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Epson Print Admin

Security White Paper

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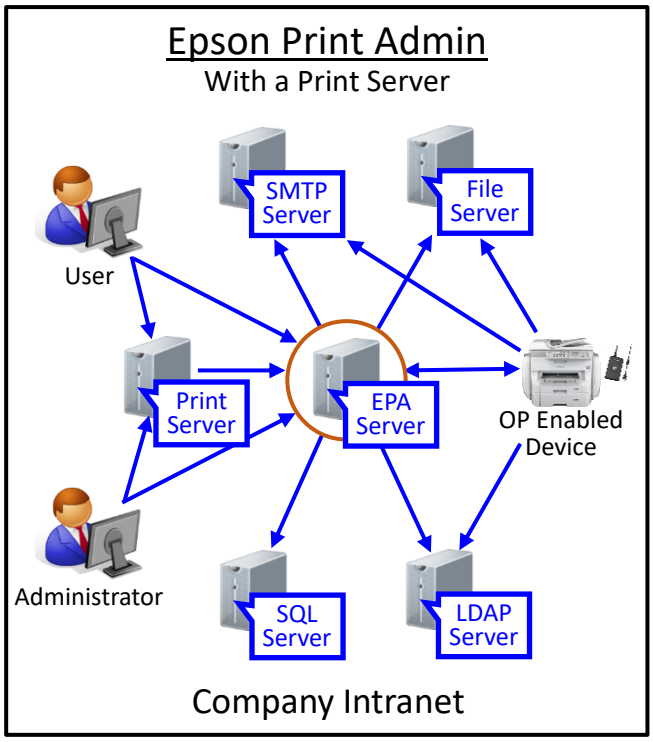
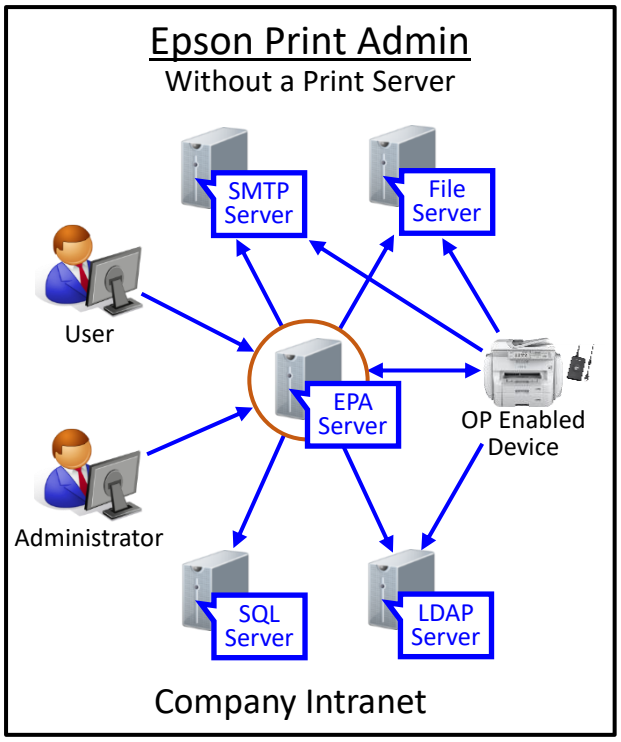
Epson Print Admin

Overview and Terminology

Epson Print Admin (EPA) is an authentication system that allows you to manage Open Platform (OP) enabled Epson devices, as well as support cost reduction and operational efficiency thereby ensuring security.
EPA works with or without a print server.

See the charts below for overviews of operations with or without a print server.





This document is intended to provide information about various aspects of security so that you can feel secure using EPA. The user is responsible for building and maintaining the optimum security environment to use EPA, while Epson's role is limited to providing information.

Administrator/User Pages

When you log in to the EPA server as an administrator or a user, the browser on the client computer displays Administrator pages or User pages respectively.

Network Protocols

The following tables provide the network protocols and ports used by EPA to display Administrator/User pages in a browser.

EPA Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80*1	IN	Displays Administrator/User pages in a browser.
HTTPS (TCP)	443*1*2	IN	Displays Administrator/User pages in a browser.

Client Computer

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80*1	OUT	Displays Administrator/User pages in a browser.
HTTPS (TCP)	443*1*2	OUT	Displays Administrator/User pages in a browser.

*1: This port number is set by default in “URL for Users” from “Basic Settings,” and can be changed.
If ports 80 and 443 are already in use, EPA changes to ports 10080 and 10443 for installation. In this case, allow access to ports 10080 and 10443 in the firewall settings.

*2: The port number when using encryption.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

HTTPS is a secure extension of HTTP. Whether HTTP or HTTPS is used depends on the EPA configuration.

See the SSL/TLS section in the Appendix for more information on HTTPS.

Printing

EPA provides various kinds of functions for printing. This chapter explains printing related functions as well, such as those for print jobs and print commands.

Network Protocols

The following tables provide the network protocols and ports used by EPA for printing functions.

EPA Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80[*1]	IN	Prints data. Receives print job information, print start commands, and print job delete commands.
HTTPS (TCP)	443[*1*2]	IN	Prints data. Receives print job information, print start commands, and print job delete commands.
LPR (TCP)	515	OUT	Prints data.

✓ The EPA server receives data from the client computer when a print server is not being used or from the print server when it is being used. The EPA server submits data to OP enabled devices.

Client Computer

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80[*1]	OUT	Prints data. Submits print job information, print start commands, and print job delete commands.
HTTPS (TCP)	443[*1*2]	OUT	Prints data. Submits print job information, print start commands, and print job delete commands.
LPR (TCP)	515	OUT	Prints data.

✓ The client computer submits data to the EPA server when a print server is not being used or to the print server when it is being used.

✓ When the printer is a large format printer, however, the client computer submits data directly to the printer.

Printing

Print Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80*1	OUT	Prints data. Submits print job information, print start commands, and print job delete commands.
HTTPS (TCP)	443*1*2	OUT	Prints data. Submits print job information, print start commands, and print job delete commands.
LPR (TCP)	515	OUT	Prints data.

- ✓ The above table applies when a print server is used.
- ✓ The print server submits data to the EPA server.
- ✓ Communication between the client computer and the print server depends on the Windows specifications.

Printer

Protocol	Port	IN/OUT	Description
LPR (TCP)	515	IN	Prints data.

- ✓ The printer receives data from the EPA server.
- ✓ When the printer is a large format printer, however, it receives data from the client computer.

*1: This port number is set by default in “URL for Users” from “Basic Settings,” and can be changed.
If ports 80 and 443 are already in use, EPA changes to ports 10080 and 10443 for installation. In this case, allow access to ports 10080 and 10443 in the firewall settings.

*2: The port number when using encryption.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

HTTPS is a secure extension of HTTP. Whether HTTP or HTTPS is used depends on the EPA configuration.

See the SSL/TLS section in the Appendix for more information on HTTPS.

Notifier

Network Protocols

The following tables provide the network protocols and ports used by EPA for Notifier functions.

EPA Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80*1	IN	Displays the balance in the Notifier. Returns inquiries regarding rule-based printing for the Notifier.
HTTPS (TCP)	443*1*2	IN	Displays the balance in the Notifier. Returns inquiries regarding rule-based printing for the Notifier.

Client Computer

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80*1	OUT	Displays the balance in the Notifier. Submits inquiries regarding rule-based printing for the Notifier.
HTTPS (TCP)	443*1*2	OUT	Displays the balance in the Notifier. Submits inquiries regarding rule-based printing for the Notifier.

*1: This port number is set by default in “URL for Users” from “Basic Settings,” and can be changed.
If ports 80 and 443 are already in use, EPA changes to ports 10080 and 10443 for installation. In this case, allow access to ports 10080 and 10443 in the firewall settings.

*2: The port number when using encryption.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

HTTPS is a secure extension of HTTP. Whether HTTP or HTTPS is used depends on the EPA configuration.

See the SSL/TLS section in the Appendix for more information on HTTPS.

Authentication

Network Protocols

The following tables provide the network protocols and ports used by EPA to log in to the printer.

EPA Server

Protocol	Port	IN/OUT	Description
HTTPS (TCP)	443	OUT	Authenticates users for the device.

Printer

Protocol	Port	IN/OUT	Description
HTTPS (TCP)	443	IN	Authenticates users for the device.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

EPA uses Open Platform's HTTPS API.

See the SSL/TLS section in the Appendix for more information on HTTPS.

Usage History and Usage Restrictions

Network Protocols

The following tables provide the network protocols and ports used by EPA to collect usage history and to set usage restrictions.

EPA Server

Protocol	Port	IN/OUT	Description
HTTPS (TCP)	443	OUT	Collects usage history from the device. Sets usage restrictions for the device.

Printer

Protocol	Port	IN/OUT	Description
HTTPS (TCP)	443	IN	Collects usage history from the device. Sets usage restrictions for the device.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

EPA uses Open Platform's HTTPS API.

See the SSL/TLS section in the Appendix for more information on HTTPS.

Device Discovery and Data Collection

Network Protocols

The following tables provide the network protocols and ports used by EPA to discover devices and to collect device data.

EPA Server

Protocol	Port	IN/OUT	Description
SNMP (UDP)	161	OUT	Discovers devices. Collects device data.

Printer

Protocol	Port	IN/OUT	Description
SNMP (UDP)	161	IN	Discovers devices. Collects device data.

See the Appendix for the complete list of network protocols and ports used by EPA.

Data Collected

EPA collects device data when it discovers devices and updates the information.
See the Appendix for more information about the device data collected by EPA.

Security

EPA collects device data only to discover devices and to update device information in EPA and stores the collected device data in its database.

Panel Menu

The OP enabled device sends a request to the EPA server to create and send back the menu data for its device panel. The OP enabled device updates its menu in the device panel based on the data sent from the EPA server.

Network Protocols

The following tables provide the network protocols and ports used by EPA to display the menus on the device panel.

EPA Server

Protocol	Port	IN/OUT	Description
HTTPS (TCP)	443*1	IN	Displays the menus on the device panel.

Printer

Protocol	Port	IN/OUT	Description
HTTPS (TCP)	443*1	OUT	Displays the menus on the device panel.

*1: This port number is set by default in “Device Panel URL” from “Basic Settings,” and can be changed.
If ports 80 and 443 are already in use, EPA changes to ports 10080 and 10443 for installation. In this case, allow access to ports 10080 and 10443 in the firewall settings.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

See the SSL/TLS section in the Appendix for more information on HTTPS.

Email

The EPA server uses email functions for user notifications.
The OP enabled devices use email functions to send scanned data.

Network Protocols

The following tables provide the network protocols and ports used by EPA to send email.

EPA Server

Protocol	Port	IN/OUT	Description
SMTP (TCP)	25*1	OUT	Sends email. STARTTLS and SSL/TLS encryption is available. Authenticates users using SMTP Auth.
POP (TCP)	110	OUT	Authenticates users using POP before SMTP.

Printer

Protocol	Port	IN/OUT	Description
SMTP (TCP)	25*1	OUT	Sends scanned data by email. STARTTLS and SSL/TLS encryption is available. Authenticates users using SMTP Auth.
POP (TCP)	110	OUT	Authenticates users using POP before SMTP.

*1: This port number is the default and can be changed. Port 587 is commonly used for STARTTLS, and port 465 is commonly used for SSL/TLS. Be sure to use the same port number that the SMTP Server uses.

See the Appendix for the complete list of network protocols and ports used by EPA.

Security

You can select the encryption method from No encryption, STARTTLS, and SMTP over SSL/TLS (SMTPs).
You can select ‘SMTP Auth’ and ‘POP before SMTP’ methods for the email server to only allow authenticated users to send emails.

See the SSL/TLS section in the Appendix for more information on STARTTLS and SSL/TLS.

File Transmission

EPA provides several functions for file transmission. This chapter explains all of the network protocols used for file transmission except for email, which is explained in the previous chapter.

Network Protocols

The following tables provide the network protocols and ports used by EPA to send files except by email.

EPA Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80	OUT	Creates a folder to store scanned data.
HTTPS (TCP)	443	OUT	Creates a folder to store scanned data.
FTP/FTPS (TCP)	20	OUT	Backs up the database and configuration file. Creates a folder to store scanned data.
FTP/FTPS (TCP)	21	OUT	Backs up the database and configuration file. Creates a folder to store scanned data.
SMB (TCP)	445	OUT	Backs up the database and configuration file. Creates a folder to store scanned data. Sends data for Scheduled Reports.
NetBIOS (UDP)	137	OUT	Converts the host name to an IP address.
NetBIOS (UDP)	138	OUT	Acquires a list of network computers.
NetBIOS (TCP)	139	OUT	Backs up the database and configuration file. Creates a folder to store scanned data. Sends data for Scheduled Reports.

File Transmission

Printer

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80	OUT	Sends scanned data. *1
HTTPS (TCP)	443	OUT	Sends scanned data. *1
FTP/FTPS (TCP)	20	OUT	Sends scanned data. *1
FTP/FTPS (TCP)	21	OUT	Sends scanned data. *1
SMB (TCP)	445	OUT	Sends scanned data. *1
NetBIOS (UDP)	137	OUT	Converts the host name to an IP address.
NetBIOS (UDP)	138	OUT	Acquires a list of network computers.
NetBIOS (TCP)	139	OUT	Sends scanned data. *1

*1: If you are using the printer's **Scan to Email** function, **Scan to My Email** (**Scan and Send to Me**), or **Scan Presets** to scan documents, the printer sends scanned data by accessing the destination server directly.

Security

HTTPS and FTPS are secure extensions of HTTP and FTP respectively.

See the SSL/TLS section in the Appendix for more information on HTTPS and FTPS.

LDAP

Network Protocols

The following tables provide the network protocols and ports used by EPA to retrieve user information from the LDAP server.

EPA Server

Protocol	Port	IN/OUT	Description
LDAP (TCP)	389*1	OUT	Retrieves the user information from the LDAP server. STARTTLS and SSL/TLS encryption is available.
Kerberos (TCP)	88	OUT	Authenticates users using Kerberos.

Printer

Protocol	Port	IN/OUT	Description
LDAP (TCP)	389*1	OUT	Retrieves the user information from the LDAP server. STARTTLS and SSL/TLS encryption is available.
Kerberos (TCP)	88	OUT	Authenticates users using Kerberos. *2

*1: This port number is the default and can be changed. The default port 389 is commonly used for STARTTLS, and port 636 is commonly used for SSL/TLS. Be sure to use the same port number that the LDAP Server uses.

*2: When using the printer's contacts and file transmission for scanned documents in **Scan Presets**.

Security

You can select the encryption method from No encryption, STARTTLS, and SSL/TLS.

You can select the authentication method from PLAIN, DIGEST-MD5, and Kerberos.

See the SSL/TLS section in the Appendix for more information on STARTTLS and SSL/TLS.

Database

Network Protocols

The following table provides the network protocols and ports used by EPA to access its own database.

EPA Server

Protocol	Port	IN/OUT	Description
SQL (TCP)	1433	OUT	Accesses the SQL server.
SQL (UDP)	1434	OUT	Accesses the SQL server.

Security

When the EPA server uses the SQL server on the same server, there is no incoming/outgoing communication.

Appendix

Data Collected

The following table provides the data collected from devices by EPA.

Category	Data Item
Device	Model
	Serial number
	MAC address
	Location
	Device type: color/mono and inkjet/laser
	Available media types and sizes for each paper feeder.
	Finisher functions
	Open platform version number
	Open platform activation key
	Network settings
Usage	Status

The type of device data in the table above that is collected by EPA depends on the model, accessories, and configuration.

Network Protocols and Ports

The following tables provide the complete list of network protocols and ports used in the EPA system.

EPA Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80[*1*8]	IN	Displays Administrator/User pages in a browser. Prints data. Receives print job information, print start commands, and print job delete commands. Displays the balance in the Notifier. Returns inquiries regarding rule-based printing for the Notifier.
HTTPS (TCP)	443[*1*3*8]	IN	Displays Administrator/User pages in a browser. Prints data. Receives print job information, print start commands, and print job delete commands. Displays the balance in the Notifier. Returns inquiries regarding rule-based printing for the Notifier.
LPR (TCP)	515	OUT	Prints data.
HTTP (TCP)	80	OUT	Creates a folder to store scanned data.
HTTPS (TCP)	443	OUT	Authenticates users for the device. Collects usage history from the device. Sets usage restrictions for the device. Creates a folder to store scanned data.
SNMP (UDP)	161	OUT	Discovers devices. Collects device data.
HTTPS (TCP)	443[*2*8]	IN	Displays the menus on the device panel.
SMTP (TCP)	25*[5]	OUT	Sends email. STARTTLS and SSL/TLS encryption is available. Authenticates users using SMTP Auth.
POP (TCP)	110	OUT	Authenticates users using POP before SMTP.
FTP/FTPS (TCP)	20	OUT	Backs up the database and configuration file. Creates a folder to store scanned data.
FTP/FTPS (TCP)	21	OUT	Backs up the database and configuration file. Creates a folder to store scanned data.

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Appendix

EPA Server (Continued)

Protocol	Port	IN/OUT	Description
SMB (TCP)	445	OUT	Backs up the database and configuration file. Creates a folder to store scanned data. Sends data for Scheduled Reports.
NetBIOS (UDP)	137	OUT	Converts the host name to an IP address.
NetBIOS (UDP)	138	OUT	Acquires a list of network computers.
NetBIOS (TCP)	139	OUT	Backs up the database and configuration file. Creates a folder to store scanned data. Sends data for Scheduled Reports.
LDAP (TCP)	389*4	OUT	Retrieves the user information from the LDAP server. STARTTLS and SSL/TLS encryption is available.
Kerberos (TCP)	88	OUT	Authenticates users using Kerberos.
SQL (TCP)	1433	OUT	Accesses the SQL server.
SQL (UDP)	1434	OUT	Accesses the SQL server.

Client Computer

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80*1*8	OUT	Displays Administrator/User pages in a browser. Prints data. Submits print job information, print start commands, and print job delete commands. Displays the balance in the Notifier. Submits inquiries regarding rule-based printing for the Notifier.
HTTPS (TCP)	443*1*3*8	OUT	Displays Administrator/User pages in a browser. Prints data. Submits print job information, print start commands, and print job delete commands. Displays the balance in the Notifier. Submits inquiries regarding rule-based printing for the Notifier.
LPR (TCP)	515	OUT	Prints data.

Appendix

Print Server

Protocol	Port	IN/OUT	Description
HTTP (TCP)	80[*1*8]	OUT	Prints data. Submits print job information, print start commands, and print job delete commands.
HTTPS (TCP)	443[*1*3*8]	OUT	Prints data. Submits print job information, print start commands, and print job delete commands.
LPR (TCP)	515	OUT	Prints data.

Printer

Protocol	Port	IN/OUT	Description
LPR (TCP)	515	IN	Prints data.
HTTPS (TCP)	443	IN	Authenticates users for the device. Collects usage history from the device. Sets usage restrictions for the device.
SNMP (UDP)	161	IN	Discovers devices. Collects device data.
HTTPS (TCP)	443[*2*8]	OUT	Displays the menus on the device panel.
SMTP (TCP)	25[*5]	OUT	Sends scanned data by email. STARTTLS and SSL/TLS encryption is available. Authenticates users using SMTP Auth.
POP (TCP)	110	OUT	Authenticates users using POP before SMTP.
HTTP (TCP)	80	OUT	Sends scanned data. [*6]
HTTPS (TCP)	443	OUT	Sends scanned data. [*6]
FTP/FTPS (TCP)	20	OUT	Sends scanned data. [*6]
FTP/FTPS (TCP)	21	OUT	Sends scanned data. [*6]
SMB (TCP)	445	OUT	Sends scanned data. [*6]
NetBIOS (UDP)	137	OUT	Converts the host name to an IP address.
NetBIOS (UDP)	138	OUT	Acquires a list of network computers.
NetBIOS (TCP)	139	OUT	Sends scanned data. [*6]
LDAP (TCP)	389[*4]	OUT	Retrieves the user information from the LDAP server. STARTTLS and SSL/TLS encryption is available.
Kerberos (TCP)	88	OUT	Authenticates users using Kerberos. [*7]

Appendix

*1: This port number is set by default in “URL for Users” from “Basic Settings,” and can be changed.
*2: This port number is set by default in “Device Panel URL” from “Basic Settings,” and can be changed.
*3: The port number when using encryption.
*4: This port number is the default and can be changed. The default port 389 is commonly used for STARTTLS, and port 636 is commonly used for SSL/TLS. Be sure to use the same port number that the LDAP Server uses.
*5: This port number is the default and can be changed. Port 587 is commonly used for STARTTLS, and port 465 is commonly used for SSL/TLS. Be sure to use the same port number that the SMTP Server uses.
*6: If you are using the printer’s **Scan to Email** function, **Scan to My Email** (**Scan and Send to Me**), or **Scan Presets** to scan documents, the printer sends scanned data by accessing the destination server directly.
*7: When using the printer’s contacts and file transmission for scanned documents in **Scan Presets**.
*8: If ports 80 and 443 are already in use, EPA changes to ports 10080 and 10443 for installation. In this case, allow access to ports 10080 and 10443 in the firewall settings.

SSL/TLS

HTTPS and FTPS are the secure versions of HTTP (Hypertext Transfer Protocol) and FTP (File Transfer Protocol) respectively. The ‘S’ at the end of HTTPS and FTPS stands for ‘Secure’. HTTPS is often used for online banking or shopping to protect confidential information. HTTPS and FTPS use a Secure Socket Layer (SSL) also known as Transport Layer Security (TLS). SSL/TLS is the standard security technology for establishing an encrypted link between a client and a server.

The EPA server and the printer have the following two options to use SSL/TLS for Email and LDAP:

- STARTTLS
  The EPA server or the printer performs an unencrypted check to see if the email or LDAP server supports STARTTLS.
  If it is supported, all subsequent communication is encrypted with SSL/TLS.
  If it is not supported, communication will not be encrypted.
- SSL/TLS
  When the email or LDAP server supports SSL/TLS, all communication is encrypted with SSL/TLS.
  If it does not, no communication is made.

EPA supports up to TLS 1.2.

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