	Head Open	1

- Close the media door on the printer.

5. Wait 10 seconds, and then refresh the AirWatch console display.

You should see the Head Open alert with the blue check mark in the Status column. If the alerts appear on the screen, you have verified that the printer is able to send alerts to the AirWatch console.

Status	Sample Time	Alert Type	Severity
	1/10/2013 3:14:14 PM	Head Open	1



NOTE: Both the Status icon and the Sample Time change on the Alerts screen.

Configuring Printers with WebLink

When any WebLink setting (with the exception of the logging settings) is adjusted either via SNMP, SGD, or JSON it is required that the printer be reset before the new value takes effect. The `weblink.printer_reset_required` setting will be set to "yes" if there are any settings that have been modified that require a printer reset.

Basic Configuration

To determine how much configuration is necessary, consider the following questions:

- Is the remote server that the printer is attempting to connect to outside of the corporate firewall?
- Does the firewall require a username and password to access the remote server?
- Does the printer require a proxy server to access the remote server?
- Does the firewall permit HTTPS connections initially, or does the printer need to connect via HTTP first?

If the answer to any of these questions is 'yes', then more than the basic configuration may be necessary. Depending upon the network environment that the printer is in, accessing the remote server may only require that a few settings be set.

The minimum requirement is that the URL for the remote server be set. For simplicity, assume that only `conn1` is being used (this is the typical scenario). See also [Difference Between Conn1 and Conn2 on page 21](#).

To configure the printer to connect to the remote server:

1. Set `weblink.ip.conn1.location` to the URL of the remote server.

The URL must conform to the standards described in RFC3986 (<http://www.ietf.org/rfc/rfc3986.txt>). For example, if the remote servlet's full URL is

```
https://www.examplecorpinc.com/zebra/weblink/
```

Configure the location setting as follows:

```
! U1 setvar "weblink.ip.conn1.location" "https://www.examplecorpinc.com/zebra/weblink/"
```

2. Reset the printer.

When the printer has an IP address, it will attempt to connect to the remote server. In the event that the remote server does not indicate that the printer has connected, logging may need to be enabled in order to determine the failure.

When a Proxy Server is Part of the Network Configuration

If a proxy server must be used to access the remote server, the printer's proxy setting must be set to connect to the server. There are typically four properties associated with a proxy server:

- The proxy server scheme: **HTTP** or **HTTPS**
- The proxy server address
- The proxy server port (optional)
- The username and password for the proxy (optional)

To supply the address of the proxy server (assuming a default port and no username/password), configure the proxy setting as follows:

```
! U1 setvar "weblink.ip.conn1.proxy" "https://my.internal.proxy/"
```

In this scenario, the proxy address is `my.internal.proxy` and the scheme is **HTTPS**. The default port (1080) will be used. No username or password will be used to authenticate with the proxy.

To specify an alternate port, configure the proxy as follows:

```
! U1 setvar "weblink.ip.conn1.proxy" "https://my.internal.proxy:3128/"
```

To specify a username and password configure the proxy as follows:

```
! U1 setvar "weblink.ip.conn1.proxy" "https://user:pass@my.internal.proxy/"
```

The proxy username, password, and the rest of the URL must follow the rules specified in RFC3986 (<http://www.ietf.org/rfc/rfc3986.txt>).

When HTTP Authentication is Necessary

Use this configuration when, for example, a firewall requires a username and/or password.

It may be necessary to specify a username and password to various routers and servers along the path to the remote server. Typically, when using a browser to access the server, the authentication request will be presented in the form of a dialog window that asks for the username and password.

Because the printer's connection to the remote server is headless and non-interactive, the Weblink configuration allows a user to enter in a server name/username/password triplet. The triplet will be used in the event that the printer is presented with an authentication request (for example, this typically is requested via the **HTTP/1.1 401 Unauthorized** request).

To specify authentication credentials, issue the following:

```
! U1 setvar "weblink.ip.conn1.authentication.add" "servername.com username password"
```

In this scenario, the server requesting authentication is `servername.com`. The username and password to be supplied are 'username' and 'password'. The server name can be either a DNS name or an IP address. The username and password cannot be retrieved from SGD, SNMP, or JSON once added. Only the server name will be returned.

More than one set of authentication triplets can be added. The printer will only use the credentials as they are needed. In other words, the printer will only use the credentials for `servername.com` if it receives a **HTTP/1.1 401 Unauthorized** request from `servername.com`.

To see what authentication triplets are specified issue:

```
! U1 getvar "weblink.ip.conn1.authentication.entries"
```

To remove authentication credentials issue the following:

```
! U1 setvar "weblink.ip.conn1.authentication.remove" "servername.com"
```

Additional Firewall Configuration

Some firewalls do not allow the first connection attempt for a device to be HTTPS, or they require new connections to be made periodically in order to keep the initial connections intact. The weblink test branch was provided to address issues that typically arise because the printer is an unattended device.

To configure the printer to attempt an HTTP connection anytime that the HTTPS connection drops, issue the following commands:

```
! U1 setvar "weblink.ip.conn1.test.location" "http://www.zebra.com/apps/linktest"
! U1 setvar "weblink.ip.conn1.test.test_on" "failure"
```

The `weblink.ip.conn1.test.location` can be any valid HTTP address. The default uses a link provided by Zebra that exists for no other purpose than to help developers test their connections to the internet. Setting `weblink.ip.conn1.test.test_on` to `interval` or `both` will force the printer to attempt a connection to the URL in `location` every `weblink.ip.conn1.test.retry_interval` seconds (default is 900 seconds/15 minutes).

To configure the printer to try an HTTP connection periodically, independent of the HTTPS success, issue the following commands:

```
! U1 setvar "weblink.ip.conn1.test.location" "http://www.zebra.com/apps/linktest"
! U1 setvar "weblink.ip.conn1.test.test_on" "interval"
! U1 setvar "weblink.ip.conn1.test.retry_interval" "900"
```

Difference Between Conn1 and Conn2

The printer has the ability to connect to two different servers. Connection 1 (`conn1`) and Connection 2 (`conn2`) are identical in every way in terms of their configuration. It is expected that `conn2` will typically be left unmodified unless a user has an alternate server that they wish to use to configure the printer.

A typical scenario in which both connections would be used is if a user wishes to have the printer connect to both a configuration server and a data source.

Enable Logging

If your printer has trouble connecting, you may wish to enable logging. By default, logging is not enabled in order to reduce the amount of memory consumed when the Weblink feature is enabled. It is recommended that, once the Weblink feature is configured properly and is performing as expected, the logging be disabled or that a very small (less than 100) number of logging entries be permitted.

To enable logging, `weblink.logging.max_entries` needs to be modified. By default, it is set to zero (0), which indicates that no messages are logged. When attempting to troubleshoot connection issues, it is recommended that `max_entries` be set to at least 100 entries. Setting `max_entries` to 100 means that the 100 newest logging entries will be present in `weblink.logging.entries`. Older entries are discarded when the maximum number of entries is reached.

```
! U1 setvar "weblink.logging.max_entries" "100"
```

The logging settings are atypical to the Weblink settings as they do not require the printer to be reset before taking effect. This does not mean that previous logging messages that would have been logged will appear when the `max_entries` setting is changed from zero (0) to a greater value. It means that any new logging messages will be logged from that point forward.

Issue the following command to clear any log entries currently in the `weblink.logging.entries` buffer.

```
! U1 do "weblink.logging.clear" ""
```

Navigating the Log Output

The log will contain useful information, even in the scenario where the printer successfully connects to the remote server. This section explains how to read the log and highlights some of the key entries that will help to determine if the connection was successful.

A typical log entry looks as follows:

```
[12-04-2012 14:57:10.625] [conn1.1] Attempting connection to
https://www.examplecorpinc.com/zebra/weblink/
```

The **first column** is the date and time that the event occurred. The format of the date and time matches the format of `rtc.date` and `rtc.time`. The time, however, also includes the milliseconds to aid in troubleshooting network latency concerns.



NOTE: For printers that do not have a battery to store the Real Time Clock (RTC) value, the date will be restored to the default value upon a power cycle. The default value depends upon how the `rtc.date` Set/Get/Do (SGD) is managed. If it has never been set, then it will default to the firmware build date (the value in `appl.date`). Otherwise, the value in `rtc.date` will default to the value that it was last set to. This does not mean the value of the `rtc.date` when it was power cycled – it means that when a user sets `rtc.date`, that value becomes the new default value. If the printer has a battery, then the `rtc.date` never defaults and continues to track the date as expected.

The **second column** indicates the connection name and channel that the entries are associated with. The connection name will match the `weblink` branch that was configured with the respective URL (for example, `conn1` or `conn2`). The channel number indicates which channel on the respective connection that the entries corresponds to.



NOTE: Channels are additional connections that are requested by the server when the server needs to perform a specific operation that cannot be done on the channel(s) currently open. Typically only the RAW channel is open, which operates similar to the RAW TCP port. It is typical to see two channels opened—the main channel and the RAW channel.

The **third column** is the actual message, which contains information about what occurred in the printer at the corresponding time in column one. In the above example, the printer was initiating the connection to the URL specified in `weblink.ip.conn1.location`.

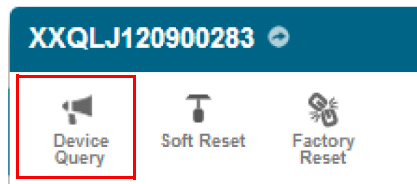
Review the section titled [SSL/TLS Certificate Errors on page 47](#) to understand what it means when certain logging messages/errors appear in the log.

Using AirWatch Connector

Printer Discovery

When a new printer is powered on, it will automatically notify Zebra AirWatch Connector that it is operational. There are several methods to validate that the printer is operational, settings are available, and communication is active.

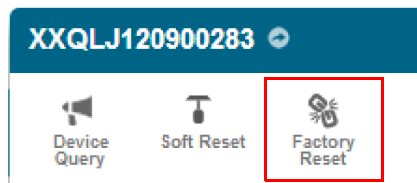
- To determine if the settings are available, see [Request Settings from a Printer on page 16](#).
- To refresh the printer settings, click **Device Query** on the Printer Summary page.



- To remotely power on and power off the printer, click **Soft Reset**.



IMPORTANT: Do not click **Factory Reset** unless directed to do so by Technical Support. **Factory Reset** will change settings and lose the Location Group.

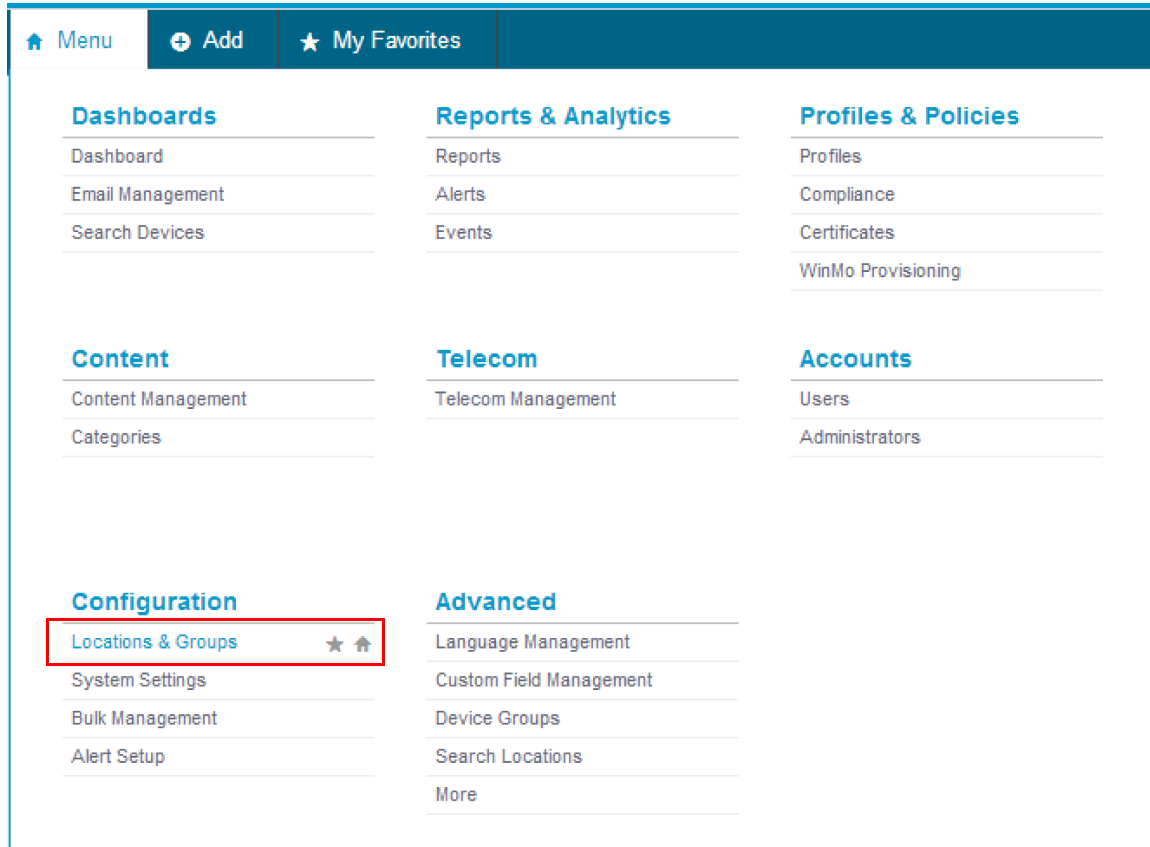


Organizing Printers

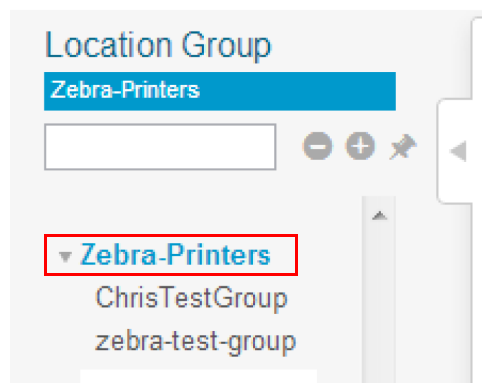
After you see the printers on the AirWatch console, you may wish to organize or arrange groups of printers. These groups may be established based on location, role, or region.

Create a Group

1. On the AirWatch console, select the **Main Menu** at the top left of the screen.
2. In the **Configuration** section, select **Location & Groups**.



3. Click on the **Main Group** link (on the left side of the screen).



4. Click **Add Child Location Group**.

Location Group DetailsAdd Child Location GroupLocations

Location Group Name*

Group ID

Location Group Type

Country

Locale

Add Default Location

Internal Name*

Display Name*

Status

Location Type

Time Zone

5. Name the **Location Group**.

6. Enter the **Group ID**.



IMPORTANT: Even though the **Location Group ID** is not identified as required, you must fill in this field in order to group the Zebra printers.

1. Fill in the next three fields:
 - i. **Location Group Type**
 - ii. **Country**
 - iii. **Locale**

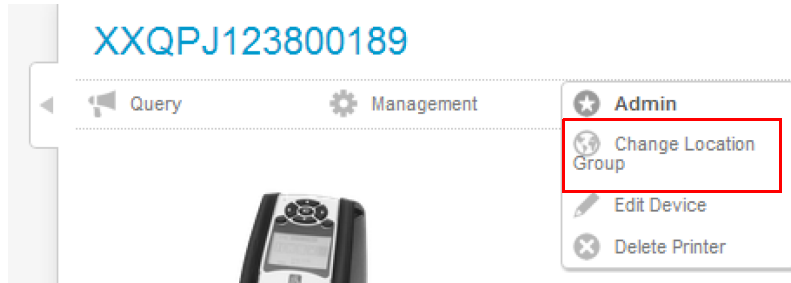


NOTE: You may change the fields: **Internal Name** and **Display Name** even though these and the other fields below them are auto-populated.

1. Click **Save**.

Add Printers to the Group

1. Navigate to the **Printer Asset Management** screen.
2. To add a printer to your new group, click on the **Printer Friendly Name**.
3. In the **Device Details**, select **Admin > Change Location Group**.



4. Click the **Location** dropdown menu, and select your new group.

Change Location Group

Location Group

Location*

5. Click **Save**.
6. Repeat [step 1](#) through [step 5](#) for all printers that you wish to include in the group.

View the Location Group Dashboard

- 1. Navigate back to your **Asset Tracking** screen.
- 2. Click on the name of your new **Location Group**.

The screenshot shows the 'Asset Tracking' dashboard for the 'Zebra-Printers' location group. On the left, a navigation menu includes 'Location Group' (with 'Zebra-Printers' selected), 'Dashboard', 'Asset Tracking' (highlighted), 'Alerts', 'Configuration', 'Printer Profiles', 'Printer Files', 'System Settings', and 'Print Server'. The main content area features a 'Models' pie chart showing 100% completion for Zebra QLn320. To the right is a 'Last Seen' vertical scale from 0 to 12. Below the chart is a table with columns 'Last Seen', 'Friendly Name', and 'Type'. The table contains one entry: a green triangle icon, '2m', 'XXQLJ120900283', and 'Zebra-Printer'. The bottom left of the table area shows 'Items 1-1 of 1'.

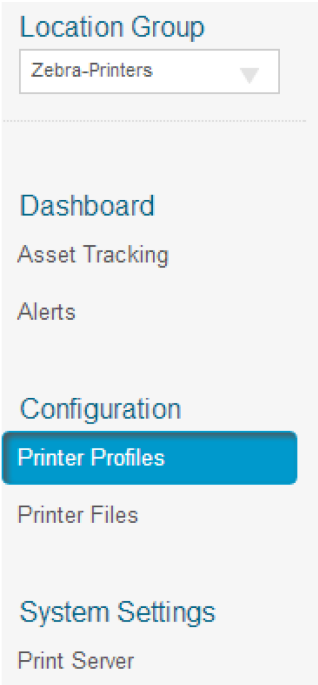
Last Seen	Friendly Name	Type
▲ 2m	XXQLJ120900283	Zebra-Printer

Profiles

Using profiles is the preferred method to manage and ensure that printer settings within a group are the same.

Create a Profile

- 1. From the **Main Dashboard** screen, click **Printer Profiles**.



- 2. From the **Printer Profiles** screen, click **Add a New Profile**.

Printer Profiles

+ Add a New Profile Filter Grid [] [refresh] [share]

Active	Profile Name	Type	Platform	Managed By	Installed/Assig.	
<input checked="" type="checkbox"/>	ChrisProfile	Optional	Zebra-Printer	Zebra-Printers	1 / 1	[edit] [refresh] [search] [dropdown]
<input checked="" type="checkbox"/>	Copy - Robin_test	Optional	Zebra-Printer	Zebra-Printers	1 / 1	[edit] [refresh] [search] [dropdown]
<input checked="" type="checkbox"/>	Device	Interactive	Zebra-Printer	Zebra-Printers	2 / 19	[edit] [refresh] [search] [dropdown]
<input checked="" type="checkbox"/>	Ed - QLn220 - Device ...	Optional	Zebra-Printer	Zebra-Printers	1 / 4	[edit] [refresh] [search] [dropdown]
<input checked="" type="checkbox"/>	Ed - QLn220 - Power	Auto	Zebra-Printer	Zebra-Printers	0 / 19	[edit] [refresh] [search] [dropdown]

- 3. Fill in the name and description of the profile.

4. Select the **Assignment Type** from the dropdown menu.



NOTE: Profiles consist of three Assignment Types:

- **Auto:** the profile will be sent automatically to the printers within the Assigned Location Group.
- **Optional:** the profile will be assigned to the Assigned Location Group, but it must be manually sent to the group.
- **Interactive:** the profile will not be assigned to any group, and it can be sent to any printer in any group.

General

Name*

Description

Assignment Type ▼

Model ▼

Managed By

Assigned Location Groups* ✕

Start typing to add a new group

1. Fill in the printer **Model** and the **Assigned Location Groups**.
2. Choose one of the following categories:



NOTE: Do not attempt to include any **Custom Settings**. This category is not operational at this time.

test-profile

i
General

📱
Device

📶
Wi-Fi

🔌
Power

↔️
Mirror

ZPL IF
ZPL

CPCL*
CPCL

⚙️
Custom Settings

1. Fill in all of the settings associated with your category.
2. Click **Save**.
3. Repeat [step 6](#) through [step 8](#) for all categories you wish to include in the profile.

4. Click **Save & Publish**.



NOTE: The **Save & Publish** button will immediately send (“publish”) the settings to those groups with an Assignment Type of “Auto”.

Manage a Profile

- 1. Navigate to the **Asset Tracking** Dashboard.
- 2. Click on the **Printer Friendly Name**.
- 3. Click on the **Profiles** tab.

You will see all of the profiles that are available to be downloaded.

- 4. Click on Actions (see red box) to load the profile immediately to the selected printer.
- 5. Validate that the Auto Assignment Type profile has been sent to the printer by checking the **Status Indicator**.

XXQPJ123800187

Device Query Soft Reset Factory Reset

Summary Alerts Profiles Files Event Log

Last Scan: 1/18/2013 4:46:22 PM Filter Grid

Status	Name	Type	Description	Location Gr...	Actions
⊖	Device	Interactive		Zebra-Printers	⊕ ▾
⚠	Ed - QLn220 -...	Automatic	Darkness	Zebra-Printers	⊕ ▾
⊕	Ed - QLn220 -...	Automatic		Zebra-Printers	⊕ ▾
⊕	Ed - QLn220 -...	Automatic	Change low bat...	Zebra-Printers	⊕ ▾

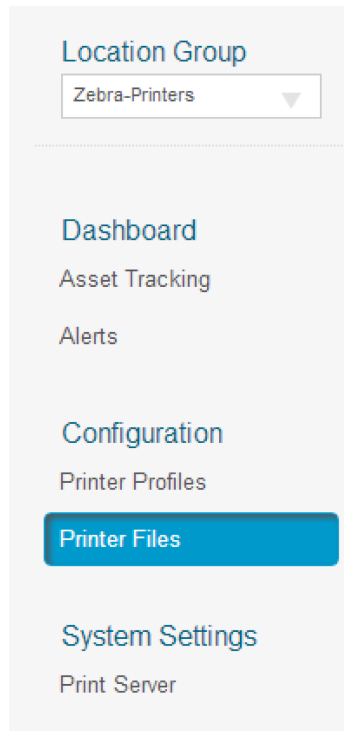
Items 1-4 of 4

Updating Printer Firmware and Files

You can use AirWatch to update printer's operating system and object files. The steps are similar to managing a profile.

Upload a File

1. From the **Main Dashboard** screen, click **Printer Files**.



2. From the **Printer Files** screen, click **Add New File**.

Printer Files

+ Add New File Filter Grid ↻ ↗

Active	File Name	Type	Platform	Managed By	Installed/Assig.	
<input checked="" type="checkbox"/>	Copy - Copy - Test	Auto	Zebra-Printer	Zebra-Printers	0 / 7	✎ 🗑️ 🔍 ▼
<input checked="" type="checkbox"/>	Ed - iMZ320 - Test Label	Auto	Zebra-Printer	Zebra-Printers	1 / 1	✎ 🗑️ 🔍 ▼
<input checked="" type="checkbox"/>	Ed - iMZ320 - WC	Auto	Zebra-Printer	Zebra-Printers	1 / 1	✎ 🗑️ 🔍 ▼
<input checked="" type="checkbox"/>	Ed - QLn220 - Test Label	Auto	Zebra-Printer	Zebra-Printers	1 / 4	✎ 🗑️ 🔍 ▼
<input checked="" type="checkbox"/>	Ed - QLn220 - WC	Auto	Zebra-Printer	Zebra-Printers	1 / 4	✎ 🗑️ 🔍 ▼
<input checked="" type="checkbox"/>	File6819	Optional	Zebra-Printer	ChrisTestGroup	1 / 1	✎ 🗑️ 🔍 ▼

3. Fill in the name of the file.

4. Select the **Assignment Type** from the dropdown menu.



NOTE: Profiles consist of three Assignment Types:

- **Auto:** the file will be sent automatically to the printers within the Assigned Location Group.
- **Optional:** the file will be assigned to the Assigned Location Group, but it must be manually sent to the group.
- **Interactive:** the file will not be assigned to any group, and it can be sent to any printer in any group.

The screenshot shows the 'Add New File' form with the 'General' tab selected. The form contains the following fields and values:

- Name*: QLn220 Firmware
- Description: QLn220 firmware file
- Assignment Type: Optional (dropdown)
- Model: QLn220 (dropdown)
- Managed By: Midwest Region
- Assigned Location Groups*: Midwest Region (with a search box below it containing 'Start typing to add a new group')

1. Fill in the printer **Model** and the **Assigned Location Groups**.
2. Choose **File** (left-hand menu).

File

The screenshot shows the 'File' tab of the form with the following fields and values:

- File Name*: V68_19_1Z.zpl
- File Version*: 1.0
- Upload New File*: V68.19.1Z.zpl
- Upload button
- Max Size 100 MB (with an information icon)

3. Click **Upload**.
4. Select the file you wish to upload from the dialog box.
5. Click **Save**.
6. Click **Save & Publish**.



NOTE: The **Save & Publish** button will immediately send (“publish”) the settings to those groups with an Assignment Type of “Auto”.

Manage a File


- 1. Navigate to the **Asset Tracking** Dashboard.
- 2. Click on the **Printer Friendly Name**.
- 3. Click on the **Files** tab.
You will see all of the files that are available to be downloaded.
- 4. Click on Actions (see red box) to load the file immediately to the selected printer.
- 5. Validate that the Auto Assignment Type file has been sent to the printer by checking the **Status Indicator**.

The screenshot shows a printer management interface for device ID XXQPJ123800187. It includes three main action buttons: Device Query, Soft Reset, and Factory Reset. Below these are navigation tabs for Summary, Alerts, Profiles, Files (which is selected), and Event Log. A table lists two files with their status, names, types, descriptions, and locations. The 'Actions' column for each file contains a download icon and a dropdown arrow. The second row, for the file 'ZPL_test_label1', has its action icons highlighted with a red box. At the bottom, it indicates 'Items 1-2 of 2'.

Status	Name	Type	Description	Location Gr...	Actions
✓	Ed - QLn220 -...	Automatic	Prints TEST in a...	Zebra-Printers	[Download] [Dropdown]
✓	ZPL_test_label1	Automatic	WC	Zebra-Printers	[Download] [Dropdown]

Checking Printer Status


Printer status is communicated to AirWatch via alerts. The following table identifies the current alerts managed by AirWatch Connector.

Alert	Description
PAPER OUT	Paper is out.
RIBBON OUT	Ribbon is out.
HEAD TOO HOT	The printhead is too hot to print.
HEAD COLD	The printhead is too cold to print.
HEAD OPEN	The printhead/media door is open.
SUPPLY TOO HOT	The power supply is too hot.
RIBBON IN	The ribbon has been loaded in the printer.
REWIND	The rewind unit is full (for tabletop printers with a rewind unit).
CUTTER JAMMED	The cutter is jammed.
HEAD ELEMENT BAD	A printhead element has burned out.
POWER ON	The printer has powered on.
CLEAN PRINthead	<p>This alert is sent when the printing odometer has reached the number of meters printed.</p> <p> NOTE: This alert is set using the Set/Get/Do command “device.cph_interval”. The airwatch console shows the setting as “Clean Printhead Interval”.</p>
MEDIA LOW	The paper/media is low.
RIBBON LOW	The ribbon is low.
REPLACE HEAD	The printhead needs to be replaced.
BATTERY LOW	The battery charge is low.
RFID ERROR	The RFID encoding has encountered an error.
COLD START	The printer has been powered on.

For more specific information on viewing alerts from AirWatch console, see [Receiving Alerts from a Printer on page 17](#).

Troubleshooting

Installation


Issue	Reason	Solution
Error when starting Tomcat	Various reasons can cause this error.	See Apache Tomcat website — http://tomcat.apache.org/
Tomcat Port conflict error	There is another server trying to use the same port as Zebra AirWatch Connector on the computer.	Choose one of the following: <ul style="list-style-type: none"> • Stop the other servers using Windows services. • Change the port in Tomcat. The default port is 443. <p> IMPORTANT: If you change the port, you must change the “weblink.location” on the printer. From the Control Panel, open Windows Firewall, Advanced settings, and manually add the Port to the allowed Inbound/Outbound list.</p>


Using AirWatch

Issue	Reason	Solution
I added a printer to a Location Group. Once the printer is powered off and on, it is no longer associated with the original location group.	Some settings are not stored until a profile is published to that printer.	<p>a. Create a generic profile for the Location Group.</p> <p>b. Set the option to Auto install and click Publish. (All settings are saved and sent to all of the printers within the group.)</p>
I added a printer to a Location Group. After I click Soft Reset on the AirWatch console, and it is no longer associated with the original location group.		

SSL/TLS Certificate Errors


Secure connections to the remote server present the opportunity for several errors when attempting to connect. The errors typically involve the certificates used when connecting via SSL or TLS. This section highlights some of the most common issues involving the certificates.

Error	Cause / Solution
<p>"SSL certificate problem: self signed certificate in certificate chain"</p>	<p>One of the situations that prevent a successful connection is not having the correct Certificate Authority certificates installed on the remote server. Zebra requires that the Zebra Root Certificate Authority and the Zebra Subordinate Certificate Authority be installed on the remote server. This error typically indicates that only one of the Zebra Certificate Authority certificates is installed on the remote server.</p>
<p>"SSL certificate problem: unable to get local issuer certificate"</p>	<p>One of the situations that prevent a successful connection is not having the correct Certificate Authority certificates installed on the remote server. Zebra requires that the Zebra Root Certificate Authority and the Zebra Subordinate Certificate Authority be installed on the remote server. This error typically indicates that neither of the Zebra Certificate Authority certificates are installed on the remote server.</p>
<p>"SSL certificate problem: certificate has expired"</p>	<p>This error indicates that the remote server's certificate has expired. This is typically an indication that the printer's date and/or time are incorrect as the Zebra certificates are typically issued for long durations. Check that <code>rtc.date</code> and <code>rtc.time</code> are set correctly.</p> <p> For printers that do not have a battery to store the Real Time Clock (RTC) value, the date will be restored to the default value upon a power cycle. The default value depends upon how the <code>rtc.date</code> SGD is managed. If it has never been set then it will default to the firmware build date (the value in <code>app1.date</code>). Otherwise, the value in <code>rtc.date</code> will default to the value that it was last set to. This does not mean the value of the <code>rtc.date</code> when it was power cycled. It means that when a user sets <code>rtc.date</code> that becomes the new default value.</p> <p>If the printer has a battery, then the <code>rtc.date</code> is never default and continues to track the date as expected.</p>

Error	Cause / Solution
"SSL certificate problem: certificate is not yet valid"	<p>This error indicates that the remote server's certificate was incorrectly issued or that the printer's date and/or time are incorrect. Check that the printer's date and time (rtc.date and rtc.time) are set correctly and that the certificate's start and expiration date are valid.</p> <p> For printers that do not have a battery to store the Real Time Clock (RTC) value, the date will be restored to the default value upon a power cycle. The default value depends upon how the rtc.date SGD is managed. If it has never been set then it will default to the firmware build date (the value in appl.date). Otherwise, the value in rtc.date will default to the value that it was last set to. This does not mean the value of the rtc.date when it was power cycled. It means that when a user sets rtc.date that becomes the new default value.</p> <p>If the printer has a battery then the rtc.date is never default and continues to track the date as expected.</p>
"subjectAltName does not match 1.2.3.4"	<p>Part of the certificate validation process involves making sure that the remote server is who it claims to be. A certificate can be created to validate against several aliases/DNS names. Typically the certificate will not contain the IP address of the server as IP addresses are subject to change. When specifying the remote server's URL via weblink.ip.conn1.location be sure to specify one of the DNS aliases listed in the certificate. The valid names will be listed either under the Common Name (CN) field and/or the subjectAltName (SAN or Subject Alternate Name) field within the certificate. For example, the certificate may have the CN set to 'examplecorpinc' and the SAN set to 'examplecorpinc.com' or 'alias.for.examplecorpinc.com'. Any of the CN or SAN names can be used, but, as the IP address is not listed in the CN or SAN it cannot. It is not recommended that the IP address be part of the SAN if a DNS name is available to avoid connection issues that may arise due to subnet change or DHCP lease expirations, etc.</p>
"SSL certificate subject name 'examplecorpinc.com' does not match target host name '1.2.3.4'"	
"Unknown SSL protocol error in connection to ..."	<p>When this message is seen it means that the remote server's SSL/TLS configuration is incorrect. Refer to Troubleshooting Sequence on page 39 to ensure the server and printer are both configured correctly.</p>
I do not see any of these errors, but the printer still does not connect.	<p>Refer to Troubleshooting Sequence on page 39 to ensure the server and printer are both configured correctly.</p>

Other Typical Errors

While SSL/TLS connection errors are the most common, there are issues that can arise that prevent a successful connection. This section highlights the most common issues.

Error	Cause / Solution
<p>"Read failed with an unexpected error"</p>	<p>This message typically indicates that connection to the remote server was lost. The connection can either be lost due to the server powering off or resetting, the firewall or proxy server shutting down the connection, or because the remote server gracefully requests that the connection be discontinued.</p> <p> After 60 seconds of inactivity on the connection the printer will attempt to contact the server via a TCP Keepalive. If the connection is still present the server will respond and the connection will remain open. After 10 successive failed attempts to contact the remote the printer will assume the connection is severed and close the connection. The printer will resume it's attempt to connect to the remote server so that when the server comes back online the printer will re-establish communication.</p>
<p>"Failed to connect (SP = #, CI = #, UW = #, AC = #, PC = #)"</p>	<p>If this error is seen one or more of the '#' values will be set to 0. This is an indication of an incorrect configuration of the remote server. Ensure that the remote server is setup according to the Servlet configuration in the Zebra Link-OS SDK documentation.</p> <p>This typically indicates an incorrect version of the remote Application Server (for example, Apache/Tomcat version may be incorrect). If this issue persists contact Zebra Technical Support.</p>

Troubleshooting Sequence

Whenever troubleshooting a connection issue, the following questions should be answered to ensure the configuration is correct.

1. Is the printer connected correctly via Wireless or Ethernet?
2. Does the printer have a valid IP address?
3. Can I ping the printer's IP address from a device on the same network as the printer?
4. Is the remote server URL in `weblink.ip.conn1.location` correct and does it point to the remote server that is configured for weblink functionality?
5. Can you connect to the location defined in the `weblink.ip.conn1.location` setting via a browser?
6. Is the remote server I am attempting to connect to outside the corporate firewall?
7. Can the URL specified in `weblink.ip.conn1.test.location` be accessed?
If this is the case, talk with your administrator about altering restrictions for accessing HTTPS connections.
8. Does the firewall require a username and password to access the remote server?
9. Do I require a proxy server to access the remote server?
10. Is the proxy server port the default (1080) or another port (for example, 3128 for the Linux Squid proxy)?



NOTE: If using the Linux Proxy Server Squid, and you are having trouble connecting, note that it may be configured to:

- i. disallow POST messages
- ii. only operate in HTTP/1.0 mode 3
- iii. disallow SSL connections.

Refer to your Linux Squid documentation for complete details.

1. Does the firewall permit HTTPS connections initially or do I need to connect via HTTP first?
2. Is the remote server configured to use SSL v3.0 or TLS 1.0?
TLS1.0 is recommended, but SSL v3.0 is also supported. Versions prior to SSL v3.0 and later than TLS v1.0 are not currently supported.
3. Are the Zebra Certificate Authority Certificates correctly installed on the remote server?
4. Was the server's certificate issued by Zebra and is it signed by the Zebra Certificate Authority?
5. Has the server's certificate expired?
6. Is the printer's date and time within the issue and expired period of the server's certificate?
7. Does the value in `weblink.ip.conn1.location` match either the Common Name or one of the names listed in the Subject Alternate Name of the remote server's certificate?
8. Is the proxy server configured correctly and does the respective proxy server allow HTTPS connections via the HTTP CONNECT method?
9. Are there any HTTP authentication attempts when trying to connect that fail?
10. Are there any HTTP/1.1 4xx messages in the log?

If your connection issues persist and the solutions in this document do not help, contact Zebra Tech Support and provide the output of the following SGD command. Ensure that logging is enabled and that the error(s) appear within the entries)

```
! U1 getvar "weblink"
```

HTTP Messages

Message	Cause / Solution
HTTP/1.1 100 Continue	This indicates that the server and printer have begun communicating and is often seen in place of HTTP/1.1 200 OK .
HTTP/1.1 101 Switching Protocols	This indicates that the basic connection to the server worked and the protocol is being switched to a more efficient protocol for data transfer.
HTTP/1.1 200 OK	This indicates that an HTTP GET or HTTP POST was successful.
HTTP/1.1 30x Moved/Redirect/etc	This indicates that the URL specified has moved or that the firewall redirected the printer to another location (typically this is done to authenticate a user in a transparent proxy configuration).
HTTP/1.1 401 Unauthorized	This indicates that the printer either needs to authenticate with the server or failed to authenticate with the remote server (or server/router along the route to the server).
HTTP/1.1 403 Forbidden	This typically means that the authentication was provided and valid; however, the user does not have access to the requested resource.
HTTP/1.1 404 Not Found	This indicates that the remote URL provided points to an invalid location on the server. This does indicate, however, that the server name is valid. Just the path after the domain name is invalid.

