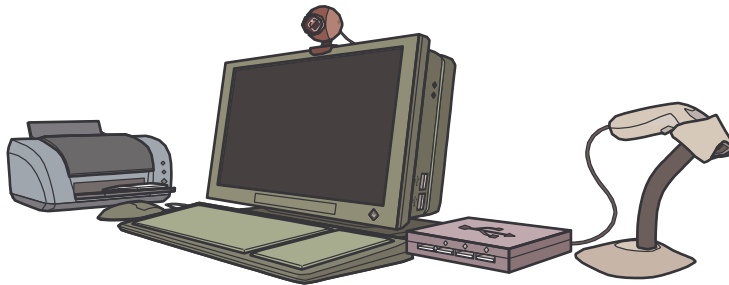




Photo ID Platinum Software

Technical Overview



INTRODUCTION

The Avery® Photo ID Platinum Software represents the next generation of visitor-management software. Built from the ground up using the latest technologies, it is robust, scalable and easy to use. The system has the following features:

- High-quality color badges capable of displaying a visitor photograph.
- Secure Stand-alone and Multi-station, or attendant operation modes.
- Daily Logbook and customizable reporting in addition to custom search capability.
- Highly customizable badge creation, with the ability to import organization logos and visitor's photographs.
- Barcode scanning for fast visitor sign-in and sign-out.
- Pre-print and pre-enrollment functionality for badges required in large groups or events.
- ATM Style Localization providing flexibility to change language of the application at run time.
- Reading visitor information from business cards or driving license using card reader.
- Emergency functionality that generates an e-mail to a designated recipients list of all current visitors (have signed in but have not signed out) from a centralized digital log and prepares the report for printing.
- A host of additional customization options.

In light of the increased needs emerging today for the identification and tracking of visitors, many organizations are searching for better visitor management tools for their front lobby reception areas, conferences, events, conventions, schools and other locations. While other solutions exist, none have the right combination of features and affordable price point that would lead to widespread adoption. With that in mind, the designers and developers of the Avery® Photo ID System concentrated on ease of use, speed, and accuracy. The close integration of off-the-shelf webcam technologies enables improved identification with an instant color visitor photo. At the same time, by using standard USB-based web cameras, inkjet printers, and the latest versions of the Windows® operating system, a complete photo ID badging station costs little more than a standard desktop workstation.

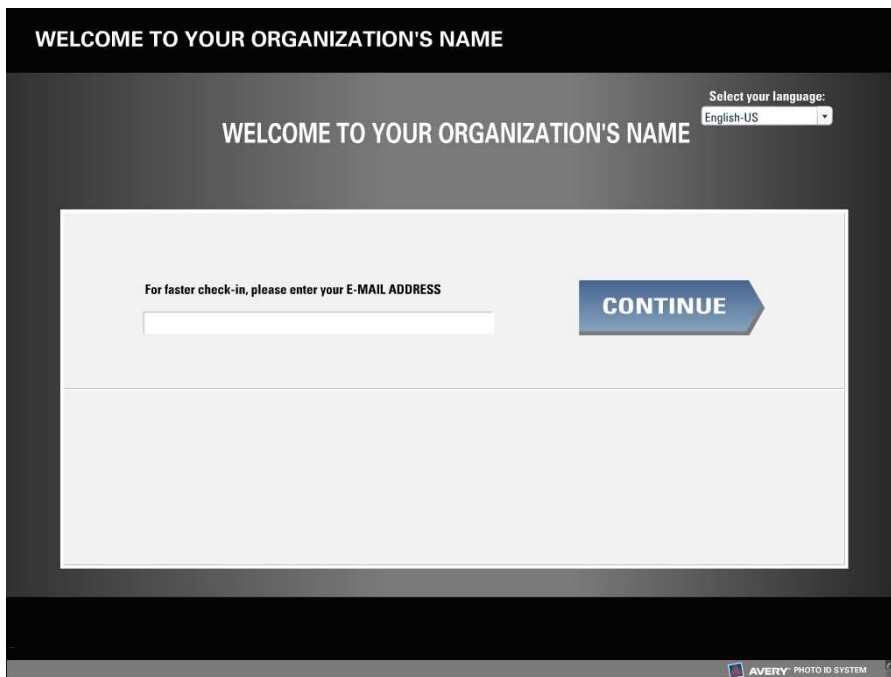
USABILITY & EXPERIENCE

Speed and ease of use are critical to the success and adoption of the Avery® Photo ID System. Mindful of both requirements, Avery Dennison designers and developers studied the process by which visitors register themselves at a variety of organizations around the country. Human Factors Engineers from leading industrial-design firms took these findings and systematically created an intuitive, professional and patent-pending user interface that is optimized for speed, ease of use and accuracy.

Sample Workflow

The easy and intuitive workflow of a first-time visitor is shown below.

1. Straightforward call to action invites the user to begin. A returning visitor can enter their email address to quickly call up their information and photograph.



The screenshot shows a user interface for the Avery Photo ID System. At the top, a dark grey header contains the text "WELCOME TO YOUR ORGANIZATION'S NAME" in white. Below this, a lighter grey area features a language selection dropdown menu labeled "Select your language:" with "English-US" selected. The main content area is a white rounded rectangle with a dark grey border. It contains the text "WELCOME TO YOUR ORGANIZATION'S NAME" at the top. Below this, a prompt reads "For faster check-in, please enter your E-MAIL ADDRESS" above a white text input field. To the right of the input field is a blue arrow-shaped button labeled "CONTINUE". At the bottom right of the white area, there is a small logo for "AVERY PHOTO ID SYSTEM".

2. The visitor is shown that this is the first step of a three-step process. The visitor is asked to enter their personal information and other data designated by the administrator, such as "Host."

The screenshot shows a software interface titled "WELCOME TO YOUR ORGANIZATION'S NAME". At the top, a progress bar indicates "STEP 1" is active, with "STEP 2" and "STEP 3" following. The main area is split into two columns: "ENTER YOUR INFORMATION" and "BADGE PREVIEW".

ENTER YOUR INFORMATION

First Name:
Last Name:
Title:
Host:
Email:

BADGE PREVIEW

YOUR ORGANIZATION'S NAME
VISITOR
Back of badge message.
EXPIRES
Dec 15, 2004
FIRST NAME
LAST NAME
TITLE
HOST: HOST

Buttons: CANCEL, TAKE PHOTO, PRINT BADGE

AVERY PHOTO ID SYSTEM

3. On click of "TAKE PHOTO" button Step 2 screen displayed. At this point, the screen stops displaying the visitor's image.

The screenshot shows the same software interface, but now "STEP 2" is active in the progress bar. The "ENTER YOUR INFORMATION" column has been replaced by "TAKE YOUR PHOTOGRAPH".

TAKE YOUR PHOTOGRAPH

Center your face in the window on the right.
When you are properly aligned,
click on the TAKE PHOTO button below.

When you are properly aligned,
click on the TAKE PHOTO button below.

TAKE PHOTO
(3 Second Countdown)

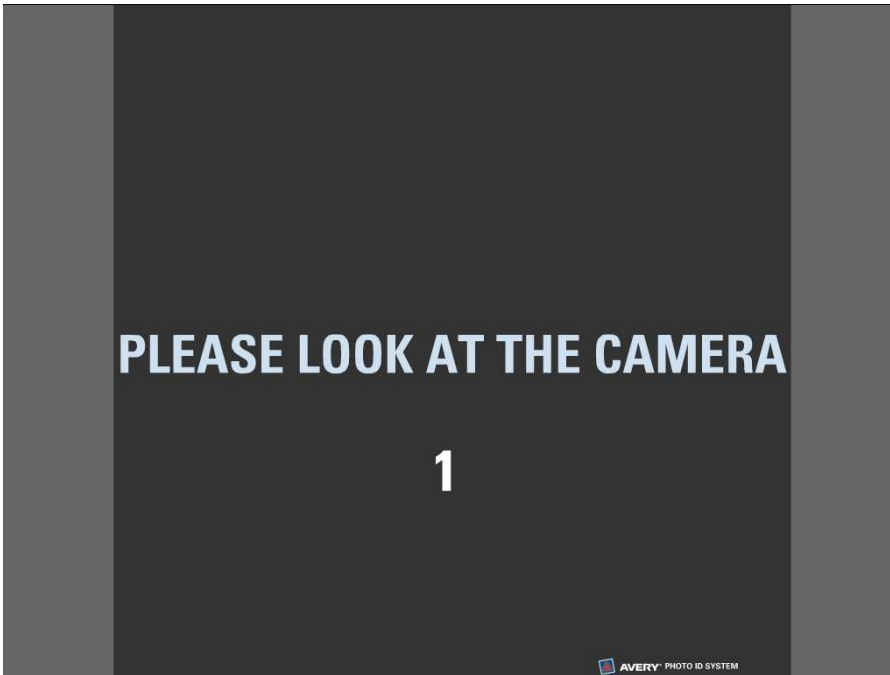
BADGE PREVIEW

YOUR ORGANIZATION'S NAME
VISITOR
Back of badge message.
EXPIRES
Dec 15, 2004
FIRST NAME
LAST NAME
TITLE
HOST: HOST

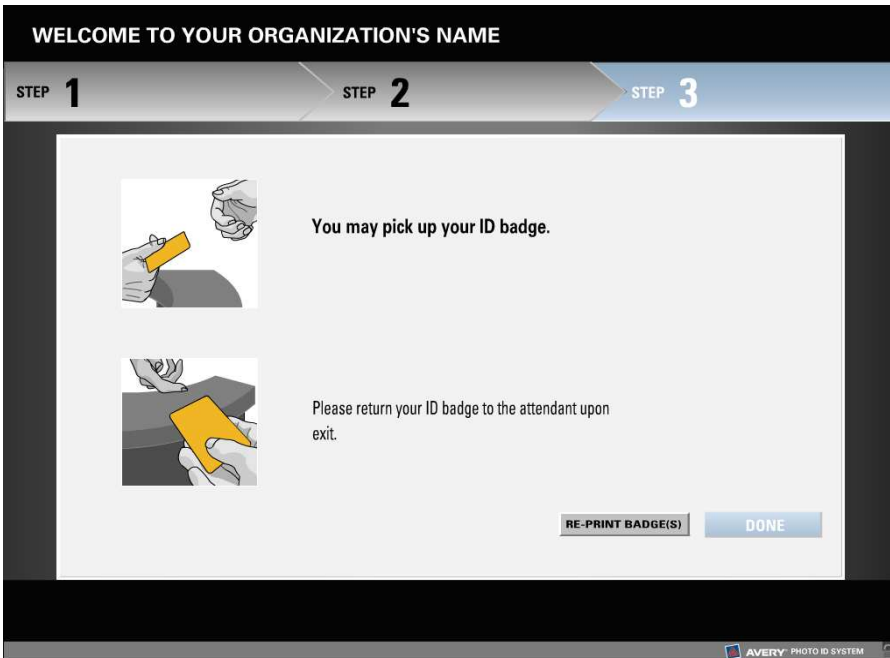
Buttons: CANCEL

AVERY PHOTO ID SYSTEM

4. On click of "TAKE PHOTO" button Step 2 screen displayed. The visitor is prompted to look at the camera to take their picture.



5. The visitor's badge is printed automatically. Customizable instructions indicating how to return the badge are displayed. The process is complete.



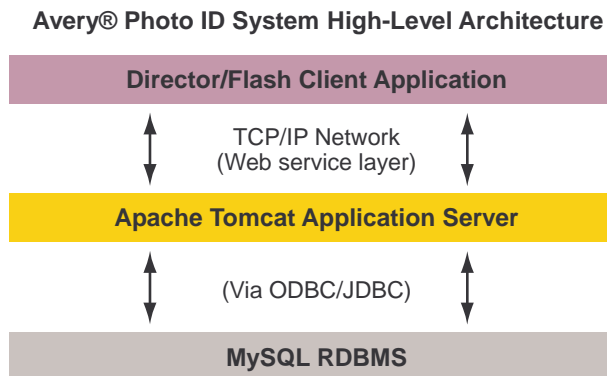
This simple and well thought-out workflow has been tested extensively for ease of use. As a result, end users have found the system very intuitive and quick to use. Avery Dennison usability testing has shown that the time taken by a returning visitor using the system is comparable to that of traditional manual logbook systems.

ARCHITECTURE

The Avery® Photo ID System is designed to be scalable and robust. Leveraging industry standard n-tier architecture, logical components of the system can be spread across multiple servers or run independently

On a stand-alone system, ensuring maximum performance and flexibility. As a result, if system demand increases, additional stations can be added easily.

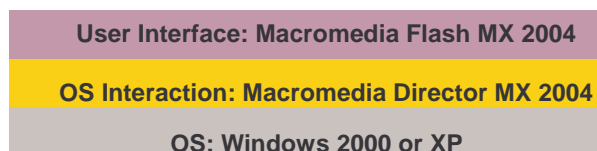
The Photo ID System client uses a combination of Macromedia® Director 2004 (Version) and Flash technologies to provide a fast, compelling desktop application that is feature-rich, highly usable, easily extensible and extremely stable. Apache Tomcat, a Java-based application server, and MySQL® database, a widely deployed relational database, are among the server-side technologies used in this application.



Client-Side Technologies

Macromedia® technologies Flash MX 2004 and Director® MX 2004 power the client side of the Avery® Photo ID System. They were chosen for their advantages in creating rich user experiences, portability, and development speed. The combination provides a user experience better than any competing product, while providing a stable operational base.

Client-Side Architecture



Macromedia Flash® MX 2004

Flash MX 2004, used in over 500 million computers worldwide, is the user-interface base of the Avery® Photo ID System. Using vector-based technology, the player provides a fast, portable foundation for creating user-interface elements. Leveraging a component model ensures reliable, consistent user interfaces, with features users expect such as tabbing and cut-and-paste functionality.

Originally designed to be Web-deployed, the technology has inherent network support and was designed to run across a wide variety of systems and devices. The international nature of the Web dictated implementation of rich Unicode¹ support that allows full localization. In addition, Flash MX 2004 is extended with an object-oriented programming language known as ActionScript² based on the ECMAScript specification and includes native support for XML. The client communicates with the server using a SOAP web services layer (Messaging and SOAP will be discussed in greater detail below). The combination of these features allows for a rich experience built on a solid foundation.

Macromedia® Director® MX 2004

While Flash MX 2004 provides the user-interface technology, Director MX 2004 provides the glue that binds the user interface to the operating system. Designed to be secure and highly portable,

Flash MX 2004 has limited access to the underlying operating system. With Director MX 2004, the client has full access to the underlying OS and any operating-system functionality that could not be accessed using a Web-based application. For example, by using Director MX 2004, the Avery® Photo ID System can completely lock out a visitor in stand-alone station mode. This prevents the visitor from terminating the application or launching other programs. This is a critical feature for unattended stations.

Additionally, the application can suppress otherwise normal operating-system-level activities, such as the display of print dialog boxes. By removing this step, the sign-in process is faster and the user experience is much improved. Finally, application extensions such as device integration are straightforward, using Director MX 2004's inherent ability to support native code. Expect to see additional input devices in future versions of the Avery® Photo ID System.

1 To learn more about Unicode, please visit:

<http://www.unicode.org/standard/WhatIsUnicode.html>

2 You can find more information about ActionScript at Macromedia's Website:

http://www.macromedia.com/support/flash/action_scripts.html

Server-Side Technologies

The goal of providing a robust, scalable solution for the Avery® Photo ID System is accomplished by using industry-standard technologies, including a Java-based application server and a field-proven, high capacity relational database. Both technologies benefit from at least a decade of development and are deployed across hundreds of thousands of operational, mission critical, servers.

Application Server Layer: Apache Tomcat

All server-side logic for the Avery® Photo ID System resides within the Apache Tomcat application server. Based on Java, Open Source Tomcat is the reference Servlet container for Sun Microsystems, author of Java. The choice of a Java-based engine provides the Photo ID System with a mature object-oriented language foundation with inherent support for standards such as XML and full Unicode compliance. Furthermore, the entire system is inherently portable beyond the original Windows® platform and has been successfully tested on the Linux platform.

A number of other Open Source libraries used in the Avery® Photo ID System include: Apache Xerces 2, a high-performance XML parser; Apache Axis, a Web Services engine used to handle messaging between the client and the server; Jakarta Log4j, a standard logging library for handling server logging; and JSTL, the Standard Tag Library for Java that provides rapid JSP development for use in the Photo ID System Reporting functionality. This combination of platform and libraries³ provides for more reliable code and ensures that standards are adhered to. The use of Apache Tomcat as a base enables the Photo ID System to be fast and reliable.

Database Layer: MySQL® Pro

MySQL Pro provides the data store for the Avery® Photo ID System. MySQL Pro is the most popular Open Source database available, deployed worldwide across dozens of platforms. Fully SQL-compliant, the database is accessed by the Photo ID System via JDBC; however, direct ODBC access is available as well. Known as a high-volume database, the only limitation on storing hundreds of thousands of badge records is disk space. MySQL Pro is a fast, field-proven database server that ensures visitor data will be easy to access and reliable. Additionally, the Avery® Photo ID System ships with shell scripts that can be scheduled to run back-up, restore and data archiving processes. The scripts implement simple back-up methods that can be run while the system is in operation. The backups store database and photo data on the local file system, which allows the files to be fully backed up easily via whatever offline backup software is in use. Because the scripts are simple Windows® batch files, they can easily be extended to meet your organization's needs.

Network Technologies

The system uses TCP/IP as the fundamental network substrate for connectivity. Nearly ubiquitous, TCP/IP is the common language of the Internet and widely supported by all major software and hardware vendors. By leveraging the TCP/IP network stack even in standalone use on a single system, complexity is significantly reduced, ultimately providing a much more reliable application.

³ Information about Apache Tomcat and libraries described here can be found at: <http://jakarta.apache.org/>

The primary messaging mechanism used to communicate over TCP/IP is the Web Services-based protocol SOAP, the Simple Object Access Protocol⁴.

SOAP

An XML-based protocol, SOAP provides Web Service access to the Avery® Photo ID System. The system communicates using defined messages and by implementing Web Services; its complete operation is exposed via a set of secure services.

The server implementation is via Apache Axis 1.0, an open-source implementation of the SOAP 1.1 protocol. The services consist of standard Java classes. Public methods represent the operations that the service can perform.

These services are configured in the Axis deployment descriptor, an XML-based file installed with the server components of the Photo ID System. This file maps a service name to a Java class. It also indicates which methods should be exposed to clients, as well as which "request handlers" are attached to the service.

⁴ For more information about SOAP, please see the W3C's abstract:
<http://www.w3.org/TR/SOAP/>

SECURITY

All parts of the system, whether running in standalone mode or with multiple stations over a network, require identification and authentication. Both end users and automated processes require identification and authentication before access to the Avery® Photo ID Server is provided.

User/Role-level Authentication

For an end user to access the Avery® Photo ID System, they must provide a pre-defined username and password. Stations set up to run in standalone Visitor mode must be properly logged in prior to switching modes. This provides accountability and helps to prevent badges from being created unless authorized by an administrator or attendant.

Users and roles are stored in separate tables within the database, with a joining table allowing the association of a given user with a given role. This provides broad flexibility in defining which functionality is accessible by which type of user.

The Avery® Photo ID System allows for two user roles to be defined: attendant and administrator. The attendant has two type of access rights Full and Read-only. The attendant with full access can set the system in standalone Visitor mode, Sign-In Visitors, Pre-enroll and pre-print badges, scan users in and out, and generate reports while attendant with read-only access can set the system in standalone Visitor mode, scan users in and out, and generate reports. The administrator has complete access to the entire system and, in addition to the previously mentioned features, is capable of making global changes, like creating new badge designs, changing the organization's name and/or logo, and configuring default messaging.

After a user logs in, the client reads the user's role to determine which portions of the user interface should be available. For example, attendants are not given the option to go into the administrator-only screens. The system can support as many users as an organization needs, either as attendants or administrators.

Session Authentication

Authentication is managed using sessions. Once a user is logged in, their credentials are stored in a standard HTTP session. The client logs in to the server using a publicly available service: LoginService. All other services have an authorization class attached to them as an Axis "request handler." This class prevents unauthorized access to these services. Each request to a protected service is routed through this access-control handler. The handler uses a special database role table to determine if the current user is acting in a role that has permission to execute the requested method on the requested Web Service. This provides another layer of security for the system.

SOAP Authentication

As most messaging between the clients and server are SOAP requests, all requests have an authentication mechanism.

A sample of the authentication header follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<soapenv:Body>
<ns1:login soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="urn:LoginService">
<arg0 xsi:type="xsd:string">admin</arg0>
<arg1 xsi:type="xsd:string">0192023a7bbd73250516f069df18b500</arg1>
</ns1:login>
</soapenv:Body>
</soapenv:Envelope>
```

The username “admin” and the encrypted password immediately following are clearly shown. More details about how SOAP Authentication works are described below under “Session Authentication.”

The few non-application network events in the Photo ID System, such as image file display and exported reports, are also protected. This is done using the FileSecurityFilter class, which is a standard Java Servlet filter. This class ensures that the user is logged in, and in the correct role for retrieving the given file type.

DEPLOYMENT MODELS

Flexible deployment is a critical goal of the Avery® Photo ID System, but the process must remain easy. Avery Dennison recognizes that no two organizations are the same, and so the system is designed to allow a simple “standard” installation while remaining highly customizable, allowing various components to be installed as needed. Examples of some of the most common deployment methods follow.

Sample Station Hardware

At its simplest, the Avery® Photo ID System can be deployed on a standard PC with the following requirements:

Minimum Hardware Requirements	
CPU	Intel® Pentium® III 933Mhz
RAM	512 MB
HD	350 MB
OS	Windows® 2000, Windows XP® Home or Professional
Color Depth	24-bit
Video Resolution	1024x768
Video RAM	64 MB
External Ports	4 USB 1.0 or greater

Standalone System

The standalone deployment is the easiest option and is designed for single locations or sites that do not plan on networking their stations together. With this deployment, both client and server are installed on a single system, transparent to the user.

Web Camera

While the Avery® Photo ID System will work with most USB-based Web cameras, Webcams with at least 640x480 video-capture resolution, operating at 30 or more frames per second (FPS), will provide the best user experience and highest-quality badge output.

Printers

For top printing speed, USB-based printers should be used. Printers with print speeds of 10 pages per minute (ppm) or greater, and resolutions of 600x600 dots per inch (DPI) are recommended for optimal image quality and print speed. Additionally, printers with higher levels of built-in memory can handle a greater number of simultaneous print jobs. For even faster speeds, consider computers and printers that support USB 2.0.

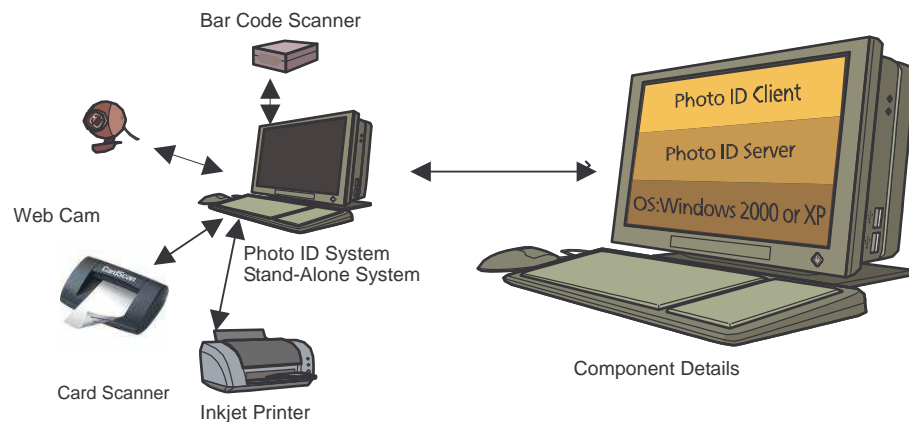
Barcode Scanners

While not required, the use of a barcode scanner reduces scan-out time significantly and will result in more accurate data than manual data entry. A USB-based barcode scanner capable of 44 scans per second (bi-directional) is recommended.

Card Readers

The use of the card reader significantly reduces the badge information entry time. It can read information like first name, last name, title, email, company name, from driving license and business cards. The system also scans photograph from driving license.

Stand-Alone System

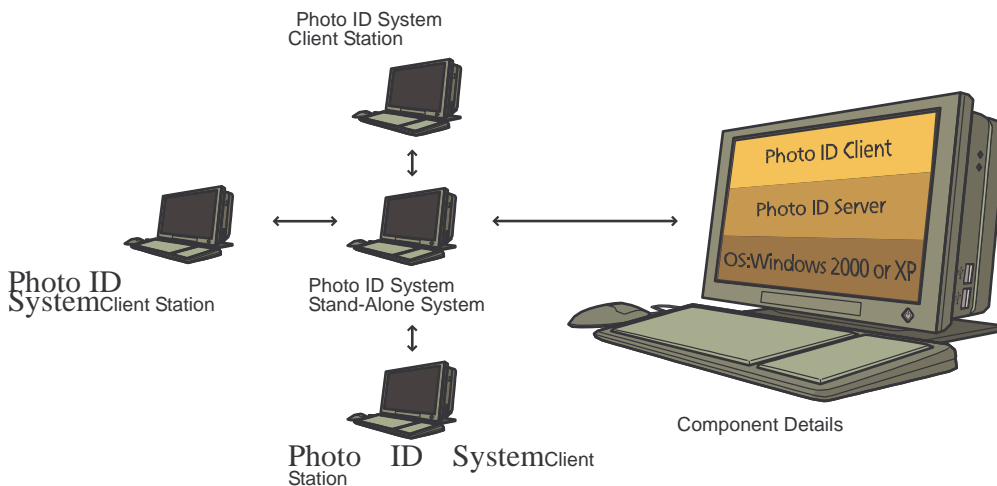


Multi-Station System

This deployment example is used in a larger company with multiple buildings or entrances. There must be at least one Attendant/Administrator or secure station where the server is installed. The process to setup such a deployment first involves installing a complete system, including client and server on a single PC. After launching the application for the first time, and entering an administrator name and password, additional client stations can be easily added to the system. Since this is the central data store for your visitor data, this PC should be secure, networked, and able to be backed up. Under this configuration, using this station as a server, all visitor log files are stored on this computer and should be backed up on a regular basis.

Installing additional stations that use the original PC as a server are simple custom installations, only requiring server name or IP address and the Photo ID System administrator name and password.

Multi-Station System

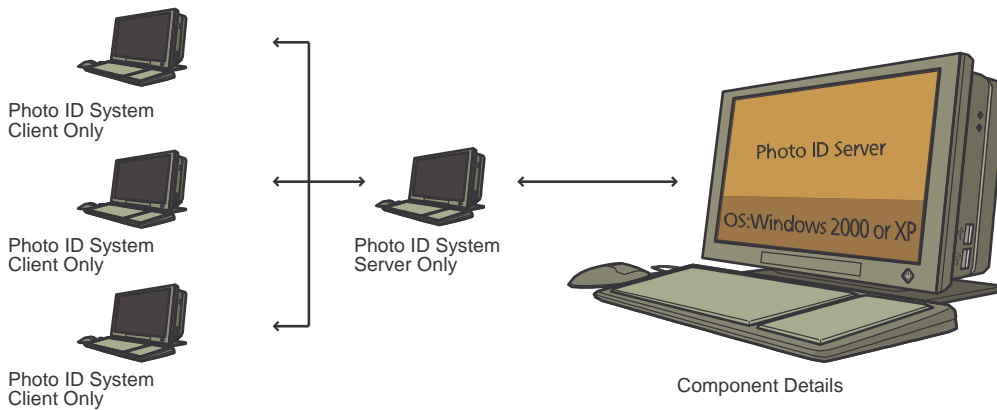


Data Center-based Multi-Station System

If the visitor data is mission-critical, consider following this deployment model for the Avery® Photo ID System. Like the previous example, several stations can still be installed as clients. The primary difference is separating the server from a station. The drawback of this approach is that a server is required. However, it is far more secure to allow the server to be deployed in a reliable data center away from regular end-user access.

To deploy using this model, the first step is the installation of only the server portion of the Photo ID System Software. After noting the DNS name or IP address of the server, any number of client stations can be installed. However, the first station to be launched will be prompted to create the administrator username and password that will be required for all subsequent client operations.

Multi-Station System



BADGE CUSTOMIZATION

In order to ensure that the ID badges meet an organization's requirements, the Avery® Photo ID System offers a number of different blank badge styles. In addition, the Photo ID System provides extensive flexibility and customization capabilities, including the ability to customize the badge design, content, color, and option of importing an organization's logo and visitor's photograph.

BADGE TYPES

Avery Dennison's product development efforts extended beyond software to the blank badges the IDs are printed on. The Avery® Photo ID System patented badges are designed to print on standard inkjet printers, thus producing high-quality, low-cost identification. These badges provide an attractive alternative to black-and-white thermal badges or high-cost dye-sublimation printed PCV cards.

For the Avery® Photo ID System, the following badge types are available:

2940: Avery® Self-Adhesive Photo ID Badge Labels

Visitor-badge size, inkjet, white, 2.25" x 3.5" label on 4" x 6" sheet, 100 badges per pack

2941: Avery® Self-Adhesive Photo ID Badge Labels

Visitor-badge size, inkjet, white, 2.25" x 3.5" label on 4" x 6" sheet, 500 badges per pack

2942: Avery® Photo ID Badge Inserts

Two-sided printing, business-card size, inkjet, white, 2.25" x 3.5" two-sided badge on 4" x 6" sheet, 100 badges per pack

2943: Avery® Photo ID Badge Inserts

Two-sided printing, business-card size, inkjet, white, 2.25" x 3.5" two-sided badge on 4" x 6" sheet, 500 badges per pack

2944: Avery® Photo ID Badge Inserts

Convention size, inkjet, white, 3" x 4" badge on 4" x 6" sheet, 100 badges per pack

2945: Avery® Photo ID Badge Inserts

Convention size, inkjet, white, 3" x 4" badge on 4" x 6" sheet, 500 badges per pack

2946: Avery® Laminated Photo ID Badges

Business-card size, self-adhesive clip, inkjet, white, 2.25" x 3.5" laminated badge on 4" x 6" sheet, 25 badges and clips per pack

2947 Avery® (Convention size)

Photo ID Fold & Clip Badges - 2-Sided, Landscape, 2.25" x 3.5"

2948 Avery® (Convention size)

Photo ID Fold & Clip Badges - 2-Sided, Landscape, 2.25" x 3.5"

2949 Avery® (Convention size)

Photo ID Fold & Clip Badges - 2-Sided, Landscape, 2-15/16" x 3-7/8"

2950 Avery® (Convention size)

Photo ID Fold & Clip Badges - 2-Sided, Landscape, 2-15/16" x 3-7/8"

2951 Avery® (Business card size)

Photo ID Laminated Badges, No Clip, 2.25" x 3.5"

2960 Avery® (Personal Label Printer)
Photo ID Self-Adhesive Badges for the Personal Label Printer- 1-Sided, 2-1/8"x3
1/2"

2961 Avery® (Personal Label Printer)
Photo ID Fold & Clip Badges for the Personal Label Printer - 2-Sided, Landscape,
3 1/2" x 2 1/8"

2962 Avery® (Personal Label Printer)
Photo ID Fold & Clip Badges for the Personal Label Printer - 2-Sided, Portrait,
3 1/2" x 2 1/8"

2991 Avery®
Labels for Access Control Cards, Landscape, 3 3/8" x 2 1/8"

2993 Avery®
Labels for Access Control Cards, Landscape, 3 3/8" x 2 1/8"

BADGE TEMPLATES

In order to facilitate adherence to an organization's image, the Avery® Photo ID System ships with over 150 pre-designed templates.

Template Customization

Badge-template customization options include:

- Organization Name and Logo – Different template types can display the organization's name in text and allow the company's logo to be imported. The system supports JPEG and SWF file formats. Progressive and CMYK-format JPEGs are converted into standard JPEGs, but are still importable. The Flash SWF format is the ideal format for logo display, since it supports transparency and is a vector-based format. This provides for the cleanest reproduction and scaling of an organization's logo. Additionally, all logos are scaled in a fixed-aspect ratio in order to prevent potential distortion with logos that do not share the same dimensions as the template.
- Badge Fields – All text fields on badges are auto-sizing. This ensures that text is never cut off, even with very long company names.
- Fonts – Each badge template can use one of four fonts: Franklin Gothic, Century, Cheltenham, or Garamond.
- Color Scheme – Badges can also support a variety of different color schemes. Badges can be color-differentiated either by visitor type, such as a visitor or contractor, or by the day of the week, where color is either fixed or rotates on a weekly basis. For each visitor type or day, color can be specified either through a palette of colors, or through an exact hexadecimal color representation. For example, red is defined as 0xFF0000.

⁵ For more information about hexadecimal color representations, see the W3C's definition: <http://www.w3.org/TR/2002/WD-css3-color-20020418/#numerical>

CONCLUSION

The Avery® Photo ID System is an easy-to-install, easy-to-use and easy-to-maintain visitor management solution designed to provide more professional and effective visitor management for front lobby reception areas, conferences, events, conventions, schools and other locations. For more information about the Avery® Photo ID System, please visit www.photoID.avery.com or call 1-800-73-AVERY (1-800-732-8379).

OTHER NOTES

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